

**Modeling and Analytics for Supply Chain Management**  
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**Indian Institute of Technology, Kharagpur**  
**Lecture 39**  
**Foreign Trade Logistics**

Hello and welcome to Modeling and Analytics for Supply Chain Management. We are into week eight lecture 39. That is how Logistics is done when there is a cross border trade and what you need to be careful about, as we mentioned this week we have done, we have dealt with fully the public systems approach to this thing.

Now, before we before we start let me tell you that normally after every week, we give you a reference slide that shows the references and the books etc. But this week we are dealing with the public transport aspects and it is a mixture of different, different experiences, expertise etcetera and as such we cannot recommend a single book for this purpose. I think the slides and the voice recordings they are sufficient enough to cover this week.

So, let us proceed, the foreign trade logistics now. What we say is that India, India's foreign trade with other countries, India's trade with other countries is very, very well known, we are not going into that aspect, we are going into aspect of foreign trade logistics with India and its neighboring countries that is India, Pakistan, Bangladesh, Nepal.

So, these are the countries which have a common border with India and we will deal with how the trade, how the logistics happens in these places, what are the documents involved, how do we calculate the costs etc, etc.

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In this week:

- India's trade with neighbouring countries using rail logistics

• Common

- On the western part of the sub-continent, Pakistan Railway had got 8048km BG from North-Western
- Railway and 512 km MG route km from Jodhpur Raiway at the time of Partition ; present RKM: 7791.(2012)

So, India's trade with the neighboring countries using rail logistics that is what we intend to cover. Now, what is the common thing see, as you all know that you India, Pakistan and today's Bangladesh all were a part of the Indian union under the British rule. So, the Britishers when they laid tracks, the tracks were through the entire country and when our great leader Netaji Subhash Chandra Bose left the country just before the Second World War, to fight an armed struggle against the British.

He moved from Punjab on the Indian side today to the other side that is in Pakistan and from there, he moved on. He extensively crossed Pakistan, today's Pakistan and from there he moved on to Afghanistan and through Pakistan, through Peshawar and other cities. He moved on to today's Afghanistan and from there, he went to via the Soviet Union he went to Germany.

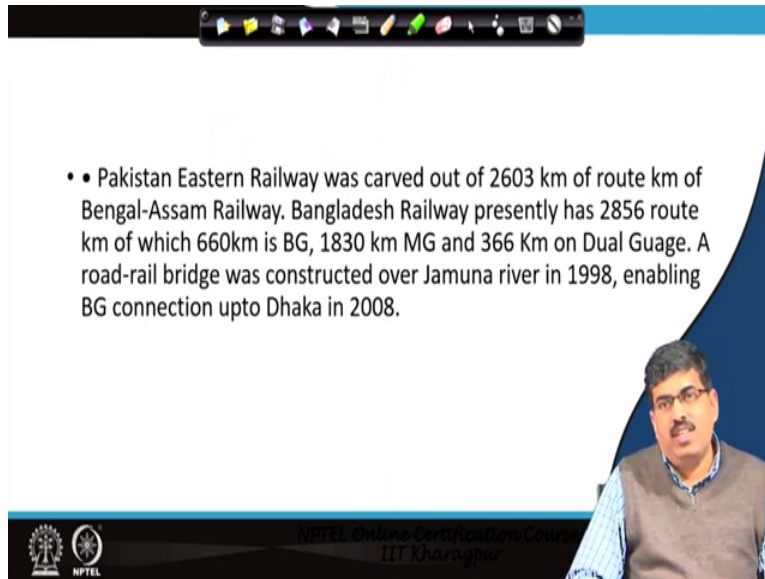
So, this railway track was a unified one under the British, during the British period covering extensive portions of India, Pakistan, Bangladesh. Now, it is worthwhile to mention that the track length that, we have now is almost the same as we inherited from the Britishers.

But what has changed is that length has remained almost same. But what has changed is the tremendous modernization, all the narrow gauge tracks have changed to large, due to the broad gauges, your entire wagon system, bogies, everything has changed. The passenger compartments have changed. You have so much powerful engines which we are exporting today also to some countries.

So, huge changes happened, but I want to say is the length of the railway track that has remained almost similar because it has covered, it has been able to cover the length and breadth of the country same applies to Pakistan, same applies to today's Bangladesh it was the same railway track.

So, on the western part of the subcontinent Pakistan railways has got 8048 kilometer broad gauge from the northwestern railway and 512 kilometers meter gauge route kilometers from Jodhpur railway at the time of partition. Present route kilometers is 7791. So, from 512 you see, they have moved up to 7791. So, this is way the railways was divided during the partition.

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- • Pakistan Eastern Railway was carved out of 2603 km of route km of Bengal-Assam Railway. Bangladesh Railway presently has 2856 route km of which 660km is BG, 1830 km MG and 366 Km on Dual Gauge. A road-rail bridge was constructed over Jamuna river in 1998, enabling BG connection upto Dhaka in 2008.

