Feasibility Study on Options for Long Distance Bulk Transportation of Horticulture Produce

Mid Term Report

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Preface...

Backdrop and Assignment Profile

1.1 Backdrop

In the recent past, horticulture sector has recorded one of the fastest growths among the sectors within agriculture stream. It has consequently contributed to poverty alleviation, nutritional security and additional income source. Additionally, it has also helped in sustaining large number of agro-based industries that generate huge employment opportunities. The horticulture presently contributes 28 percent of agricultural GDP and is recognized as a potential sunrise sector for growth and a major avenue for foreign exchange earnings.

Notwithstanding the above, Indian horticulture sector still lags behind significantly in the growth rates from some of the developed countries despite its rich topography and agro climate. Poor transport infrastructure, inadequate storage facilities, and a fragmented supply chain are often cited as some major constraints restraining the quantum growth of the horticulture sector in India. Poor logistics lead to delays and wastage and has a weakening effect on the farmers' moral to produce more and improve quality. India's transportation costs are 20-30 per cent higher than comparable countries and its marketing chain does not enjoy economies of scale. Many of these deficiencies are due to restrictions on domestic and foreign competition. Fundamental weaknesses in infrastructure can be remedied by creating the environment for private investment and undertaking the necessary public investment.

However, to arrest the glaring deficiencies and promote holistic growth of horticulture environment, National Horticulture Board (NHB) was constituted as an empowered agency under Ministry of Agriculture with the envisioned responsibility of triggering growth and facilitating development of the sector. The stated mandate of NHB interalia includes the following:

- Encouraging development of commercial horticulture through development farms;
- Developing post-harvest management infrastructure;
- Strengthening market information systems and maintaining horticultural database;
- Assisting R&D programme; and
- Providing training and education to farmers and processing industry towards improving agronomic practices and adoption of new technologies.

1.2 Assignment Profile

The present assignment of a ‘Feasibility Study on Options for Long Distance Bulk Transportation of Horticulture Produces’ is envisioned with the objective of expanding the facilitation for distribution of horticultural products in India by the National Horticulture Board (NHB) and to carry out a critical review of the existing circuits of movement for wide ranges of horticulture produce.
The primary focus of the present assignment relates to considered appraisal of the options available for long distance bulk transportation of horticulture produces across the country. However, a critical assessment of the 'Horti-Container Train' operated by CONCOR under a special arrangement with NHB and exploring the possibility of adopting the option of running Horti special trains with Special Purpose wagons (SPW) under the recently introduced 'Liberalized Wagon Investment Scheme' (LWIS) of the Indian Railways also constitutes an important component of the assignment.

The Inception Report of the present assignment submitted in May 2014 featured a detailed discussion on the Indian horticulture sector, its performance growth potential etc. and analysis of Delhi-Bhusawal Banana Circuit. The report also dealt at length our understanding of the assignment profile, underlying objective behind the initiative of NHB in taking up this exercise, terms of reference etc. a truncated version of which is placed at the end of the report as Annexure-1 for ready reference.

1.3 The Present Report

The present 'Mid Term Report' is the second of the four reports to be submitted as deliverables in the assignment. Stated deliverables for this report as per the Letter of Assignment are reproduced below:

"Cost benefit analysis of the 'Liberalized Wagon Investment Scheme' (LWIS) of IR vis-à-vis containerized train operated by CONCOR, Demand Analysis, Evaluation & Assessment of Freight Structure, Major Demand-Supply Circuits and Assessment of Infrastructure Requirement."

It may be mentioned that the submission of the Mid Term Report had to necessarily wait for formal acceptance of the Inception Report in which the detailed approach and methodology to be adopted in the assignment were outlined. It was felt that it would be prudent to wait for ratification of the above to confidently firm up our views on some of the critical components featuring in this report.

The report comprises four chapters and an Annexure Glossary. The table of contents is indicated below:

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Demand-Supply Scenario and Horti Logistics Appraisal

Demand & Supply Scenario in Indian Horticulture Sector and Present Profile of the Horti Movement Logistics
Chapter 2

Demand-Supply Scenario and Horti Logistics Appraisal

Demand & Supply Scenario in Indian Horticulture Sector and Present Profile of the Horti Movement Logistics

2.1 Horticulture Demand & Supply Scenario- An Overview

India currently ranks among the top producers of fruits and vegetables in the world in aggregate terms coming a close second only to China. In case of mango, banana and cashew it is the largest producer. To a large extent, the impressive performance in production of horticulture produce can be ascribed to the increase in both area and productivity during the last three decades. As per available records the productivity of horticultural crops increased from 7.5 tons/hectare in 1991-92 to 11.05 tons/hectare in 2011-12. On a similar note, the total area under horticulture has crossed the mark of 40 percent with an annual production figure of over 150 million tons.

In achieving the above level of performance, there has been a significant contribution from the fact that during the last decade horticulture has moved from rural confines to commercial production, which has encouraged visible private sector investment in production system management. Technological infusion like micro-irrigation, precision farming, greenhouse cultivation, and improved post harvest management have also played an important role. Interestingly, with the growth in production of horticulture produce there is also a noticeable growth in the 'demand' side. Factors like the general rise in income level particularly in the urban population have kindled the aptitude for healthy foods leading to growing demand for fruits, organic vegetables etc. This coupled with the growing tendency to allocate higher budgets for expenditure on house hold expenses has augured well for the horticulture sector in general. A welcome development is that the domestic supply side has been able to by and large keep in pace with the growing demands from the markets. For instance, per capita availability in case of fruits has increased from 114 grams/day in 2001-02 to 169 grams/day in 2011-12. Similarly, the per capita availability of vegetables increased from 236 grams/day to 338 grams/day during this period.

To certain extent, the euphoria for horticulture production has also been triggered by the perceived growing demands for fruits and vegetables in the global markets. It is not only the volume but also the diversification in choice preference that has encouraged horticulture entrepreneurs to experiment with new crops and more importantly take up aggressive manufacture of processed fruits and vegetables in a big way. Although the export competitiveness of the Indian horticulture producers continues to be low for reasons more than one there is a visible initiative among them to leverage on the opportunities unleashed by the global market.
Domestic Demand and Supply

With the economic growth and increase in per capita income, the consumption shifts from the staple food to high value commodities like fruits. Demand projections are made on the assumptions pertaining to population, urbanization, poverty and economic growth. The quantity of produce that consumers want to purchase is affected by many factors, the most important being:

- Price of the goods;
- Tastes and preferences of the consumers;
- Number of consumers;
- Incomes of consumers;
- Prices of competing produce;
- Range of products available to consumers.

Similarly, the quantity that producers supply is also affected by a number of factors, the most important being:

- Price of the goods/products on the market;
- Price of inputs/costs of production;
- Technological factors;
- Climate;
- Storage possibilities.

The price of a product is mainly determined by supply and demand. Basically, a balance is achieved between what producers are prepared to supply at a price and what people are willing to pay for the product. Incidentally, although the supply is otherwise possible, it may not fructify because the price offered is not attractive enough. For instance, it is sometimes noticed that farmers grow perishable crops and not harvest them because the price is too low. For less perishable crops, farmers or traders may decide to store them in the hope that prices will rise, rather than sell them immediately.

Notwithstanding the cliché in the field and the market, India occupies a pride of place in production of fruits and vegetables in the world, accounting to about 10 and 15 percent of the total global production respectively. The diverse agro-climatic zone in the country makes it possible to grow wide varieties of fruits and vegetables, which constitutes about 92.3 percent of the total horticultural production in the country. As already mentioned India is the global leader in production of Mango, Banana, Papaya, Sapota and Lime. In Grapes it leads in productivity per unit land area. On a similar line, vegetables, potato, tomato, onion, cabbage and cauliflower are also grown extensively, which account for around 60 percent of the total production. Andhra Pradesh is the largest producer of fruits in India with an estimated share of 16.9 percent followed by Maharashtra (15.6 percent), Tamil Nadu (11.1 percent), Gujarat (8.8 percent) and Karnataka (8.7 percent). Other important fruit producing states are Jammu and Kashmir, Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Kerala and Madhya Pradesh.

NSSO report based on 100,794 households revealed that average monthly per capita consumer expenditure (MPCE) for Indian citizen stood at Rs. 1984 (food items: Rs. 881 and non-food items: Rs. 1104) in the urban areas. In rural areas the MPCE stands at Rs. 1054 (food items: Rs. 600 and non-food items: Rs. 453). In this the share fruits and
vegetables is Rs 175.2 (urban areas) and Rs 112.9 (rural areas). Fruits and vegetables thus constitute 8.8 percent in urban areas and 10.7 percent in rural areas.

The above statistics lend enough strength to the surmise that horticulture market in India is progressively moving towards the desired level of symphony in demand and supply. With aggressive government thrust on enhancing the horticulture production and visible rise in consumer preference for quality horticulture products the situation can only be better with time.

Present Logistics for Movement of Horticulture Products

Logistics plays a critical role in the market competitiveness in any economic activity and its relevance is growing every day with driving pressures of a highly competitive global economy. Traditionally, it has been a practice with organizations to pay more attention to manufacturing activities and treat logistics a necessary irritant. However, in recent years, the situation has improved significantly due to a growing realisation of the importance of logistics in business.

Logistics services in the Indian horticulture sector has lamentably not kept in pace with the other sectors. Despite being one of the leading producers in the world, the sector continues to suffer from poor logistics support. Like all perishable products horticulture produce demands sensitive handling and transportation support. In the absence of robust and sustainable logistics mechanisms more than half of fruits and vegetable produce end up as waste even before they arrive in the market. Poor post-harvest warehousing, storage and unsafe transportation are among most prominent causes of this avoidable value drain. The availability of reliable logistics networks can ensure seamless transfer of perishable horticulture products from field to the market and therefore, play a significant role in reducing the role of middlemen in the process to quantum benefits to the farmers as well as consumers.

As per industry estimates, the annual movement of perishable produce is approx. 104 million tons out of which around 100 million tons moves through the non-reefer mode and remaining 4 million tonnes goes through reefer transport. Further, of the 100 million tonnes of perishable load 96 million tonnes directly enter in local and regional markets bulk of which is sold through wholesale and retail outlets. Notably, the requirement of cold chain facilities far outstrips the present handling capacity of available cold chain infrastructure in the country. Of late, government has laid special thrust on development of cold chain infrastructure and many agencies, including public sector organisations like CONCOR has embarked on development of this facility in a big way.
Chapter 3

Potential Circuits for Rail-able Traffic

Identification of Potential Circuits for Movement of Horticulture Produce through Rail
Chapter 3

Potential Circuits for Rail-able Traffic

Identification of Potential Circuits for Movement of Horticulture Produce through Rail

3.1 Bulk Movement of Horticulture Produces - An Emerging Reality

Discussions in the foregoing part of this report lend a fair degree of confidence that Indian horticulture sector is poised for enormous growth with the potential of becoming a visible contributor to country's economy. However, the sector presently lacks a sustainable mechanism of forward integration, which is crucial for ensuring its quantum growth. The sector certainly does not have the enabling support of an optimal movement logistics network, which can provide fulcrum strength for forward integration mechanisms to succeed.

Incidentally, the problem pertains more in cases that warrant movement of large volumes over longer distances. The same is not the case in movement of smaller volumes over shorter distances in which a generic logistics mechanism seems to have developed over the time since it does not require an otherwise elaborate support systems network. However, amidst the prolific explosion in horticulture production and dispersed locations of major consumption centres, the need for a robust logistics support for bulk movement of horticulture produces over long distances is being increasingly felt. Movement of large volumes over long distances road is not the best choice for the obvious reasons of economy of scale, high transit damages etc. The attention has therefore, turned towards exploring the possibility of utilizing rail as the prime vehicle for movement for bulk movement.

In pursuance of the above intention, this chapter deals with the identification of some potentially viable circuits of rail-able traffic comprising principally of horticulture produce at a pan India level. The mainstay of the exercise rests on the surmise that dispersed profile of centres of bulk production and consumption of horticuiture produces provides an ideal business opportunity for the sector and that a sustainable movement logistics is required to leverage this opportunity.

Data Support: The identification of future potential traffic corridors assigning specific volumes to each corridor is a complex exercise involving a large array of data, variety of assumptions and assessments. Success of such an exercise therefore, predicates on the availability of data on items like production figures, geographic dispersal in production & consumption, movement pattern, logistics etc. However, the statistical records available in Indian Horticulture Database - 2013, Indian Institute of Vegetable Research, and Mandi Arrivals Records with NHB etc. provided a good platform to generate a fairly reliable matrix of production and consumption centres at the pan
Feasibility Study on Options for Long Distance Bulk Transportation of Horticulture Produce

India level, which eventually helped in addressing the objective of creating a basket of potential corridors for movement of horticulture produce by rail.