The Pakistan Eastern Railway, this is your Bangladesh. Whenever you see the word Pakistan east then this is Bangladesh. It was carved out of 2603 kilometers of route kilometers of Bengal Assam railway, Bangladesh railway presently has 2856 route kilometers of a 660 kilometers is broad gauge, 1830 is meter gauge and 366 is in dual gauge.

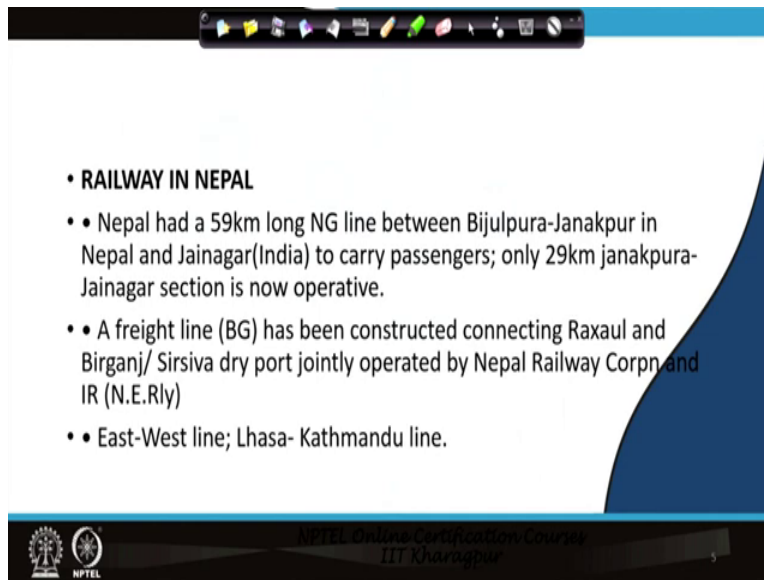
Road rail bridge was constructed over Jamuna river in 98, enabling broad gauge connection up to Dhaka in 2008. In fact, this Jamuna bridge they consider it as a great achievement in Bangladesh and they call it as Jamuna Setu and this considered is a great achievement in Bangladesh.

Now, what is important to know here is the way India has expanded its railway network in terms of modernization, some cases laying of new tracks etc, etc, removing old tracks, increasing the speed of the trains. Neither Pakistan or Bangladesh has been able to live up to that.

One, because its needs huge investments. Two, it needs huge amount of engineering expertise and investments both these countries could not do for railway movement and that is where India, Indian trade and India is also investing in Bangladesh for giving free

rather the technology expertise to have railway links because in the cost of transport comes down. So, your supply chain cost comes down.

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• **RAILWAY IN NEPAL**

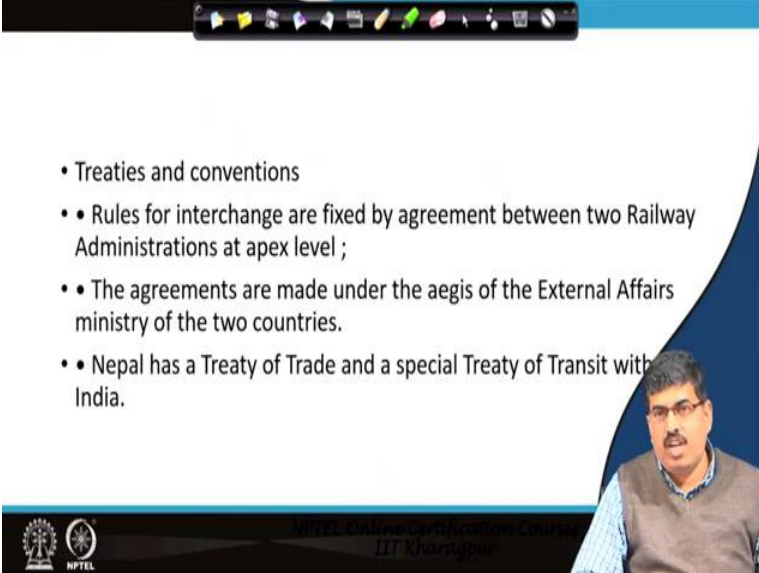
- Nepal had a 59km long NG line between Bijulpura-Janakpur in Nepal and Jainagar(India) to carry passengers; only 29km janakpura-Jainagar section is now operative.
- A freight line (BG) has been constructed connecting Raxaul and Birganj/ Sirsiva dry port jointly operated by Nepal Railway Corpn and IR (N.E.Rly)
- East-West line; Lhasa- Kathmandu line.

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Now, railways in Nepal, Nepal is as you know a mountainous country and this is justified that they will have only very few kilometers of railway tracks. So, Nepal had a 59 kilometer long NG line between Bijulpura-Janakpur in Nepal and Jainagar to carry passengers, only 29 kilometers Jakakpura-Jainagar section is now operated.

So, instead of expanding the 30 kilometers have gone unusable. A freight line, broad gauge has been constructed connecting Raxaul and Birganj dry port jointly operated by Nepal Railway Corporation and Indian Railways, North Eastern Railway, the Raxaul and Birganj are the two trading hubs. Now, so if you are planning a cargo movement you have to look into these cities Raxaul and Birganj. East-West line Lhasa-Katmandu is another line that there is a plan but it is not yet, it is still under lots of question marks.