Further, the commodity wise national Origin-Destination (O-D) matrix available in the 'Total Transport System Study' (TTSS) of the Planning Commission provided a reliable base for validating the strength of potential corridors identified. Furthermore, TTSS data provided the main platform for identifying potential 'Return Cargo' necessary to ensure eventual commercial viability of the identified circuits.

Basis Approach Adopted for the Exercise: As already mentioned, the mainstay of the present exercise rests on the surmise that dispersed profile of centres of bulk production and consumption of horticulture produces provides an ideal business opportunity requiring a sustainable support for bulk movement, which can perhaps be addressed best through rail transportation. Keeping the above in view, to make the exercise meaningful, the focus has been on the identification of centres of large scale production of one or a peer group of products at one end; and establishing their possible linkage to one or more centres of large scale consumption at the other end.

3.2 Identification of Potential Corridors of Rail-able Traffic

Procedure: In identification of potential circuits of rail-able traffic in horticulture produces, the following procedure was adopted:

| PROCEDURE ADOPTED FOR IDENTIFYING POTENTIAL CIRCUITS OF RAIL-ABLE TRAFFIC |
|-----------------------------|-----------------------------|
| STEP | PURPOSE FOCUS | ACTIVITY DETAIL |
| STEP-2 | Assessment of Pan-India Market Arrivals of Horticulture Products | 1. Identification of high volume (50,000 tons per annum) arrival points of fruits and vegetables in different parts of the country as potential Destination Points. |
| | | 2. Preparation of a product wise catalogue for each potential Destination Point. |
| STEP-3 | Creation of a Pan-India O-D Matrix for Movement of Horticulture Products by Rail | 1. Preparation of a nation-wide O-D Matrix for each product by percentage assignment of total production/arrival figures deemed as possible movement potential for a corridor. |
| | | 2. Resorting to clubbing of multiple products at the origin points where ever necessary. |
Validation of Potential O-D Matrix identified with Corresponding Data from Accredited Sources

1. Comparison of the identified potential O-D Matrix and estimated volumes with similar data in Total Transport System Study (TTSS) Report (2007-08) of Planning Commission duly extrapolated to the current year.
2. Special focus on validation of high volume corridors identified with TTSS data on bulk rail movement in fruits & vegetables.

Major Potential Corridors: The upshot of exercises carried out to identify potential corridors of rail-able traffic in horticulture produces is summarized in tables below:

### SIX MAJOR POTENTIAL CORRIDORS IDENTIFIED FOR MOVEMENT OF HORTICULTURE PRODUCE BY RAIL BASED ON 2012-13 FIGURES

<table>
<thead>
<tr>
<th>SN</th>
<th>ORIGIN</th>
<th>DESTINATION</th>
<th>VOLUME (Tons)</th>
<th>PRINCIPLE COMMODITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>JAMMU</td>
<td>DELHI</td>
<td>840851</td>
<td>APPLE</td>
</tr>
<tr>
<td>2</td>
<td>NASHIK</td>
<td>DELHI</td>
<td>227140</td>
<td>ONION, GRAPES</td>
</tr>
<tr>
<td>3</td>
<td>PUNJAB</td>
<td>DELHI</td>
<td>209804</td>
<td>POTATO, TOMATO, CITRUS FRUITS</td>
</tr>
<tr>
<td>4</td>
<td>COASTAL ANDHRA</td>
<td>DELHI</td>
<td>175392</td>
<td>MANGO</td>
</tr>
<tr>
<td>5</td>
<td>NASHIK</td>
<td>KOLKATA</td>
<td>141539</td>
<td>ONION, GRAPES</td>
</tr>
<tr>
<td>6</td>
<td>NAVSARI/VALSAD</td>
<td>DELHI</td>
<td>36146</td>
<td>SAPOTA</td>
</tr>
</tbody>
</table>

From the above table above, Delhi is evidently the focal point for aggregation of fruits and vegetables. Incidentally, the Navsari/Valsad-Delhi corridor for Sapota has featured because of its eminent suitability for aggregation at the origin point due to geographical concentration in production.

Other Potential Corridors: In addition to the above major circuits, the exercise also brought out the following ten additional potential corridors:

### OTHER POTENTIAL CORRIDORS OF RAIL-ABLE TRAFFIC IN HORTICULTURE PRODUCE BASED ON 2012-13 FIGURES

<table>
<thead>
<tr>
<th>ORIGIN</th>
<th>DESTINATION</th>
<th>VOLUME (Tons)</th>
<th>PRINCIPLE COMMODITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRA</td>
<td>DELHI</td>
<td>378912</td>
<td>POTATO</td>
</tr>
<tr>
<td>NAGPUR</td>
<td>DELHI</td>
<td>74376</td>
<td>CITRUS FRUITS</td>
</tr>
<tr>
<td>KASHMIR</td>
<td>BANGLORE</td>
<td>39178</td>
<td>APPLE</td>
</tr>
<tr>
<td>PUNJAB</td>
<td>BANGLORE</td>
<td>22719</td>
<td>CITRUS FRUITS</td>
</tr>
<tr>
<td>DELHI</td>
<td>BANGLORE</td>
<td>78551</td>
<td>APPLE</td>
</tr>
<tr>
<td>KASHMIR</td>
<td>MUMBAI</td>
<td>19088</td>
<td>APPLE</td>
</tr>
<tr>
<td>PUNJAB</td>
<td>MUMBAI</td>
<td>34091</td>
<td>CITRUS FRUITS, TOMATO</td>
</tr>
<tr>
<td>COASTAL ANDHRA</td>
<td>MUMBAI</td>
<td>74546</td>
<td>MANGO</td>
</tr>
<tr>
<td>DELHI</td>
<td>MUMBAI</td>
<td>38177</td>
<td>APPLE</td>
</tr>
<tr>
<td>GUWAHATI</td>
<td>DELHI</td>
<td>40845</td>
<td>GINGER</td>
</tr>
</tbody>
</table>
Considering the substantial volumes and their specific relationship to special products like Apple, potato, tomato, mango and other citrus fruits, the above corridors are also considered suitable for attention.

3.3 Identification of Rail-able Return Traffic for Major Potential Corridors

A necessary challenge arising out of identifying potential corridors of bulk movement of horticulture produces is that of identifying possible 'Return Cargo' to complete the circuits and ensure their commercial viability. In the absence of return traffic, it would be difficult to achieve sustainability of the logistics mechanism, which is essentially predicated on the availability of two-way traffic in a circuit. The sustainability of an exercise like this therefore, depends on identifying potential rail-able traffic for the return direction.

Another important thing that deserves mention here is the possible necessity to look at the option of clubbing of commodities to meet the volume of a full rake. This is so because the destination point/s of the identified corridor/s need not or more precisely will not have ready single commodity rake loads to offer in the return direction. Since the clubbing of commodities does not take place automatically, the situation would therefore, call for special efforts from a third party intervention.

It may be stated that since horticulture produce movement by and large does not follow a generic two-way traffic by pattern, the scope of the exercise necessarily has to be extended to identification of similar otherwise amenable traffic. Considering the fact that such an exercise necessarily involves almost a mini scale national exercise on traffic flows, the task would have been unmanageable within the scope of the present study. Fortunately, a recent Total Transport system Study (TTS) carried out by the Planning Commission features elaborately on commodity wise traffic flows on a nation-wide matrix. Although the study is somewhat dated, O-D Matrix that emerged in the study by and large holds good even today. Even the commodity wise traffic volumes with some weighted extrapolation applying the normal growth rate of 5% can be still have relevance for the present exercise. Accordingly, in identification of the rail-able return traffic for six major potential corridors identified, the following procedure was adopted:

<table>
<thead>
<tr>
<th>PROCEDURE ADOPTED FOR IDENTIFYING RAIL-ABLE RETURN TRAFFIC</th>
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<tbody>
<tr>
<td><strong>STEP</strong></td>
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<td><strong>STEP-1</strong></td>
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<td><strong>STEP-2</strong></td>
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<tr>
<td><strong>STEP-3</strong></td>
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</table>
3.4 Identification of Potential Circuits of Horticulture Products Movement by Rail

As a resultant arising from the exercises carried out, the potential circuits identified for introduction of Horticulture Trains are listed below:

<table>
<thead>
<tr>
<th>POTENTIAL CIRCUITS FOR INTRODUCTION OF HORTICULTURE TRAINS</th>
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<td>----</td>
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<tr>
<td>2</td>
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<tr>
<td>3</td>
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<td>4</td>
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<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
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</tbody>
</table>

3.4 Special Observations

Volume Aggregation & Dispersal- Pre-requisite for Rail-ability: While on the context, it may be mentioned that volume plays the most determining role in assessing the rail-able profile of any traffic i.e. to qualify for movement by rail it must have high unit volume to offer. Availability of a large production base/s around the point of origin and consumption base/s around the point of destination therefore, is an indispensable necessity. Further, since rail movement today is only in rakes, volume aggregation and dispersal work at the origin and destination points becomes a necessary pre-requisite for its success.

Need for a Well Formulated Strategy: The arterial profile of rail movement pre-empts the availability of a well orchestrated system at the loading and evacuation points. Absence of such systems will pose a major handicap in sustaining the flow of wagons supply leading to eventual decay. Mere availability of potential corridors and circuits does not therefore; guarantee success of their physical implementation as it depends on a large number of related factors. Marketing and logistics support for aggregation and dispersal of bulk consignments, efficient terminal facilities in terms of loading and unloading arrangements, storage of cargo, evacuation etc. are critically important for maintaining rail services at a sustained level.

It is therefore; felt that any initiative for movement of horticulture products by rail at pan-India level should be preceded by a comprehensive study and formulation of a ‘Blue Print for implementation’.
Chapter 4

Opportunity Appraisal

Comparative Appraisal of CONCOR Operated Horti-Container Train and the Proposed Horti Special Freight Train under LWI Scheme of IR
Chapter 4

Opportunity Appraisal

Comparative Appraisal of CONCOR Operated Horti-Container Train
and the Proposed Horti Special Freight Train under LWIS Scheme of IR

4.1 Genesis of the Proposition

For optimizing the yield from transportation subsidy facility extended by the Central Government for movement of horticulture products within the country, a need has been felt in NHB to explore the possibility of alternative mechanisms to the present system of ‘Horti-Container Train’ operated by CONCOR. One of the alternatives identified for examination is leveraging the opportunities unleashed by the recently introduced LWIS scheme of the Indian Railways. The two alternatives under examination are:

Alternative-1: ‘Horti-Container Train’, presently operated by CONCOR on identified circuits of horticulture products movement.

Alternative-2: ‘Horti Special Freight Trains’ comprising of special wagons (SPW) procured through the newly introduced LWIS scheme of IR to be operated on identified circuits of horticulture products movement.

The focus of the extant exercise predictably emanates from a purely financial perspective i.e. to get maximum benefit from transport subsidy amount spent by the government. However, for a more holistic comparison the canvas of enquiry needs to be enlarged to examine few other related issues that are of critical relevance to the physical implementation of the initiative viz. institutional framework and management mechanisms associated with the two alternatives. This is so because providing an enabling platform for farmers in forward integration of their horticulture products indispensably calls for a sustainable platform of support in which issues of transport cost and seamless operation are robustly synchronized.

4.2 Overview of the Two Alternatives

For a better understanding of the platform, broad parameters related to the two alternatives are discussed below:

ALTERNATIVE-1: ‘HORTI-CONTAINER TRAIN’ OPERATED BY CONCOR

The Horti-Container Train emanated out of a special agreement between NHB and CONCOR to make available cost-effective transportation for horticulture products at the pan India level. As per the agreement, CONCOR operates the train on identified circuits of horticulture products movement offering the transport services to the farmers (consignors) against pre-determined circuit based freight with NHB guaranteeing residual freight to CONCOR in the form of transport subsidy.
To begin with, the Horti-Container Train had started its operation in Bhusawal-Delhi circuit mostly moving banana from Bhusawal to Delhi (Azadpur Mandi). The two-way freight (onward and return) for the train was mutually agreed with the condition that CONCOR will recover only a pre-fixed freight from the consignors (farmers) and charge the residual freight from NHB. To seal the arrangement, NHB created a corpus of INR 8 Crore with CONCOR from which the balance freight as due could be recouped after the completion of every round trip. Notably, the corpus was computed as subsidy recoupment for a time frame of 3 years assuming that the Horti-Container Train will have traffic offering in both directions of the circuit.

Incidentally, the initiative of introducing the ‘Horti-Container Train’ was mooted to help in reducing in-transit damages, which has been a persistent handicap in long distance movement of horticulture products mainly due to their perishable nature. Accordingly, following an agreement with NHB, CONCOR commissioned Balmer Lawrie to manufacture 98 CIPHEF approved specially designed containers. The containers are well ventilated and insulated to suit the horticulture products movement. The formal introduction of the train was in 2012.

Presently, the Horti-container Train is running on Bhusawal-Delhi circuit for transportation of Banana from Bhusawal region to Delhi. Prior to its commissioning on the regular circuit trial runs were carried out in several routes viz. Jalgaon-Azadpur (Onion), Nasik-Kolkata and Nasik-Malda (Onion), Kolkata-Guwahati and Agra-Bangalore (Potato).

The Horti-Container Train between Jalgaon (Raver) and Delhi (Azadpur Mandi) usually makes five rounds every month during the Banana production season taking approx. 30-36 hours for onward journey from Bhusawal to Delhi. The loading is done at Raver, which is a nominated CRT station for container handling. Farmers from banana growing areas like Savda and Nimbhore bring their products beforehand to facilitate the loading within the permitted time of 8 hours as per the standard railway rules. Loading is done by the farmers/traders at the originating point while un-loading at the destination it is done by traders/wholesalers at Azadpur Mandi.

The general reaction to the initiative of Horti-Container Train among the user group has been very positive. Reduction in transit damage, timely availability, guaranteed transit time and affordable freight are some of the reasons that have contributed to the popularity of the train. It may be mentioned that being perishable in nature, transportation of horticulture products by road or conventional railway rakes involves high level of wastages apart from the other operational challenges. Incidentally, it is only a sensitive transport system that can provide the fulcrum support for viability in business of horticulture products like Banana, Mango, and Grapes etc. The products are extremely susceptible to damage and therefore, compulsively need special care.
and a time bound transit time. In fact, high level of transit damages is one of the major restraining factors that plague the horticulture business today despite its huge latent potential otherwise. The introduction of ‘Horti-Container Train’ in collaboration with CONCOR can therefore, be termed as a strong initiative on the part of NHB to support the horticulture sector’s need to attain sustainable viability in the market.

Horti-Container Train- A Synopsis Overview: Broad Parameters related to the Horti-Container Train derived from the available information on the arrangement between NHB and CONCOR and field operation of the train are outlined in the table below:

<table>
<thead>
<tr>
<th>INSTITUTIONAL ARRANGEMENT</th>
<th>Operation of Horti-Container Train is based on a special arrangement between two Government of India agencies viz. NHB and CONCOR with a common objective of facilitating cost-effective transportation for horticulture products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYSICAL DETAILS</td>
<td>The Horti-Container Train is a rake-consist comprising of 40 Flat Wagons and a Brake Van capable of carrying 80 Containers (TEUs). Each container can carry a maximum load of approx. 12 Tons of Horti products. Accordingly, a full train load is capable of carrying 960 Tons approx. The containers (TEUs) are specially designed to handle the specific requirements of horticulture products movement. The train has constraint of placement for loading/unloading only at designated Container Handling Stations (CRT) of IR.</td>
</tr>
<tr>
<td>MANAGEMENT CONTROL AND OPERATIONAL ARRANGEMENT</td>
<td>The train is owned, maintained and operated by CONCOR as part of its fleet. Accordingly, capital costs incurred in the rake, facilities as well as maintenance etc. are borne by CONCOR. However, CONCOR has obligation of making the train available for loading in the identified circuits on demand. Responsibility of all activities related to the running of the train, including coordination with IR etc. rests with CONCOR. NHB/Consignors’ responsibility is limited to loading and unloading at the terminals. Freight charges for running of the train are applicable for both ways irrespective of traffic offered. Responsibility of arranging traffic for the train rests with NHB/Consignors. CONCOR will recover only pre-fixed freight charges from the consignors and recoup the balance from NHB Fund.</td>
</tr>
</tbody>
</table>

Horti-Container Train- The Flip Side: Notwithstanding the benefits of the CONCOR operated Horti-Container Train an appraisal of various tenets associated reveals certain glaring constraints. Firstly, as would be evident from the table above, freight charged by CONCOR for is for the entire rake irrespective of traffic offering at the loading point. This means that in the event of inadequate availability of produce the freight for the empty containers also has to be borne. Feedback from real users in the field reveals that aggregation of the produce to fill the entire rake becomes a real challenge at times. The constraint of Horti-container Train being placed only at a CRT station for
loading is another restricting factor for performance. Understandably, the CRT station is not very user friendly for aggregation of the produce.

The other constraint comes from the fact that CONCOR charges freight based on 'Complete Trip' basis i.e. it is inclusive of both ways- onward as well as the return trip. By default, it has the ramification of the consignor (farmer/NHB) having to pay for empty haulage of the rake in the event of no traffic offering in either the onward or the return trip. Since the freight to be paid by the actual consignor is pre-fixed for one way, the extra burden of empty haulage necessarily falls on the subsidy corpus. In fact, it is learnt that larger share of the subsidy corpus of INR 8 Crore has been consumed much before the period of three years envisaged at the time of introducing the train. Incidentally, CONCOR has requested NHB for recoupment of the corpus failing which it will not be in a position to provide the services as per the present arrangements.

**ALTERNATIVE-2: 'HORTI-SPECIAL FREIGHT TRAIN' LEVERAGING LWIS SCHEME OF IR**

The initiative of exploring the possibility of a 'Horti Special Freight Train' leveraging the IR's 'Liberised Wagon Investment Scheme' (LWIS) has been perhaps abetted by the operational constraints and apparent financial disadvantage progressively noticed in the present 'Horti-Container Train' operated by CONCOR. While on the context, it may be mentioned that although the two alternatives are capable of yielding similar benefits in terms of reduction in the freight component they are quite different in the terms institutional and operational profile. For instance, the most obvious difference lies in the fact that while in Horti-Container Train NHB is only a passive participant in the ownership and operational matters of the train, in case of 'Horti Special Freight Train' it has to imbibe its full ownership and operation mechanism. For a more appreciative understanding of the proposition an overview of the LWIS Scheme and its related issues is presented below:

**IR's Initiatives in Promoting Private Ownership of Wagons:** During the past three decades, with the opening up of Indian economy and resultant increase in demand from the core and manufacturing sector, Indian Railways has been under progressive stress. Among other things, inadequacy of rolling stock became one of the restraining constraints in adequately meeting the demands for rail borne traffic. This coupled with progressive resource crunch faced by IR the Ministry of Railways (MoR), in the early nineties had introduced an 'Own Your Wagon Scheme' (OYWS) to promote private ownership of wagons. Among other things, OYWS promised lease charges for the wagons procured and merged into IR wagon pool in addition to specific guarantee for supply of wagons for loading. While the above scheme did generate some interest in the beginning, it failed to evoke an overwhelming response from the industry. For instance, only 7084 wagons were procured during its tenancy of 15 years till 2004. The OYWS Scheme was subsequently updated by 'Wagon Investment Scheme' (WIS), which was introduced in the year 2005. The WIS replaced the 'Lease Charge' benefit to the investors by suitable 'Freight Rebate' on the guaranteed number of rakes. Initially, the scheme included BCN and BOXN wagons ostensibly to attract the core sector coal and iron ore industry but was later broadened to include select popular wagons. Like the OYWS, the WIS too failed to generate cognizable interest among the investors.

Evidently, Indian Railways has been making a continuous effort towards promotion of private investment to enlarge the size of general wagon pool for meeting the growing demands for rail traffic. However, the whole process has predictably gone through
Feasibility Study on Options for Long Distance Bulk Transportation of Horticulture Products

Various phases of experimentation the latest being the ‘Liberlised wagon Investment Scheme’ (LWIS) quickly followed by a further derivative in the form of ‘Wagon Leasing Scheme’ (WLS).

LIBERALIZED WAGON INVESTMENT SCHEME (LWIS)

New Liberalized Wagon Investment Scheme (LWIS) was introduced by IR vide circular dated 15.4.2008 superseding all earlier circulars issued during years 2005 and 2006 related to erstwhile ‘Own Your Wagon’ and ‘Wagon Investment’ schemes of IR. A copy of this circular enclosing Liberalized Wagon Investment Scheme is attached here with as Annexure- 2.

Notably, the LWIS Scheme of IR is a restrictive invitation for private investment in wagons in the sense that it permits only two specific types of wagons to be procured. One of them is High Capacity Wagons (HCW) with payload at least two tonnes higher than the similar wagons available on IR for 25.0 or 22.9 tonnes axle load routes. The objective behind this is perhaps to achieve higher tonnage over the existing line capacity with high carrying capacity wagons. Predictably, for HCW wagon procurement is permitted only for a full rake consist.

The other type of wagons that are permitted under LWIS is Special Purpose Wagons (SPW) - wagons specially designed for rail transportation of a specific commodity or a group of commodities. While the components of conditions for procurement are more or less similar in both types of wagons including the standard tenancy period of 20 years, they are distinguished by different freight concessions.

As an off-shoot of the LWIS Scheme, the Indian Railways has come up with another user friendly option viz. ‘Wagon Leasing Scheme’ (WLS) in 2008. This scheme has broad based the canvas of private investment in wagon procurement by permitting procurement of wagons for leasing to end users. This move is ostensibly to facilitate user industries to take advantage of the financial strength of Leasing Companies. Railway Board’s circular detailing the policy regarding procurement of wagons for leasing the same to end users by a third party is attached as Annexure- 3 of this report for an appreciative appraisal.

In the extant case, the focus is limited to NHB showing an exploratory interest to procure ‘Special Purpose Wagons’ (SPW) under the LWIS Scheme for transport of horticulture products. Evidently, the interest has arisen from the possibility of this route guaranteeing higher financial gain, more user friendly operational environment and of course better performance in reduction of in-transit damages as compared to the present container train special operated by CONCOR under a special arrangement with the NHB details of which have been discussed in the foregoing part.

For a more incisive appreciation of the mechanism, broad parameters related to the ownership and operation of trains with SPW wagons procured under LWIS by NHB and their ramifications are summarized in the table below:
Ownership and operation of an SPW rake procured under LWIS will be with NHB under a special agreement with IR guaranteeing its haulage over the IR network on demand. Tenancy of operation for the wagons will be 20 years.

SPW wagons will not become integral part of IR's wagon pool. Consequently, they will have no residual value.

SPW wagons will be maintained by IR against payment of annual maintenance charge.

Procurement of SPW rakes will only be on rake-consist basis including a brake van.

Wagons are to be procured by NHB directly from manufacturers subject to compliance with prevailing applicable designs/specifications and inspection by RDSO.

Each wagon (SPW) can carry a maximum load of approx. 30 Tons of Horticulture products. Accordingly, a full train load is capable of carrying 1350 Tons approx.

SPWs are specially designed to handle specific requirements of horticulture products movement.

The train is fully owned, maintained and operated by NHB. Accordingly, the capital costs incurred in the rake, facilities as well as maintenance etc. are borne by NHB.

The SPW rakes will operate between specified loading and unloading points with private siding/terminal facility.

Loading on SPW rakes will be against placing of indents as per extant rules railway rules. In the absence of indents rakes will remain idle.

Responsibility of all activities related to the running of the train, including coordination with IR etc. rests with NHB.

IR will offer freight concession of 15 percent for the specified period of 20 years. The concession will be on prevailing Base Freight Rate at time of booking/issue of notification by IR; or Base Freight Rate applicable at time of loading, whichever is less.

Empty haulage for a distance up to equivalent of the point of origin will be free of charge, subject to conditions.

Coordination with IR and interface with end users, if any as also responsibility of traffic offering will be with NHB.