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- Treaties and conventions
- Rules for interchange are fixed by agreement between two Railway Administrations at apex level ;
- The agreements are made under the aegis of the External Affairs ministry of the two countries.
- Nepal has a Treaty of Trade and a special Treaty of Transit with India.

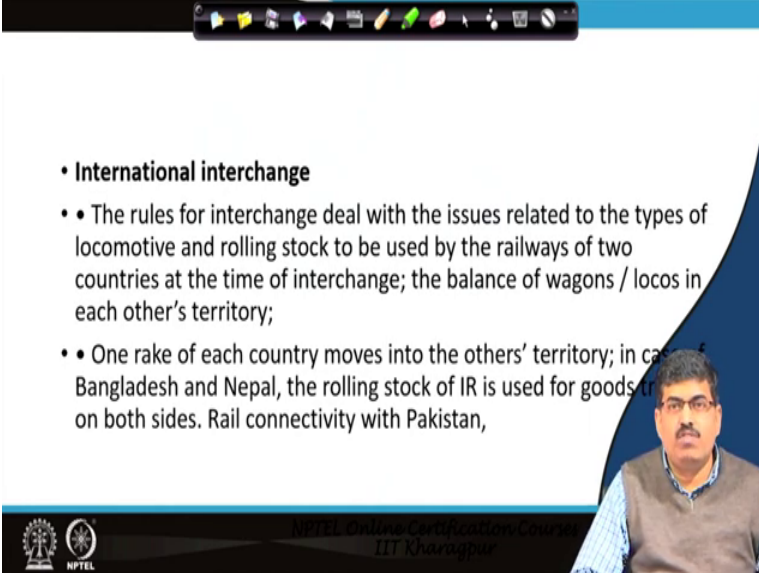
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Treaties and Conventions. Rules for interchanges are fixed by agreement between two railway administrations at apex level. What do you mean by that, Indian wagons are going, there is India Bangladesh border. What do you do? Do you pull out the goods from the Indian wagons and take it and dump it in the Bangladesh wagons.

It was a system earlier because the gauge conversion was not, the gauge was not the same broad gauge, narrow gauge, meter against, standard gauge. So, that is why every country wants to follow a uniform gauge system, so that there is no loading unloading. So, less cost, less time.

So, if there is no loading unloading involved, if the gauges same then the wagons will not wait, they will no loading and unloading wagons will move. So, that was the rules for interchange and the agreements are made under the Ministry of External Affairs aegis of the two countries, Nepal has a treaty of trade and a special treaty of transit with India. So, we do not face any problems there.

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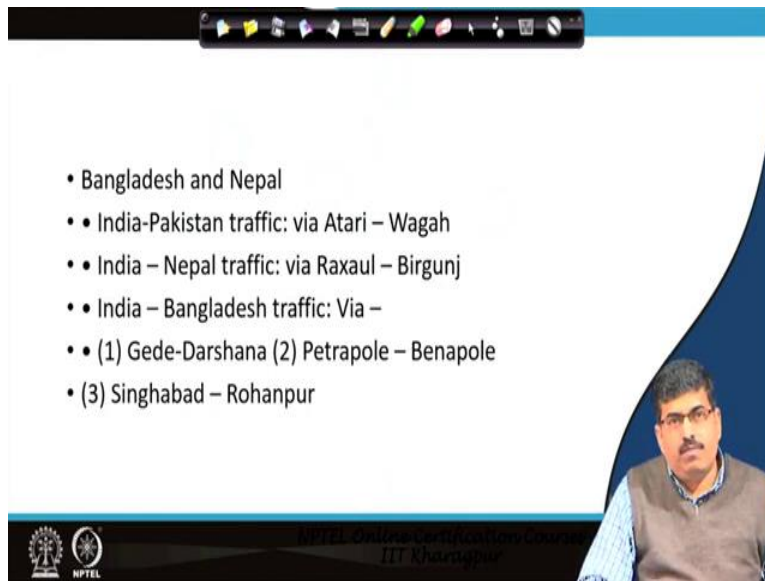
- **International interchange**
- The rules for interchange deal with the issues related to the types of locomotive and rolling stock to be used by the railways of two countries at the time of interchange; the balance of wagons / locos in each other's territory;
- One rake of each country moves into the others' territory; in case of Bangladesh and Nepal, the rolling stock of IR is used for goods traffic on both sides. Rail connectivity with Pakistan,

Now, the rules for interchange deal with issues related to the types of locomotives and rolling stock, as we just mentioned to you. You are taking the goods by electric locomotive in Bangladesh diesel. So, what do you do? So, the balance of wagons locos in each other's territory all has to look into.

Now, let us take the second bullet point one rake of each country moves into the other's territory. In case of Bangladesh and Nepal, the rolling stock of Indian Railways is used for good traffic on both sides. Railway connectivity with Pakistan that will take up in the next slide. So, one rake of each country moves into the other's territory, in case of Bangladesh and Nepal rolling stock of Indian Railways is used because as I mentioned there the infrastructure is not well developed.