While on the context, it may however, be mentioned that the present Liberalised Wagon Investment Scheme (LWIS) of IR is limited to procurement of Special Purpose Wagons (SPW) for transport of commodities viz. cement, fertiliser, iron & steel and fly ash only. The Terminal development accordingly is permitted only in the above commodities (Please see Annexure-4). As such, the scheme is not open for procurement of SPWs for transport of Fruits and Vegetables. However, it is felt that a serious expression of interest on the same from NHB supported by the Ministry of Agriculture, inclusion of Fruits & Vegetables in the list of permitted commodities may not be a major issue.
4.3 Comparative Appraisal of the Two Alternatives

From discussions in the foregoing segment it is evident that a comparative appraisal of the two alternatives in terms of suitability to NHB’s objective on a uniform platform would be a rather challenging task. Firstly, each of them represents a mechanism of servicing freight traffic in the railways that is unique to itself with facilities and constraints that are obviously at fundamental variance. Their relative suitability will therefore, depend on the business vision and functional structure of the concerned organization—this case, the NHB.

A more empirical comparison is perhaps be possible in terms of their relative return on capital invested to meet the end objective of ensuring cost effective transportation for horticulture produce. However, for maintaining an acceptable level of parity in the appraisal, it would be necessary to restrict the exercise to a common platform.

A considered detailed explanation of the above view is outlined below:

**Institutional Arrangements:** In the case of ‘Horti-Container Train’, the institutional arrangement is limited to NHB guaranteeing a part payment of freight as transport subsidy for the movement of horticulture produce. CONCOR is otherwise responsible for all local interfaces with consignors etc., including collection of discounted pre-fixed freight. Besides, the ownership of the train and related interface with IR also rest exclusively with CONCOR.

**Infrastructure Requirements:** However, in the case of ‘Horti Special Freight Trains’, procurement and ownership of the train as well as related interface with IR will be vested on NHB. Accordingly, NHB will be required to procure a full rake (including Brake Van) of Special Purpose Wagons (SPW) under LWIS and set up terminal facilities at both ends of the traffic corridor/s. Further, for procurement of SPW stock will have to be in accordance with the terms and conditions specified under the LWIS Scheme.

**Functional Arrangements with IR and End Users:** All operational and commercial interfaces with IR for the present Horti-Container Train remains with CONCOR. Consequently, all coordination matters with IR related to inter terminal movement, placement of the train, payment of freight charges for haulage etc. to IR are executed by CONCOR like any other services it offers to the customers. In case of the proposed Horti Special Freight Train however, the above mandate will have to borne by the NHB. Notably, this would interalia; include pre-operative requirements like the entering into special arrangements and agreement etc. with the Indian Railways prior to the introduction of the services.

For end users, as per the extant system in the Horti-Container Train, CONCOR places the rake for loading and recovers part of the freight charges due from farmers/traders directly. The balance of the freight is subsequently adjusted from the special subsidy corpus created by NHB. In case of Horti Special Freight Train, the activities like placement of the train for loading and subsequent freight recovery will have to be performed by NHB. The LWIS Scheme however, does not debar NHB to get this organised through an authorized associate/agent.

**Financial Appraisal of the Two Alternatives:** The two alternatives under review as already mentioned, represent two different mechanisms with specifications that are unique to themselves. There is no gain saying the fact that end beneficiaries of both
the alternatives are the farmers/traders of horticulture produce. To this end, utilization of the present system of CONCOR operated Horti-Container Train pertains to NHB availing the services of a facility provider under a special arrangement for accruing subsidy benefits to the end users. In case of Horti Special Freight Train on the other hand NHB has to assume the role of a facility provider. In other words, the later pertains to entering into a business of railway freight train enterprise while the former is limited to being a preferred customer of a rail freight service provider.

Derivatively, the two alternatives are also linked to different freight structures of IR. For instance, while the movement of empty rakes of Container Train Operators (CTO) like CONCOR attracts empty haulage charges of the Indian Railways; in case of rakes procured under LWIS empty haulage of the rake is free, subject to of course certain conditions. Furthermore, the implementation of Horti Special Freight Train involves significant capital cost in procuring the rake and recurring expenses incurred in its subsequent operation, which has a long gestation period. It is therefore, subject to a routine profit and loss mechanism typical for any business enterprise. Consequently, financial appraisal of the option can ideally be done only against conventional evaluation of return against the investment, risk analysis etc.

Evidently, the two alternatives do not typically qualify for a comparative evaluation in financial terms against a uniform platform. However, a farfetched exercise was carried out to evaluate their relative yield from the expenditure incurred in terms of making available an envisaged vision of making cost-effective transportation available for the horticulture products. The analytic approach, related assumptions, parameters etc. as well as the upshot arising from the exercise are detailed below:

Analytic Exercise Approach & Methodology:

As outlined above, the exercise is predicated on a limited objective of comparing the relative advantage of the two alternatives to NHB in terms of financial outflow required vis-à-vis an assumed ‘uniform time frame’ and ‘uniform freight charges’ for both the cases. To keep the exercise within manageable limits, the 20-Year time period stipulated under LWIS Scheme has been taken as ‘uniform time frame’ while present freight charged by CONCOR has been considered as ‘uniform freight charges’ ostensibly for its sustained acceptability among the end users.

Accordingly, the exercise essentially revolves around estimating the total financial outflow for each of the two alternatives individually over a specific time frame of 20 years against a uniform freight charge to end users at par with the present Horti-Container Train operated by CONCOR. In other words, the exercise is to find out how much money NHB will have to spend in a 20-year time frame to ensure the present level of subsidized cost of transportation to end users for the present ‘Horti-Container Train’ and the envisaged ‘Horti Special Freight Train’ under LWIS Scheme.

Notably, the extant exercise has been predicated on the following broad parameters of understanding and assumptions:

- In absence of a pre-defined figure, the present freight charged by CONCOR from the farmers/traders was assumed as the ‘accepted figure’ for the purpose of cost-effective transportation cost.
To maintain parity in comparison, the above figure has been assumed as freight to be charged from end users (farmers/traders) in case of Horti Special Freight Train (under LWIS) irrespective of its otherwise potential to offer a lower rate, if any.

Considering the present scenario of sustained non-availability of return cargo in the circuit, one way empty haulage has been assumed in both the alternatives. However, the charges to be paid for empty haulage have been taken as due in individual cases.

For capital cost of procuring the SPW rake under LWIS, the extant rates applicable for related items in Indian Railways have been taken into account with some considered modifications where ever necessary.

Other working expenses like administrative/coordination expenses, staff costs etc. for the Horti special Freight Train have been taken as per extant industry norms.

The time frame for analysis has been taken as 20 years, which is the stipulated tenancy for any enterprise under LWIS scheme.

Upshot of the Financial Analytic Exercise:

The comparative exercise of financial analysis carried out on the two alternatives has revealed a scenario in which both can be considered within compatible perimeters in terms of financial advantage as would be seen from the table below:

### ALTERNATIVE-1: HORTI-CONTAINER SPECIAL TRAIN (CONCOR)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Unit</th>
<th>Cost to NHB</th>
<th>Revenue to NHB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freight paid to CONCOR/Ton</td>
<td>In Rs./Ton</td>
<td>3044.1</td>
<td>NA</td>
</tr>
<tr>
<td>Freight paid by farmers/Ton</td>
<td>In Rs./Ton</td>
<td>NA</td>
<td>1612.5</td>
</tr>
<tr>
<td>Differential freight to be charged by NHB (Subsidy)/Ton</td>
<td>In Rs./Ton</td>
<td>NA</td>
<td>1431.6</td>
</tr>
<tr>
<td>Subsidy Paid by NHB/Trip</td>
<td>In Rs.</td>
<td>1374320</td>
<td>NA</td>
</tr>
<tr>
<td>Subsidy paid by NHB/Year</td>
<td>In Rs./Year</td>
<td>-57721440</td>
<td>NA</td>
</tr>
<tr>
<td>Subsidy paid by NHB for Project Life(20 yrs)</td>
<td>In Rs.</td>
<td>-1154428800</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Total Cost NHB will bear in the form of SUBSIDY at the end of Project Life (20 Years)</strong></td>
<td>Rs. in Crore</td>
<td>-115.4</td>
<td>NA</td>
</tr>
</tbody>
</table>

**Assumptions**

1. One way load, 80 Containers@ 12T/container, 42 trips/year
2. One way empty haulage cost to be paid to CONCOR
3. All cost covered under CONCOR’s freight rate
4. No capital cost are incurred by NHB
5. Subsidy Amount deposited in Escrow Account
# Feasibility Study on Options for Long Distance Bulk Transportation of Horticulture Produces

## ALTERNATIVE-2: HORTI SPECIAL FREIGHT TRAIN (LWIS)

<table>
<thead>
<tr>
<th>Unit</th>
<th>Cost to NHB</th>
<th>Revenue to NHB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freight paid to IR</td>
<td>In Rs./Ton</td>
<td>412.7</td>
</tr>
<tr>
<td>Freight paid by farmers</td>
<td>In Rs./Ton</td>
<td>NA</td>
</tr>
<tr>
<td>Empty Repositioning Cost</td>
<td>In Rs./Ton</td>
<td>NIL</td>
</tr>
<tr>
<td>Administrative and Maintenance Costs</td>
<td>in Rs./Ton</td>
<td>294.07</td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>In Rs./Ton</td>
<td>706.76</td>
</tr>
</tbody>
</table>

**OPERATIONAL EARNING FOR NHB**

<table>
<thead>
<tr>
<th>Unit</th>
<th>Cost to NHB</th>
<th>Revenue to NHB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Cost Service (Interest Component for Wagons Purchase + Terminal)</td>
<td>In Rs./Ton</td>
<td>2508.4</td>
</tr>
<tr>
<td><strong>NET SAVING/LOSS (OPERATIONS)</strong></td>
<td>In Rs./Ton</td>
<td>-1602.64</td>
</tr>
<tr>
<td>Residual Value: Rake + Track + Terminal Building + Shed</td>
<td>In Rs./Ton</td>
<td>NA</td>
</tr>
<tr>
<td>Land Value at the end of project Life</td>
<td>In Rs./Ton</td>
<td>NA</td>
</tr>
<tr>
<td><strong>NET TOTAL EARNING/LOSS FOR NHB</strong></td>
<td>In Rs./Ton</td>
<td>-948.98</td>
</tr>
<tr>
<td>Net Profit/Loss for project life (20 Years)</td>
<td>In Rs.</td>
<td>-1076142583</td>
</tr>
<tr>
<td>Total Cost NHB will bear at the end of Project Life</td>
<td>In Rs. Crore</td>
<td><strong>-107.6</strong></td>
</tr>
</tbody>
</table>

### Assumptions

1. Freight to IR as per Goods Traffic No 46 (Part II), Class LR4 (951-1000KM)
2. Empty Repositioning Cost not applicable as per circular no 2009/TC(FM)/4/6 dated 17.09.12 (Freight Marketing Circular No 19 of 2012)
3. Maintenance Spares cost (4%) is taken on Capital Cost as per the IR circular No 2009/TC(FM)/4/6/(LWIS) dated 02.01.2012 Annexure "A" Clause No 6.
4. LWIS envisages private terminals at both end as per IR circular No 2009/TC(FM)/4/6/(LWIS) dated 02.01.2012 Annexure "B" Clause No 9.
5. Interest cost are added in the calculation (interest rate are assumed to be 11% with 1 year Moratorium)
6. Capital Cost for Rake is taken as : Rs 16.1 Crore
7. Capital Cost for Terminal at both ends is taken as : Rs 120 Crore
8. All cost calculations are done on the basis of assuming 42 trips/ year, One way load, 45 Wagons@ 30T/Wagons
9. Land value has been taken as Rs. 33.75 Crore per terminal.
10. Salvage value of assets computed @ 10% of the Capex, except in case of land where the original value has been taken.

While the two tables above bring out a comparative scenario of both the alternatives, a summary is outlined in the table below:
While on the context, it may be mentioned that considering the lack of precision (for obvious reasons) in various parameters and assumption while carrying out the exercise it would be ill-advised to form a definitive surmise on comparative financial advantage of the two alternatives based on the marginal variations noticed in the financial outflow component. However, one thing that can be stated to a definite degree of certainty is that the proposed alternative of Horti Special Freight Train does not offer any significant advantage in financial terms over the present Horti-Container Train operated by CONCOR to qualify as a serious alternative to the present system.

4.4 Summative Comparative Appraisal

Arising from the discussions above, a comparative appraisal of the two alternative options available with NHB to realize the objective of making cost-effective transport facility for horticulture products movement may be summarized in the table below:
From the above table it is evidently clear that the choice of the two alternatives would depend on a weighted appraisal of a number of related factors apart from financial considerations. As already mentioned at the beginning, the two alternatives represent two different mechanisms for availing the transport facility offered by Indian Railways. They also carry specific advantages and constraints that are at fundamental variance.