But India and Pakistan one full rake, rake means what? A collection of wagons that is a rake. So, one full rake or a formation rake or formation same thing. So, one rake full will go into Pakistan one rake full of Indian wagons and engine. Similarly, one rake full of Pakistan wagon and engines will come to India. So, that is the modus operandi, with Bangladesh and Nepal no track is there, India has maintained those tracks, in Indian wagons etc goes in. This also has because no conversion, no speed reduction, etc, etc.

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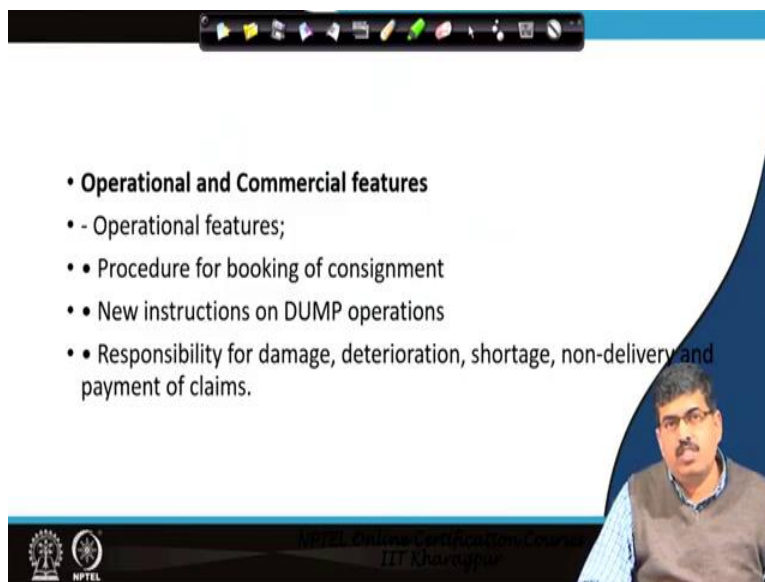


A presentation slide with a white background and a blue curved border on the right. At the top, there is a black bar with various navigation icons. The slide contains a bulleted list of border traffic routes. In the bottom right corner, there is a small portrait of a man with glasses and a mustache, wearing a blue shirt and a brown vest. The bottom left corner features the NPTEL logo and the text 'NPTEL National Programme on Technology Enhanced Learning'. The bottom center has the text 'IIT Kharagpur'.

- Bangladesh and Nepal
- India-Pakistan traffic: via Atari – Wagah
- India – Nepal traffic: via Raxaul – Birgunj
- India – Bangladesh traffic: Via –
- (1) Gede-Darshana (2) Petrapole – Benapole
- (3) Singhabad – Rohanpur

Now Bangladesh and Nepal, India Pakistan traffic via Atari-Wagah. India Nepal traffic via Raxaul-Birgunj. India Bangladesh traffic via two points, Gede-Darshana, Petrapole-Benapole and Singhabad-Rohanpur, these three. This (10:19) is Gede-Darshana is actually the movement of all the products that will come in, this is a Gede-Darshana, Petrapole-Benapole it is only for goods movement.

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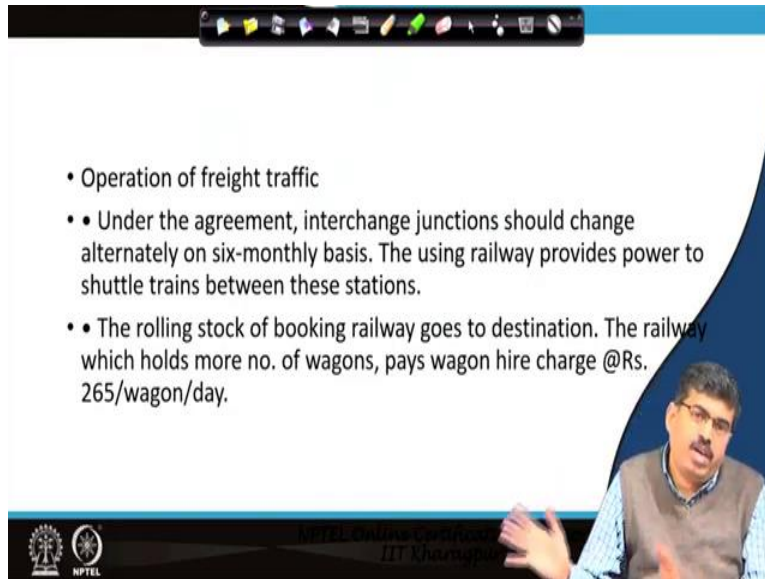
A presentation slide with a white background and a blue curved border on the right. At the top, there is a black bar with various navigation icons. The slide contains a bulleted list of operational and commercial features. In the bottom right corner, there is a small portrait of a man with glasses and a mustache, wearing a blue shirt and a brown vest. The bottom left corner features the NPTEL logo and the text 'NPTEL National Programme on Technology Enhanced Learning'. The bottom center has the text 'IIT Kharagpur'.