It is our considered view that a decision on relative suitability of the two alternatives for meeting the envisioned objective will rest primarily on the extent of exposure NHB is willing to take on the matter. Procurement of wagons under LWIS is essentially meant for actual beneficiaries of rail services like the industry and trade. Recently it has also been thrown open for investors willing to take up wagon leasing business through the newly introduced ‘Wagon Leasing Scheme’ (WLS). Incidentally, NHB’s present institutional profile does not perfectly suit into either of the two interests. As such, adopting this route will subject the organisation to a plethora of challenging tasks related to not only the procurement of the wagons but also to institute a system to ensure sustainable operation of the train in the long run.

NHB may however, procure the wagons under LWIS and adopt an agency to carry out the other related activities. However, such an arrangement will be only a warp reflection of the present arrangement with CONCOR. Since the analysis has also revealed a higher financial outflow for this option, it would not be prudent to opt for it in preference to the present arrangement of Horti-Container Train. Furthermore, adoption of LWIS Scheme involves a time consuming exercise of designing a ‘Special Purpose Wagon’ (SPW) apart from the high capital investment required. The present arrangement with CONCOR has proved otherwise successful in terms of operational considerations and reduction in transit damages.

4.5 Way Forward

Keeping in view the above, the following actions are recommended as way forward on the matter:

1. The initiative of NHB in instituting a special container train facility for cost-effective and user friendly transportation of horticulture produce- firstly; to generate confidence in the farmers on the forward integration mechanism and secondly; to pioneer the movement for institution of sustainable logistics support for the sector.

2. To this end, NHB should continue with the present arrangement of ‘Horti-Container Train’ operated by CONCOR to facilitate cost-effective transport facility to the end users and ensuring reduction in-transit damages for horticulture products.

3. Conscious efforts should however, be made to institute a sustainable mechanism for generating return cargo to reduce the avoidable cost of empty haulage, which
negatively affects the optimal utilisation of the NHB promoted ‘transport subsidy corpus’ at present.

4. For optimal utilization of the special container rake and fuller achievement of the underlying objective, efforts should be made to develop multiple multi commodity loading points instead of the present scenario of depending on only Banana traffic from single terminal i.e. Raver. This will obviate the frequent idling of the rake for want of adequate traffic offering and give further leeway to CONCOR to generate return cargo for the rake.

5. While carrying on with the present system, NHB with the help of Ministry of Agriculture may also explore the possibility of approaching the Ministry of Railways with the proposition of developing a sustainable national network of movement for horticulture products on mutually beneficial terms. The present thrust of Central Government on this sector lends substantial weight to a surmise that such a move will find considered attention and attention from the Ministry of Railways.

As value addition to the deliverables under the assignment, it would be our endeavour to develop further on the above suggestions particularly No. 5 related to the establishment of sustainable arrangements with the Indian Railways through formal interactions with the concerned officials in the Ministry of Railways. The outcome of the efforts will be featured in the forthcoming Draft Report.
Understanding of the Assignment and Delineation of the Approach & Methodology

India, with its wide topography and agro climate, is highly favourable to give Horticulture sector a big bloom. In the recent past, this sector has encompassed the fastest growing sector within agriculture stream. It contributes in poverty alleviation, nutritional security and has ample scope for farmers to increase their income and is helpful in sustaining large number of agro-based industries which generate huge employment opportunities. Consequently the horticulture contributes 28 per cent of agricultural GDP and hence in the recent years it is recognized as a potentially important source of growth, employment generation and foreign exchange earnings.

India has emerged as the largest producer of mango, banana and cashew and second largest producer of fruits & vegetables in the world. The most significant development that happened in the last decade is that horticulture has moved from rural confines to commercial production and this changing scenario has encouraged private sector investment in production system management. The last decade has seen technological infusion like micro-irrigation, precision farming, greenhouse cultivation, and improved post harvest management impacting the development, but during the process various issues have emerged.

Horticulture Scenario in a broader sense is the science of growing and management of fruits, vegetables, ornamental, aromatic and medicinal plants, spices, plantation crops, their processing, value addition and marketing. Rising incomes and growing consumer interest in a variety of fresh fruits and vegetables year-round is stimulating international trade in horticulture. India has several advantages in the sector and is considered as the world’s biggest producers of horticultural products.

The production costs are less than half of those in other parts of the world. Despite these advantages, India’s share in the global market is insignificant - it accounts for only 1.7 percent of the global trade in vegetables and 0.5 percent in fruits. During the last five decades the production and productivity of horticultural crops have increased manifold. Area, production and productivity trend of horticultural crops is shown in Figure 1 above. Further, as it can be seen, the total area under horticulture in 2010-11 stands at, a 39.6% increase compared to the 1991-92 figures of 8.4 million ha and production stands at 137.9 million tons registering 2.43 times higher than the base period figures. The productivity of horticultural crops increased from 7.5 tons/ha in 1991-92 to 11.05 tons/ha in 2011-12.

The increased production of horticulture crops is the resultant of increase in both area and productivity. The current level of 249.46 million tons during 2011-12 was added with 57.7 million tons, which is 30% higher than production achieved during 2006-07.
One of the World Bank Report lists the following three major factors that are undermining India’s potential for reaching supermarkets across the globe:

- The high costs of getting agricultural produce from farm to market erode any advantage the Indian farmer enjoys by virtue of being a cheap producer.
- The existence of a huge gap between the stringent health, safety, and quality standards required by foreign governments and buyers, especially in the richer countries, and the weak standards and assessment mechanisms in India.
- Pernicious forms of trade protection in horticulture such as those that discriminate against efficient delivery, quotas that impose harsh tariffs on imports above certain low levels, and a system of special safeguards that is a source of considerable uncertainty for successful exporters.

CONSTRAINTS & POLICY IN DEVELOPMENT OF HORTICULTURE

However, India still has a lot to catch up with the growth rate in some of the developed countries despite its rich potential. Among other things, there is an increasing realization in the concerned circles that a major challenge that plagues speedy growth in Indian horticulture sector comes from factors like poor transport infrastructure, inadequate storage facilities, and a fragmented supply chain are eroding India’s advantage as a low cost producer. Poor logistics lead to delays and wastage and weaken farmers’ incentives to improve quality. India’s international transportation costs are 20-30 per cent higher than comparable countries and its marketing chain does not enjoy economies of scale. Many of these deficiencies are due to restrictions on domestic and foreign competition. The above deficiencies are listed below and widespread climatic variance. For instance, in horticulture produce like fruits & vegetables India produces only half of what is produced in India. Such a paradoxical scenario is often ascribed to the following factors:

- Inadequate Post Harvest Infrastructure and Processing Facilities
- Poor Marketing Infrastructure
- High Investments and Long Gestation Period
- Post Harvest Losses
- Trading and Marketing bottlenecks
- Sale of the Produce by Small and Marginal Farmers
- Market Distortions
- Banking Facilities
- Market Intelligence
- Exploitation by Commission Agents/Traders

However, to arrest the above deficiencies and to promote holistic growth of horticulture sector, development of the horticultural sector is supported by a large number of institutions both at the central and state level. The National Horticulture Board (NHB) in the ministry of agriculture is the central institution responsible for facilitating the development of this sector. Its mandate includes (a) encouraging the development of commercial horticulture through demonstration farms; (b) developing post-harvest management infrastructure; (c) strengthening market information systems and maintaining horticultural database; (d) assisting R&D programme; and (e) providing training and education to farmers and the processing industry for improving agronomic practices and adoption of new technologies.

Poor transport infrastructure, inadequate storage facilities, and a fragmented supply chain are eroding India’s advantage as a low cost producer. Poor logistics lead to delays and wastage and weaken farmers’ incentives to improve quality. India’s international transportation costs are 20-30 per cent higher than comparable countries and its marketing chain does not enjoy economies of scale. Many of these deficiencies are due to restrictions on domestic and foreign competition. Fundamental weaknesses in infrastructure can be remedied by creating the environment for private investment and undertaking the necessary public investment.
To emerge as a major producer of horticultural products, India needs some critical inputs, especially of supply chain management and collaboration among various stake-holders along with efficient vertical and horizontal integrations. The government intervention is required to create a policy environment that will ensure a mutually beneficial relationship between the farmers and organized sector. Along with investment in infrastructure, development of extension activities and linkages with farmers is also an important areas where government can play influential roles.

ASSIGNMENT DEFINITION

Genesis of the study

The present assignment of RITES to carry out a ‘Feasibility Study on Options for Long Distance Bulk Transportation of Horticulture Produces’ is in sync with the above initiatives of NHB to expand the facilitation for distribution of horticultural products in India and to review its existing circuits of horticulture produce movement.

Additionally, NHB is also keen to explore the feasibility of introducing Special Purpose Wagons (SPW) under the recently introduced ‘Liberalized Wagon Investment Scheme’ (LWIS) of Indian Railways and assess the opportunities and challenges associated with the transporting horticulture produce by rail.

Objective of the study

The key objectives of the study are as follows:

- To assess the demand for movement of Horticultural commodities by Container Train and SPW Train in the current circuit.
- To make a comparative cost benefit analysis between the existing container train operated by CONCOR and the proposed Special Purpose Wagons (SPW) train under the LWIS scheme to be directly operated by Railways.
- NHB also wishes to explore the feasibility of introducing Special Purpose Wagons (SPW) under the Liberalized Wagon Investment Scheme (LWIS) of the Railways, and assess the opportunities and challenges associated with transporting horticulture produce by rail.

Scope of the study (Terms of Reference)

The scope of work has been divided into two components.

PART-ONE: Techno-Economic Feasibility Study of Running a Horticulture Train under the Liberalized Wagon Investment Scheme (LWIS) of Indian Railways (IR)

This Part is focused on the assessment of the suitability of Liberalized Wagon Investment Scheme (LWIS) of IR by procuring High capacity Special Purpose Vehicles/Rake as an alternative mode to the present Containerized Horticulture Train in operation. The focus activities in this part inter-alia include:

- Capital and operating costs of running a train as per norms of the LWIS scheme.
- Comparative cost benefit analysis between the ‘Containerized’ train in operation and ‘Special Purpose Wagons’ (SPW) trains.
- Customization of ‘Special Purpose Wagons’ for making them suitable for transportation of Horticulture Produce.
- Identification of horticulture produces for transport in ‘Special Purpose Wagons’.
- Identification of any handling and trans-shipment requirements at railheads.
PART-TWO: Techno-Economic Assessment of Existing Containerized Horticulture Train Operated by CONCOR

This Part is focused on a critical assessment of the existing Containerized Horticulture Train operated by CONCOR in terms of its technical feasibility and commercial viability. Activities under this segment include:

- Identification of viable crops and circuits with estimation of seasonal volumes of different horticultural products at recommended loading points.
- Preparation of an annual calendar for utilization of Rakes (study should identify primary trade lanes with return cargo options and volumes).
- Identification of stakeholders and users of the containerized train.
- Assessment of operational challenges and suggestions to overcome them.
- Evaluation and assessment of CONCOR's freight structure for horticulture produce.
- Evaluation of the present model of horticulture Train for transport of Banana and benefits accrued from this to various stakeholders.

PART-THREE: Feasibility Assessment of Setting up a Banana Ripening Chamber near Azadpur Railway Yard

In addition to the above, NHB has desired that the Study should also explore the feasibility of setting up a Ripening Chamber for banana near Azadpur Railway Yard where the present Horticultural Train terminates. This should include assessment of issues like land ownership and possibility of Joint Venture with CONCOR/ RITES/ FHEL if the identified land belongs to the Indian Railways. It may be stated that while the Study is being carried out in three identified focus segments, their fall outs will be featured in one single Report.

APPROACH AND METHODOLOGY FOR THE EXECUTION OF THE PROJECT

Keeping in view the envisioned objective of NHB behind initiating the study and the wide canvas of assessment, the present Study calls for an extensive evaluation of wide ranges of secondary data sourced from NHB, local farmers/growers, trade association etc., field visits and surveys in addition to focus interaction with various stakeholders and associate/affiliate bodies/agencies.

Considering the above, the execution of the study interalia includes the following broad compartments:

2. Techno-Economic Assessment of existing Containerized Train.
3. Checking possibility of establishment of Ripening Chamber for banana near railway yard at Azadpur, including identifying land and ownership for said facility.

In carrying out the above three components, the following Approach & Methodology will be adopted which will interalia include focusing on all elements as discussed in the Scope of Work.
1. Techno-Economic Feasibility Study of Running Horticulture Train under Liberalized Wagon Investment Scheme (LWIS) of Railways.

This segment will focus on an assessment of the feasibility of running Horticulture Train under Liberalized Wagon Investment Scheme (LWIS) of Railways. This will relate to individual cost-benefit analysis of the proposed options i.e. containerized train and running a horticulture train in SPWs under LWIS as well as creating a comparative scenario. For a realistic analysis, capital cost of procuring the SPWs under LWIS scheme as well as operation and maintenance cost will also be estimated. In this context, the following:

- A comprehensive review of the Indian railway's Legalized Wagon Investment Scheme (LWIS) in respect of the Horticulture Sector. In addition, the assessment of capital and operating costs of running a train as per norms of the LWIS scheme shall be done.
- A comparative cost benefit analysis between the 'Containerized' train in operation and 'Special Purpose Wagons' (SPW) trains.

2. Techno-Economic Assessment of existing Containerized Train

Another important focus of the Study is to do an economic evaluation of containerized Horticulture Train, which has been in operation by CONCOR in association and support by NHB on the Bhusaval-Delhi circuit to transport Banana from Bhusawal to Azadpur Mandi, Delhi. Conceivably, this requires extensive interactions with the associated stakeholders like farmers, traders, grower association, officials in NHB, CONCOR etc. This is considered necessary to understand the benefits accrued, issues involved, challenges and constraints associated with the containerized train. It also involves collection and assessment of related secondary data pertaining to cost, in-transit damages, time taken etc.

Further, it also calls for identification of viable crops and circuits with estimation of seasonal volumes of different horticultural products at recommended loading points. Another important area of attention is identification of return cargoes for the rakes so as to ensure their maximum utilization and increase the profitability in operation. Hence the following points will be covered from the above:

- For maximum utilization of containerized rakes, the consultants will prepare an annual calendar for utilization of Rakes. For this, consultants shall study the all India flow of horticulture produce both by Rail and Road and shall identify primary trade lanes with return cargo options and volumes.
- Since in some circuits, adequate quantum or full rake load or return horticulture cargo might not be available, the consultants will identify other stakeholders or users which can provide the necessary rake load.
- Being highly perishable in nature and keeping in mind demand-supply scenario, the consultants will assess various operational challenges like factors affecting quality, logistics related factors, speed of transport etc.
- The consultants shall evaluate and assess the CONCOR's freight structure for horticulture produce.
- Evaluation of the present model of horticulture Train for transport of Banana and benefits accrued from this to various stakeholders. This also deals with review of existing rail and road connectivity, review of other supporting infrastructural facilities etc. It also includes the comprehensive assessment of the banana logistics movement circuit in terms of the following:
  - Value Chain Analysis
  - Risk analysis
  - Cost Analysis
  - Economic Evaluation
  - Infrastructure Analysis
3. Checking possibility of establishment of ripening chamber for banana near the Railway yard at Azadpur and identifying the land and ownership for said facility.

Assessment of infrastructure facilities required at the terminals viz. ripening chamber, collection center etc. would be done through interactions with traders/middlemen in the concerned locations to fine tune the exact market requirements. It would also involve identification of a suitable land parcel along with its ownership for setting up the facilities.

Value Additions to the Exercise: While on the context, it may further be mentioned that while carrying out the above exercises, a concerted focus will be laid on obtaining some inputs on 'Consumer Choice and Perceptions' regarding horticulture produces through field surveys. This is considered necessary because it constitutes one of the cardinal tenets of a sustainable horticulture market system in future. Consultants are of the view that outcome of the assessment and analysis carried out under the above compartments would lead to the generation of necessary inputs for addressing the core issues and scope of work delineated in the extant Study.

DELIVERABLES AND TIME FRAME

Deliverables of the study and their time frame for submission are as under:

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<td>Inception Report</td>
<td>Detailed methodology, analysis of current horticulture scenario, work plan, existing circuit evaluation</td>
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<td>2</td>
<td>Mid Term Report</td>
<td>Cost benefit analysis of LWIS vis-à-vis containerized train, demand analysis, evaluation and assessment of freight structure, major demand-supply circuits, Assessment of infrastructure requirement</td>
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<td>Draft Report</td>
<td>Designing and customization of SPWs, identification of stakeholders and users of containerized train, choices for creating infrastructure for proposed NHB circuits.</td>
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<td>4</td>
<td>Final Report</td>
<td>Modified Draft Report, incorporating clarifications on the Comments from NHB, if any</td>
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ANNEXURE- 2

FREIGHT MARKETING CIRCULAR NO. 11 of 2011

রাষ্ট্রপতি সরকার GOVERNMENT OF INDIA
রেল মন্ত্রণালয় MINISTRY OF RAILWAYS
(রেলওয়ে বোর্ড RAILWAY BOARD)

No. 2009/TC (FM)/ 4/6(LWIS) Rail Bhavan, New Delhi - 110 001, dated 02.01.2012

General Managers
All Indian Railways.

Sub: LIBERALIZED WAGON INVESTMENT SCHEME (LWIS)

Ministry of Railways has reviewed the existing Liberalized Wagon Investment Scheme (LWIS) issued vide Freight Marketing circular No. 07 of 2008 dated 15.04.2008 and formulated a revised Liberalized Wagon Investment Scheme (LWIS). A copy of the revised Liberalized Wagon Investment Scheme (LWIS) is enclosed herewith. The revised scheme will be in supersession of existing Liberalized Wagon Investment Scheme (LWIS) issued vide Freight Marketing circular No. 07 of 2008 dated 15.04.2008.

This scheme will come into force with immediate effect. The terms & conditions of the revised Liberalized Wagon Investment Scheme (LWIS) will also apply to the customers who have already made investment for procurement of wagons or obtained approval from Ministry of Railways for procurement of wagons under the existing LWIS.

This issues with the concurrence of Finance Directorate of Ministry of Railways.

The receipt of this letter may please be acknowledged.

DA. As above.

(Dy. Director Freight Marketing)

No. 2009/TC (FM)/ 4/6(LWIS) Rail Bhavan, New Delhi - 110 001, dated 02.01.2012

Copy forwarded to:
1. DAI (Railways) with 36 spares.
2. FA & CAOs, All Indian Railways.

For Financial Commissioner/Railways
Copy forwarded for information and necessary action to:

1. Chief Commercial Managers, All Indian Railways.
2. Chief Operations Managers, All Indian Railways.
3. Chief Mechanical Engineers, All Indian Railways.
4. Managing Director, Konkan Railway Corporation, Belapur Bhavan, Plot No. 6, Sector 11, CBD Belapur, Navi Mumbai-400014.
5. Director General, RDSO, Manak Nagar, Lucknow.
6. Director General, Railway Staff College, Vadodara.
7. Director, Indian Railways Institute of Transport Management (IRITM), Manak Nagar, Lucknow.
8. Managing Director, DFCCIL, Pragati Maidan, New Delhi.

Copy for information to:

1. CRB, FC, MT, ME, MM
2. AM (T), AM (C), Adv. (F), Adv. (Infra), Adv. (Vig.), EDTT(M), EDTT(F), EDTT(S), ED(Plg.), EDT(PPP), EDTC(R), EDFM, EDF(C), EDV(T), DTT(Coord.), OSD/CRB Railway Board.

Dy. Director Freight Marketing
LIBERALIZED WAGON INVESTMENT SCHEME

1.0 GENERAL

The existing Liberalized Wagon Investment Scheme (LWIS) circulated vide Freight Marketing Circular No. 07 of 2008 along with all its amendments, stand superseded by the revised Liberalized Wagon Investment Scheme (LWIS). The terms & conditions of the revised Liberalized Wagon Investment Scheme (LWIS) shall also be made applicable to the customers who have already made investment for procurement of wagons or obtained approval from Ministry of Railways for procurement of wagons under the existing LWIS.

2.0 DEFINITIONS AND ABBREVIATIONS

Definitions and abbreviations of some of the terms used in this document are as under.

2.1 IR: Railway Administration.
2.2 MOR: Ministry of Railways, Government of India.
2.3 Investors: This refers to End Users or WLCs.
2.4 End User: Rail customers who are producers or consumers of the goods transported by rail.
2.5 Wagon Leasing Company (WLC): A Leasing Company engaged in the business of procuring railway wagons and making them available to other business entities authorized to deploy such wagons for operation over IR network in accordance with the extant policy of MOR.
2.6 Lessor: A WLC engaged in the business of leasing wagons to Lessee(s).
2.7 Lessee: It refers to End Users, Investors under Terminal Development Scheme or Operators under Concession granted by IR to run trains on IR network.
2.8 Leased Wagons: Wagons given on lease by a Lessor to a Lessee.
2.9 Idle Leased Wagons: Wagons owned by a Lessor and held on IR network or a private siding awaiting nomination of a Lessee.
2.10 High Capacity Wagons (HCW): Wagons with payload which are at least 2 tonnes higher than the payload of extant similar wagons on IR for 25.0 or 22.9 tonne axle load route, as the case may be. The dimension of such wagons should be such that it gives commensurate higher payload in the full train length without changing the laid down standard composition of rakes. Such wagons will operate on specific routes approved by IR and will not form a part of the wagon pool of IR.
2.11 **Special Purpose Wagons (SPW):** Wagons designed for rail transportation of a specific commodity or group of commodities. Such wagons will operate on specific routes or close circuits approved by MOR and will not form a part of the wagon pool of IR.

2.12 **Wagon Leasing Scheme (WLS):** The Scheme introduced by MOR in the year 2008 for leasing of wagons and their operation on IR.

2.13 **Terminal Development Scheme:** Scheme introduced by MOR in 2008 to encourage development of railway terminals through investment from private sector.

3.0 **TYPES OF WAGONS PERMITTED FOR PRIVATE PROCUREMENT**

Following types of wagons may be procured under this Scheme.

(i) High Capacity Wagons (HCW)
(ii) Special Purpose Wagons (SPW)

4.0 **PROCUREMENT OF WAGONS**

Following types of investors may procure wagons.

(i) WLC (for leasing to End users)
(ii) End users (for their own traffic only)

5.0 **PROCEDURE FOR PROCUREMENT OF WAGONS**

5.1 General conditions and procedure for procurement of wagons is laid down in Annexure - A.

5.2 Procurement of wagons will be allowed only with prior administrative approval of MOR.

5.3 Privately procured wagons will be inducted into service only after completion of the mandatory safety and quality inspections by authorized agencies as notified by MOR.

5.4 MOR reserves the right to terminate the Agreement with any investor procuring wagons under LWIS on payment of the residual value as assessed by IR.

6.0 **OPERATION OF PRIVATELY OWNED WAGONS**

HCW and SPW will be operated as per the provisions prescribed in Annexure - B.

7.0 **MAINTENANCE OF WAGONS**

Maintenance of Wagons will be undertaken by IR on payment as per agreements to be executed with the investor.
8.0 FREIGHT RATES AND CONCESSIONS

8.1 Freight concessions will be permitted to End Users only as indicated in Annexure - C.

8.2 However, if the investor has availed of any concession, subsidy or any other financial benefit for procurement of wagons from any other Ministry or from Ministry of Railways under any other Scheme, he will not be eligible under this scheme. The investor will give an undertaking to this effect. In case of false undertaking, benefit given if any, shall be recovered through a suitable mechanism to be developed by the Railways.

9.0 RESTRICTED COMMODITIES

Transport of Coal and coke, ores and minerals including iron ore will not be permitted in privately owned wagons.

10.0 LIEN

In cases of default of payment by the investor, IR may exercise lien on the privately owned wagons and the consignment loaded in such wagons to recover its dues. However, in case of leased wagons the relevant provisions of the WLS will apply.

11.0 DISPUTE RESOLUTION

All disputes in regard to implementation of the agreements with the Zonal Railway, under this scheme, will be referred to an Arbitrator nominated by General Manager of the Zonal Railway.
Annexure - A

LIBERALIZED WAGON INVESTMENT SCHEME

General conditions and procedure for procurement of High Capacity and Special Purpose Wagons

Following procedure and conditions are laid down for procurement of wagons by prospective investors under LWIS:-

1. The Chief Operations Manager (COM) of the concerned loading railway should be contacted along with specific details of the proposal. The details should include number of rakes required, type of wagons, commodity, loading station(s), destination station(s), proposed specific route(s) or close circuit(s) and any other information relevant to the proposal.