- **Operational and Commercial features**
- - Operational features;
- Procedure for booking of consignment
- New instructions on DUMP operations
- Responsibility for damage, deterioration, shortage, non-delivery and payment of claims.



Now what are the operational features, procedures for booking the consignment, new instructions on DUMP operations and responsibility for damage, deterioration, shortage non delivery and payment of claims, we will deal with them.

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The slide contains the following text:

- Operation of freight traffic
- Under the agreement, interchange junctions should change alternately on six-monthly basis. The using railway provides power to shuttle trains between these stations.
- The rolling stock of booking railway goes to destination. The railway which holds more no. of wagons, pays wagon hire charge @Rs. 265/wagon/day.

The slide also features a video inset of a man speaking and logos for IIT Bombay and NPTEL at the bottom.

What are the operational features? Interchange junctions should change alternatively on six monthly basis. The using railway provides power to shuttle trains between these stations. Interchange junctions where in your driver and crew and will interchange that has to be shifted six monthly basis, for some months India some months Bangladesh etc. The rolling stock of booking railways goes to destination, railways which holds more number of wagons pays wagon highest charges rupees 265 per wagon per day. This data may slightly change over time, but then this is the way.

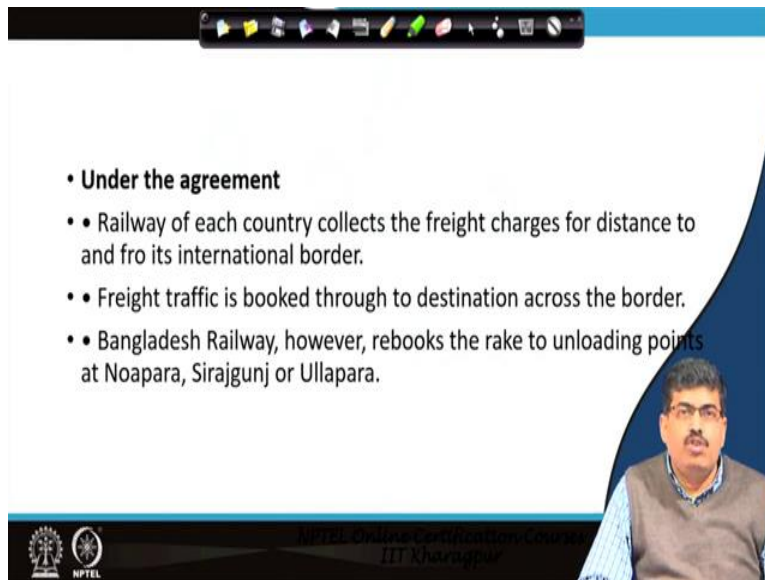
What do you mean by that the second bullet point rolling, the railways which holds more number of wagons, pays wagon higher charges, see what is happening. Indian wagons are going into Bangladesh or Pakistan. There is to be unloaded and maybe if there is a return consignment they will be reloaded. Now, so Indian wagons are there.

Let us say in this way hundred Indian wagons are there inside Bangladesh. Bangladesh also has wagons in India. Bangladesh wagons once it is loaded it goes, let us say 100

wagons that come 50 wagons have gone, 100 wagons that come 50 wagons have gone, 50 are there, again those 50 have gone.

But that Indian 100 has not come back it is still being loaded. Now, who is responsible, it is the Bangladesh authorities who are responsible because they have not loaded it on time. So, they will have to pay a fine or a higher charge which they call, not as a fine but a hiring charge, as if you are hiring wagons it is that given that type of a nomenclature. So, you are hiring wagons, so that they are hiring and that higher charges Bangladesh government has to pay at the rate of 265 rupees per wagon per day. So, this way at least some checks and balances are kept.

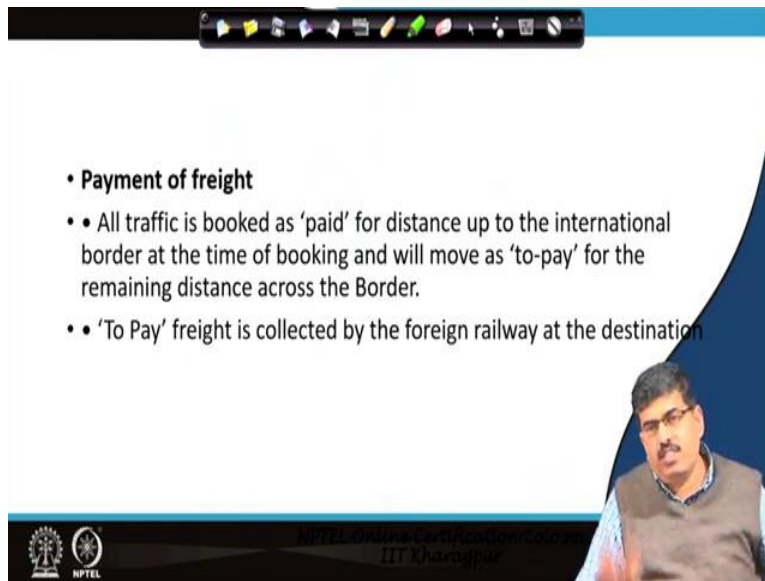
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- **Under the agreement**
- Railway of each country collects the freight charges for distance to and fro its international border.
- Freight traffic is booked through to destination across the border.
- Bangladesh Railway, however, rebooks the rake to unloading points at Noapara, Sirajgunj or Ullapara.