2. After examination of the proposal regarding its operational feasibility, No Objection Certificate (NOC) shall be issued by the COM of the loading railway in consultation with the COM of the destination railway. NOC should normally be issued within 10 days of receipt of application.

3. NOC should clearly indicate number of rakes, type of wagon, loading station, unloading station(s), commodity, route or the close circuit for movement of the traffic in such rakes, etc.

4. Application along with NOC should be forwarded by the zonal railway to the Executive Director/Freight Marketing (EDFM), Railway Board for examination by the IT Directorate and issue of final approval of the Railway Board for permitting procurement of rakes under LWIS.

5. On the basis of the approval of the Railway Board, an Agreement will be signed between the Chief Commercial Manager (CCM) of the concerned Railway and Investor.

6. Wagons should be procured in units of rake with 4% maintenance spares and one brake van.

7. Rakes will be procured by customers directly from wagon manufacturers or through import subject to compliance with current applicable IRS designs and specifications and inspection by nominated agency of IR, namely, RDSO.

8. Customers will be required to incorporate following warranty clause in the purchase contract with the wagon manufacturer.

"Supplies shall be guaranteed against any manufacturing defect/poor workmanship quality etc. for a period of 24 months of commissioning or 30 months from the date of delivery, whichever is earlier. During this period contractor will arrange to repair/replace
any defective part free of cost or replace complete set if required. Further, since these wagons are to be utilized by the customers of Indian Railways, they are hereby authorized to invoke this warranty clause in case of any default on the part of wagon manufacturer.

9. Information regarding placement of order for procurement of rakes may be advised to the COM of the concerned zonal railway as well as EDFM, Railway Board.

10. Date of actual induction of the rake on IR network may be informed to the COM and EDFM, Railway Board. The zonal railway will keep the details of the wagons and brake-vans procured for each rake.

11. On receipt of documents about commissioning of the rake under LWIS, a commercial notification will be issued by the CCM in consultation with COM. The notification should have all relevant details mentioning inter alia, the details of the concession, the date of commencement of the concession period, the name of the investor, wagon numbers, commodity, approved circuits, the base freight at the time of notification etc.

12. Each rake procured by investor will thus have an associated loading and unloading point(s) over specific route(s) or close circuit(s) as approved by the Railways as per the above procedure.

13. The associated loading and unloading point or points can be changed as per the requirement of the LWIS customer. This change is subject to the operational feasibility and NOC from the concerned Zonal Railway and approval of the Railway Board. The loading and unloading station will be of end users.

14. In case the LWIS customer wants to carry commodity other than for which permission has been given, the same may be permitted provided that commodity is produced/consumed by LWIS customer and can be carried in rakes for which permission has been granted. E.g. If BCCW rakes under LWIS have been procured for loading cement and fly ash and the investor desires to change the number of rakes dedicated to either of the commodity, it should be allowed.

15. However, in the case of leased wagons, changes in the associated loading and unloading point(s) and the route(s) or closed circuit(s) can be made as per the requirement of the WLC subject to the certification of operational feasibility and approval of the Railway Board. Each such case shall, however, be processed for issue of a fresh NOC from the concerned Zonal Railway and the approval of Railway Board as per the procedure prescribed above.

16. Rake(s) should be procured under this scheme within one year from the date of signing of the Agreement, unless specific prior extension is given by the Railway Board.
LIBERALIZED WAGON INVESTMENT SCHEME

Conditions for operation of High Capacity and Special Purpose Wagons

IR will operate HCW and SPW as per the conditions prescribed below:

1. Private wagons falling in this category will not be merged in the wagon pool of IR. Rakes comprising of such wagons will be identified as exclusively belonging to the private investor who has procured them.

2. Loading in wagons procured under this Scheme will be permitted only against indents registered by End Users subject to extant rules for allotment of wagons.

3. Indents for loading in such wagons will be placed at the approved loading point for the approved destination point for movement over specific route(s) or closed circuit(s) as approved by the Railways.

4. If the End User does not place any indents, these wagons will remain idle in his premises.

5. If IR has to stable these rakes in railway owned yards at the request of the End User or otherwise, stabling charges as notified by MOR will be payable.

6. IR will have no right to use these wagons, except as stipulated in Para 7 below, for loading of traffic of any customer other than the End User for the wagons concerned.

7. Notwithstanding Para 3 and 6 above, HCW or SPW may be used by IR for traffic offered by customers other than the End User subject to a prior mutual written agreement between IR and such Investors or WLCs regarding the terms of such usage.

8. Investor will not be entitled to any residual value of the rake procured by him.

9. Freight traffic transported in the SPW in an approved close circuit will originate from a private siding or terminal and terminate at a private siding or terminal capable of handling the traffic in such special purpose wagons.

10. Wherever relevant, provisions of the Terminal Development Scheme will apply for operation of SPW.

[Signature]

Page 6 of 9
LIBERALIZED WAGON INVESTMENT SCHEME

FREIGHT CONCESSIONS

Freight concessions to the End Users that will be granted for each loading in the rakes consisting of new HCW and SPW procured under LWIS are as under:

A. **HCW operating on approved specified routes**

1. Investments in HCW, with a payload of 2 tonnes more than the payload of extant similar wagons (as mentioned in Para 2.10 of the scheme) will be eligible for a freight concession of 12% for a period of 20 years.

2. For each additional tonne of payload in excess of what is prescribed in Para 1 above, an additional 0.5% of freight discount will be granted for 20 years.

3. Payload will be reckoned in terms of integral units of tonnes after rounding off the fractions to the lower integer.

B. **SPW operating in approved Closed circuits**

Freight concession of 15% will be granted for a period of 20 years for each loading of a new rake of SPW procured under LWIS operating between existing or new private terminals capable of handling the traffic in such special purpose wagons in an approved close circuit.

The above mentioned freight concessions of 12% and 15% will be granted in each case on the Base freight rate prevailing at the time of issue of commercial notification by the CCM (Para 11 of Annexure A) or the Base freight rate applicable at the time of booking, during the currency of the concession period of 20 years, whichever is lower.
ANNEXURE- 3

FREIGHT MARKETING
CIRCULAR NO. 02 OF 2011

भारत सरकार
GOVERNMENT OF INDIA

रेल मंत्रालय
MINISTRY OF RAILWAYS

(रेलवे बोर्ड RAILWAY BOARD)

No. 2009/TC(FM)/4/2.

Rail Bhavan, New Delhi - 110 001, dated 17.02.2011

General Managers,
All Indian Railways.

(Appendment No. 1 to Wagon Leasing Scheme)

Sub: Wagon Leasing Scheme (WLS).

Ref: Freight Marketing Circular No. 08 of 2008—Board’s letter

1. In reference to FM circular No. 08 of 2008 issued vide Board’s letter under
reference following amendments may be noted.

2. Para 5.3 may be amended as “The company should have a net worth of at least
Rs. 100 Crore”.

3. Para 6.2 may be amended as “Registration of a Wagon Leasing Company (WLC)
will be valid for 35 years from the date of registration further extendable on
payment of registration fees subject to satisfactory performance”.

4. Para 6.3 may be deleted.

5. A Para 7.6 may be added as “Wagon Leasing Company (WLC) is also permitted
to purchase wagons from Container Train Operators (CTO), Special Freight
Train Operator (SFTO), Automobile Freight Train Operator (AFTO) and end
users with prior approval of Ministry of Railways. The rebate applicable to
these wagons will be that of the policy under which the wagons were procured
initially and in case the WLC purchases wagons which are not entitled to any
rebate, no rebate will be permissible under the WLS scheme.”

6. A Para 10.3.7 may be added as “Stabling charges other than above reasons
should considered as follows:

(a) In case the train suffers detention at the serving station for reasons
attributable to the WLC/Lessee or when the WLC/Lessee either declines to
accept the inside the terminal, scheduled to be the terminating station or is
not in a position to receive placement of subsequent train then stabling
charges should be levied.

(b) At any of the stations en-route due to any reason attributable to the
WLC/Lessee including for want of demand then stabling charges should be
levied.

contd/....
(c) When the rake is on run from originating station to the destination station or on scheduled maintenance the stabling can be on Railways account unless otherwise expressly asked for by the lessee then stabling charges should not be levied.”

7.0 This issues with the approval of Board and concurrence of the Finance Directorate of the Ministry of Railways.

8.0 These instructions will come into force with immediate effect.

Please acknowledge receipt

(Rita Raj)
Director Freight Marketing

New Delhi, dated 17.02.2011

Copy forwarded to:
1. DAI (Railways) with 36 spares.
2. FA&CAOs, All Indian Railways.

(Rita Raj)
Director Freight Marketing

New Delhi, dated 17.02.2011

Copy forwarded for information and necessary action to:
1. The Chief Commercial Manager, All Indian Railways.
2. The Chief Operation Manager, All Indian Railways.
3. The Chief Mechanical Engineers, All Indian Railways.
4. The Chief Commercial Manager (FM), All Indian Railways.
5. The Chief Freight Traffic Manager, All Indian Railways.
6. MD/CCM, Konkan Railway Corporation Ltd., Belapur Bhavan, Plot No.6, Sector 11, CBD Belapur, Navi Mumbai-400014.
7. Managing Director, Centre for Railway Information System (CRIS), Chanakyapuri, Near National Rail Museum, New Delhi.
8. Managing Director, DFCCIL, Pragati Maidan, New Delhi.
10. Director General, R.D.S.O., Mank Nagar, Lucknow.
11. Director General, Railway Staff College, Vadodara.
12. Director, Indian Railways Institute of Transport Management (IRITM), Manak Nagar, Lucknow.
13. CRB, FC, MT, ML, MM, MS, ME, Secretary, DG/RPF, DG/RHS, Railway Board for kind information.
14. AM(Traffic), AM(C), Adv. (F), Adv. (Infra.), Adv. (Vig), EDTC (R), EDDT(M), EDDT(F), EDTP(Plg.), EDDT(PPP), EDF(I), EDV(T), DTT(Coord.), OSD/CRB Railway Board.

(Rita Raj)
Director Freight Marketing
ANNEXURE- 3 Contd..

FREIGHT MARKETING CIRCULAR NO. 03 OF 2011

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(रेल व्यवस्था बोर्ड RAILWAY BOARD )

General Managers,
All Indian Railways.

(Corrigendum to Amendment No. 1 to Wagon Leasing Scheme)

Sub: Wagon Leasing Scheme (WLS).

1.0 Please refer to Freight Marketing Circular No. 02 of 2011 issued vide Board’s letter No. 2009/TC(FM)/4/2 dated 17.02.2011 regarding amendment to Wagon Leasing Scheme.

2.0 Para 6.0 (c) may be read as under:

"when the rake is on run from originating station to the destination station or on scheduled maintenance, the stabling shall be on Railway account unless expressly asked for by the lessee."

3.0 This issues with the approval of Board and concurrence of the Finance Directorate of the Ministry of Railways.

4.0 These instructions will come into force with immediate effect.

Please acknowledge receipt

(Rita Raj)
Director Freight Marketing

New Delhi, dated 18.02.2011

Copy forwarded to:
1. DAI (Railways) with 36 spares.
2. FA&CAOs, All Indian Railways.

for Financial Commissioner/Railways
Copy forwarded for information and necessary action to:
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2. The Chief Operation Manager, All Indian Railways.
3. The Chief Mechanical Engineers, All Indian Railways.
4. The Chief Commercial Manager (FM), All Indian Railways.
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10. Director General, R.D.S.O., Mank Nagar, Lucknow.
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12. Director, Indian Railways Institute of Transport Management (IRITM), Manak Nagar, Lucknow.
13. CRB, FC, MT, ML, MM, MS, ME, Secretary, DG/RPF, DG/RHS, Railway Board for kind information.
14. AM(Traffic), AM(C), Adv. (F), Adv. (Infra.), Adv. (Vig), EDTC (R), EDTT(M), EDTT(F), ED(Plg.), EDT(PPP), EDF(C), EDV(T), DTT(Coord.), OSD/CRB Railway Board.

(Rita Raj)
Director Freight Marketing
FREIGHT MARKETING CIRCULAR NO. 09 OF 2008

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

No. 2008/TC(FM)/1/1(TDS)    New Delhi, Dated: 15.04.2008

General Managers
All Indian Railways.

Sub: TERMINAL DEVELOPMENT SCHEME (TDS)

Ministry of Railways has formulated a new Terminal Development Scheme (TDS). The details of the scheme are enclosed herewith. This scheme will come into force with immediate effect.

This issues with the concurrence of Finance Directorate of Ministry of Railways.

The receipt of this letter may please be acknowledged.

DA. As above (9 pages)

(Sanjay Goel)
Director Freight Marketing

No. 2008/TC(FM)/1/1(TDS)    New Delhi, Dated: 15.04.2008

Copy forwarded to:
   a. DAI (Railways) with 36 spares.
   b. FA & CAOs, All Indian Railways.

for Financial Commissioner/Railways
No. 2008/TC(FM)/1/1(TDS) New Delhi, Dated: 15.04.2008

Copy forwarded for information and necessary action to:

1. Chief Commercial Managers, All Indian Railways.
2. Chief Operations Managers, All Indian Railways.
3. Managing Director, Konkan Railway Corporation, Belapur Bhavan, Plot No. 6, Sector 11, CBD Belapur, Navi Mumbai-400014.
4. Director General, RDSO, Manak Nagar, Lucknow.
5. Director General, Railway Staff College, Vadodara.
6. Director, Indian Railways Institute of Transport Management (IRITM), Manak Nagar, Lucknow.

Copy for information to:

1. CRB, FC, MT, ME, MM
2. AM (T), AM (C), Adv. (F), Adv. (Infra), Adv. (Vig.), EDTT(M), EDTT(F), EDTT(S), ED(Plg.), EDT(PPP), EDTC(R), EDFM, EDF(C), EDV(T), DTT(Coord.), OSD/CRB Railway Board.

(Sanjay Goel)
Director Freight Marketing
1.0 INTRODUCTION

Unprecedented growth in freight traffic carried by railway in recent years has highlighted the urgency of addressing capacity constraints that have come to the fore in the wake of such growth. Adequate line and terminal capacity and ability to provide compelling value to customers in terms of low, competitive logistics costs hold the key to sustained growth in future. Ministry of Railways (MOR) has already initiated a number of measures to augment line capacity on its saturated routes. To enhance the capacity and efficiency of terminals, MOR has also taken up modernisation and redevelopment of goods sheds handling more than 15 rakes a month. This policy seeks to supplement the in-house programme of MOR by opening the area of terminal development to participation of major customers of Railways.

2.0 OBJECTIVE

The objective of the scheme is to promote development of new railway terminals through investment from private sector. This would lead to not only development of new state-of-the-art terminals and new special purpose wagons, but also long term commitment of rail movement of freight traffic in specific commodities.

3.0 DEFINITIONS AND ABBREVIATIONS

Definitions and abbreviations of some of the terms used in this document are as under:

3.1 IR: Railway Administration.
3.2 MOR: Ministry of Railways, Government of India.
3.3 End Users: Rail customers who are producers or consumers of the goods transported by rail.
3.4 Bulk Commodity: It will include commodities namely Cement, Fly-ash, and Fertilizers when moved in loose condition in privately owned Special Purpose Wagons (SPW).
3.5 Finished Products: It will include commodities namely finished iron and steel products, bagged Cement and bagged Fertilizers.
3.6 Special Purpose Wagons (SPW): Wagons designed for rail transportation of a specific commodity or group of commodities. Such wagons will operate on specific routes or close circuits approved by MOR and will not form a part of the wagon pool of IR.

3.7 Liberalized Wagon Investment Scheme (LWIS): Scheme introduced by MOR in 2008 to encourage private investment for procurement of different types of wagons.

4.0 SCOPE OF THE POLICY

4.1 Terminals dealing with coal and coke, POL, iron ore and all other types of minerals and ores are not eligible under this Scheme.

4.2 This Scheme is limited to the development of (i) new terminals for handling bulk commodities, namely, Cement, Fly-ash and fertilizers transported in loose condition, and (ii) new terminals for unloading finished products namely Iron & Steel, bagged Cement and bagged Fertilizers.

5.0 TYPES OF TERMINAL

5.1 The terminals covered under this scheme would be of the following types:

(i) Terminals for Bulk Commodities at which commodities namely cement, fertilizers and fly ash shall be handled in loose condition.

(ii) Terminals for Finished Products at which commodities namely Iron & Steel, bagged Cement and bagged Fertilizers will be unloaded.

5.2 These terminals would generally be set up on private land close to IR network. However, Railways may allow their surplus land at suitable locations, if available, for setting up of such terminals in accordance with the terms and conditions set out in the policy.

6.0 GENERAL CONDITIONS

6.1 This Scheme envisages private ownership of sidings or terminals at both ends by the end users.
6.2 The end user shall approach the General Manager of the concerned zonal railway with the proposal for setting up of a new private terminal with all relevant details, in terms of the extant policy for private sidings as well as provisions mentioned herein and the LWIS, as applicable.

6.3 In order to qualify for the financial incentives under this scheme, all freight traffic consisting of the commodities permitted under the scheme, shall originate from a private siding or a private terminal and terminate at a private terminal or a private siding, and at least one of the terminals should be developed as a new terminal under the scheme.

6.4 End users will construct state of the art private terminals, under the extant policy for private sidings, at their own cost and provide efficient handling facilities.

6.5 It will be mandatory for the end users to operate both the terminals on round-the-clock basis.

6.6 Railway commercial staff shall be posted at the private terminals for carrying out commercial functions. The cost of such railway staff shall be borne by the end users as per extant rules for private sidings.

6.7 End users developing private terminals on railway land will be required to give a minimum commitment in regard to Traffic Guarantees as set forth in this document. However, condition of Traffic Guarantee will not apply to private terminals developed on private land.

6.8 Since the terminal is being developed under the provisions of siding policy, all charges stipulated in such a policy would be payable to the IR by the end users.

6.9 The terminal so developed shall have adequate facilities like lighting, drinking water, toilet facilities, staff amenities, etc.

6.10 End users would be responsible to get all clearances that may be required from other government departments for making such a terminal operational.

6.11 There shall be no train examination facilities in the terminal.

6.12 The terminals will be operated under the Terminal management System (TMS) with ‘e’ payment of railway freight and other charges.

6.13 Specific conditions pertaining to terminals for handling bulk commodities, and terminals for unloading finished Products are elaborated respectively in Parts A and B of the scheme.

6.14 No concessions or incentives other than those specified in Parts A and B of this scheme shall be admissible.
6.15 If the end users has availed of any concession, subsidy or any other financial benefit for creation of terminals and/or procurement of wagons from any other Ministry or from MOR under any other Scheme, he will not be eligible under this scheme. The end user will give an undertaking to this effect. In case of false undertaking, benefit given if any, shall be recovered through a suitable mechanism to be developed by IR.

6.16 Gestation period for setting up the private terminal will be a maximum of one year from the date of approval of the proposal by IR or handing over the railway land, as applicable, whichever is later.

6.17 Railways liability as a bailee for the claims for loss, destruction, damage, deterioration or non-delivery of any consignment will not extend beyond the interchange point at the terminal.

7.0 LAND

7.1 Private Terminals will be developed primarily on land procured by end users at their cost.

7.2 However, wherever Railway is in a position to offer IR owned surplus land of adequate size in terms of extant siding policy, the same would be made available on lease for development of Private Terminals under this policy, for 30 years. The lease could be extended for a period of another 10 years based on satisfactory performance.

8.0 TRAFFIC GUARANTEES

8.1 The end user who wishes to develop the terminal on railway land should give a commitment for offering following minimum volumes of traffic to IR.

(i) First Year of operation - 0.5 million tonne
(ii) Second Year of operation - 0.75 million tonnes
(iii) Third and subsequent years of operation - 1.0 million tonnes or higher

8.2 End user developing a terminal on private land shall not be required to give the traffic guarantees given above.
9.0 ELIGIBILITY

9.1 The sidings or terminals at either end for loading or unloading will be privately owned by the end users and the traffic of the specified commodities will be transported in special purpose wagons privately owned by the end users.

9.2 The end user should be an entity registered in India under the Companies Act, 1956.

10.0 SELECTION OF THE INVESTOR

10.1 Terminals on Private Land

10.1.1 An end user intending to develop a new Terminal on privately owned land may approach the General Manager of the concerned zonal railway with his proposals with all relevant details.

10.1.2 The proposals will be examined for issuing a No Objection Certificate (NOC) by the COM of the concerned zonal railway, subject to operational feasibility and fulfilment of the conditions of this Scheme and other relevant extant rules and instructions.

10.1.3 The proposal along with the NOC will be forwarded by the railway for final approval by MOR.

10.1.4 Railway will thereafter facilitate providing rail connectivity to the terminal with the IR network in terms of extant rules and instructions for development of private sidings.

10.2 Terminals on Railway Land

10.2.1 Wherever Railway has surplus land to offer for development of new private terminals, it will invite business proposals through an Expression of Interest (EOI) through an open advertisement.

10.2.2 The proposals and the credentials of the end users will be examined for short listing, as per procedure given in Para 10.1.2 and 10.1.3 above.

10.2.3 The short listed end users will be asked to submit their financial bids indicating the total revenue payable to railways every year, which will be the parameter for deciding award of contract to the highest bidder.

10.2.4 The end users developing such terminals on railway land will be required to offer minimum guaranteed volume of traffic as provided in this document in Para 8.0 above.
10.2.5 If the end user fails to offer the committed revenue per annum and minimum guaranteed traffic in any year, except due to *force majeure* reasons, he will be required to make good the difference in revenue between the committed amount per annum and the actual reduced level of revenue, subject to realisation of the revenue for the minimum guaranteed volume of traffic for that year. Suitable clause to this effect should be incorporated in the agreement to be executed by the concerned zonal railway with the end users with provisions to protect railway’s interest. The *force majeure* reasons for this purpose shall include act of God, act of war or act of public enemies.

11.0 **LAND LEASE CHARGES**

Wherever IR owned land is made available for creation of private terminals or for linkage with IR network, land lease charges will be payable by the end users in accordance with the notified policy of MOR.

12.0 **DISPUTE RESOLUTION**

All disputes in regard to implementation of the agreement, under this scheme, between the Zonal Railway and the end users will be referred to an Arbitrator nominated by General Manager of the Zonal Railway.
PART-A

TERMINALS FOR BULK COMMODITIES

A.1 This part lays down provisions in the scheme applicable to development of private terminals for handling bulk commodities namely Cement, fertilizers and Fly-ash when transported in loose condition and moved in privately owned SPW procured under LWIS.

A.2 SPW required for the transportation of the specified commodities shall be procured directly from the wagon manufacturer or through way of import, within one year of signing the agreement with the railway, unless specific prior extension is granted by MOR.

A.3 SPW will be inducted into service only after completion of the mandatory safety and quality inspections by agencies authorized by MOR.

A.4 The sidings or terminals at both ends of the approved close circuit shall be privately owned, out of which at least one terminal should be a new terminal developed under this scheme.

A.5 Incentives will be given to End Users by way of freight concession and exemption from charges/surcharges for traffic booked from the approved loading point as detailed below:

(i) Freight concession of 15% will be granted for a period of 20 years on each loading of a new rake of SPW procured under LWIS.

(ii) The freight concession will be granted on the Base freight rate prevailing at the time of issue of commercial notification by the CCM (in terms of LWIS) or the Base freight rate applicable at the time of booking, during the currency of the concession period of 20 years, whichever is lower.

(iii) Waiver of the applicable Busy Season Surcharge for a period of 20 years from the start of operations under this scheme.

(iv) Waiver of Terminal Charge.
A.6 No demurrage or wharfage charges shall be leviable.

A.7 Maintenance of privately owned SPW would be undertaken by IR as per charges and terms laid down in an agreement to be executed between the end users and IR.
PART-B

TERMINALS FOR FINISHED PRODUCTS

B.1 This part lays down provisions in the scheme applicable to development of a new Private terminal for unloading of finished products namely Iron & Steel, bagged Cement and bagged Fertiliser.

B.2 Only IR owned general service wagons shall be used for transportation of commodities specified under this scheme.

B.3 Incentives will be given by way of exemption from charges/surcharges to end users for traffic booked from the approved loading point as detailed below:-

(i) Waiver of the applicable Busy Season Surcharge for a period of 20 years.
(ii) Waiver of Terminal Charges.

B.4 Customer other than the original end user can also book traffic of the same commodity to such terminals subject to mutual agreement with the end users and approval of the concerned zonal railways. In such case, the only incentive for that traffic will be non-levy of terminal charges.

B.5 Free time permitted at the unloading terminals shall be as per Engine on load norms.

B.6 Demurrage charges shall be leviable as per normal railway rules.

B.7 No wharfage charges shall be leviable.

 *****