Railways of each country collects the freight charges for distance to and fro for from its international borders. Freight, so moment your vehicle goes in up to Indian border you pay the money to Indian Railways. Bangladesh onwards the money goes to Bangladesh government, freight traffic is booked through destinations across the border. So, two destinations across, both the destination Bangladesh railway however rebooks the rake to unloading points at Noapara, Sirajgunj or Ullapara.

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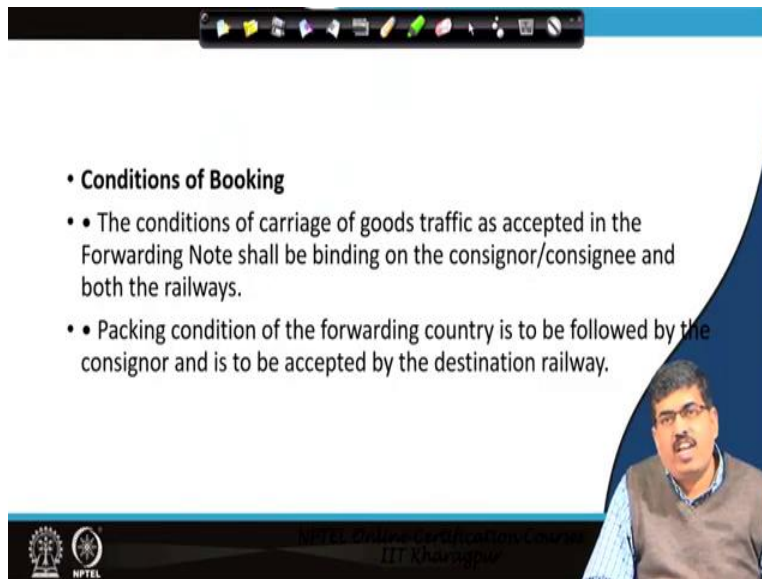
- **Payment of freight**
- All traffic is booked as 'paid' for distance up to the international border at the time of booking and will move as 'to-pay' for the remaining distance across the Border.
- 'To Pay' freight is collected by the foreign railway at the destination

The slide also features a small video inset of a man with glasses and a mustache, wearing a blue shirt and a brown vest, speaking. At the bottom left, there are logos for IIT Bombay and NPTEL. At the bottom center, the text 'NPTEL' is visible.

Payment of freight, all traffic is booked as paid for distance up to the international border because logically, legally you cannot book a freight beyond that border and will move as 'to pay' for the remaining distance across the border, that 'to pay' I am yet to pay that Bangladesh government will correct. 'To pay' freight is collected by the foreign railway at the destination.

So, your transport charge is 4000 of which you pay 3000 to government of India is up to Bangladesh border and after that that 1000 balance the Bangladesh railways will collect. Fair enough if you are using their railway tracks you pay them money, using our railway tracks you pay us money.

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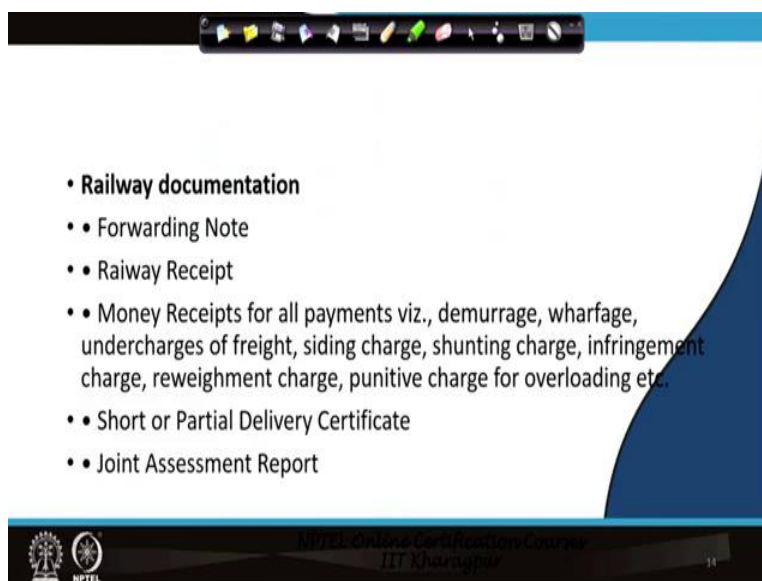
• **Conditions of Booking**

- The conditions of carriage of goods traffic as accepted in the Forwarding Note shall be binding on the consignor/consignee and both the railways.
- Packing condition of the forwarding country is to be followed by the consignor and is to be accepted by the destination railway.

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Conditions of booking, conditions of carriage book are accepted in the foreword. As accepted in the forwarding note shall be binding on both the railways. Packing conditions is to followed by the consignor and is to be acceptable the destination railway. So, I pack just like that and if the Bangladesh railway destination point does not accept it then it is a problem. So, it is to be manner in which it is accepted, it is acceptable by the destination railway.

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• **Railway documentation**

- Forwarding Note
- Raiway Receipt
- Money Receipts for all payments viz., demurrage, wharfage, undercharges of freight, siding charge, shunting charge, infringement charge, reweighment charge, punitive charge for overloading etc.
- Short or Partial Delivery Certificate
- Joint Assessment Report

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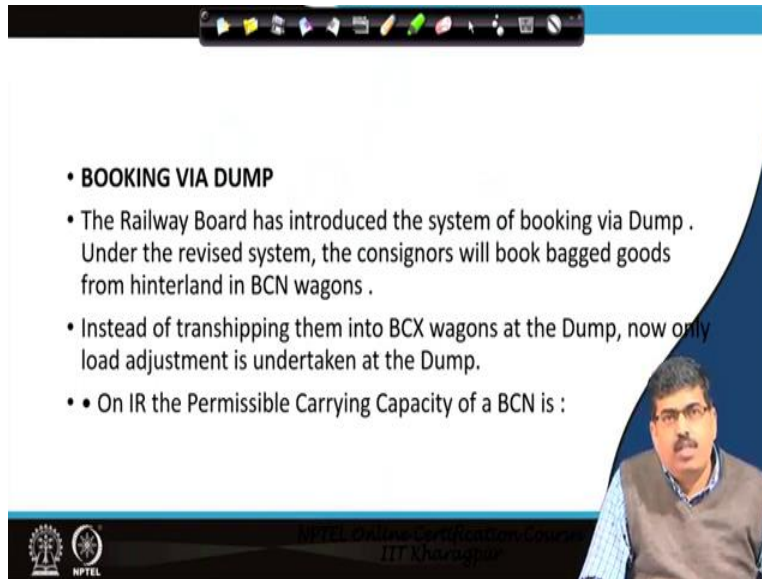
What are the documentations involved? Forwarding note, most simple, railway receipt as we have mentioned in just in the previous week's lecture, railway receipt is a receipt that when I deposit the goods to be transported, when I deposit the goods, they issue me a receipt.

That receipt is being issued by the railway, so it is called as railway receipt. What do I do with the railway receipt? I immediately run to the bank, deposit the railway receipt and say that look this is a proof that I have actually loaded the goods with the Indian Railways or deposited my goods with the India. So, that means the title of the goods is not with me anymore.

So, this is the document you give me money, bank gives me money and then when the party in Bangladesh takes the goods they pay money to whom? To the bank, because bank have already given me the money. So, then this bank will collect money from the consignee.

So, money receives for all the payment, demurrage, wharfage, undercharges of freight, undercharges of freight means? You have to charge rupees 100 you have charged rupees 98, siding charges, shunting charges everything is included. The shorter partial delivery certificate, why short, because up to the international border, joint assessment report everything has to be done.

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• **BOOKING VIA DUMP**

- The Railway Board has introduced the system of booking via Dump . Under the revised system, the consignors will book bagged goods from hinterland in BCN wagons .
- Instead of transshipping them into BCX wagons at the Dump, now only load adjustment is undertaken at the Dump.
- On IR the Permissible Carrying Capacity of a BCN is :

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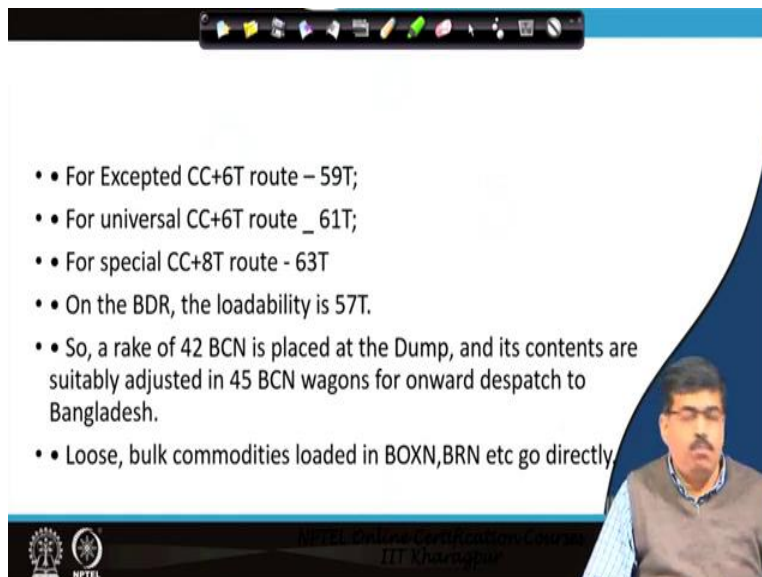
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What is this Dump, booking via Dump the Railway board has introduced system booking via Dump, under the revised system the consignors will book baggage goods, bag goods from hinterland in BCN wagons. Instead of transshipping them into BCX wagons at the Dump, not only load adjustment undertaken at the Dump. So, all the adjustments will be done at that facility where you are loading.

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- For Excepted CC+6T route – 59T;
- For universal CC+6T route \_ 61T;
- For special CC+8T route - 63T
- On the BDR, the loadability is 57T.
- So, a rake of 42 BCN is placed at the Dump, and its contents are suitably adjusted in 45 BCN wagons for onward despatch to Bangladesh.
- Loose, bulk commodities loaded in BOXN, BRN etc go directly.

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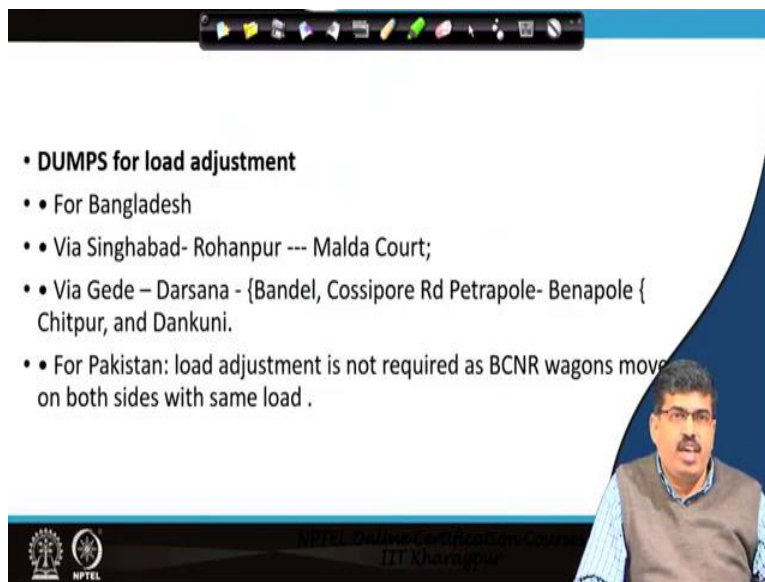
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On Indian Railways the permissible carrying capacity of a BCN is, for expected CC plus 6 ton route 59 tons. For universal carrying capacity 6T route is 61 tons, for special 63 tons on the Bangladesh railways load is 57 tons, this is exactly what I was telling when we were discussing road transport in the previous week. Previous to previous week see the carrying capacity differs.

So, if you are into Bangladesh, so rake of 42 BCN is placed at the Dump and its contents are suitably adjusted in 45 BCN for onward dispatch. This is the way by which you adjust because unless a lot of space gets blocked up.

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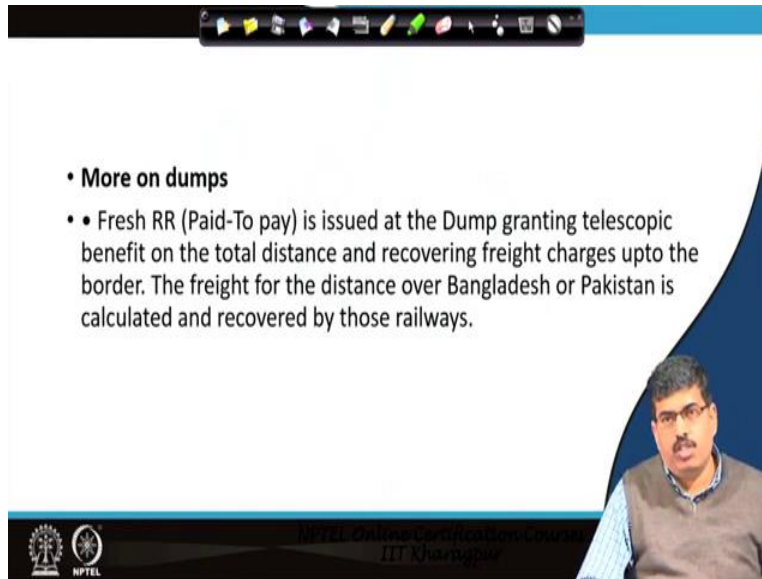
The slide contains the following text:

- **DUMPS for load adjustment**
- For Bangladesh
- Via Singhabad- Rohanpur --- Malda Court;
- Via Gede – Darsana - {Bandel, Cossipore Rd Petrapole- Benapole { Chitpur, and Dankuni.
- For Pakistan: load adjustment is not required as BCNR wagons move on both sides with same load .

The slide also features a small video inset of a man speaking in the bottom right corner, and logos for NPTEL and IIT Kharagpur at the bottom left.

Dumps for load adjustment in Bangladesh via Singhabad-Rohanpur---Malda Court, via Gede-Darshana-Bandel, Cossipore road, Petrapole-Benapole, Chitpur, Dankuni, Kashipur road. For Pakistan load adjustment is not required as BCNR wagons move on both sides with the same load. So, that is the advantage when you have the same gauge system, same types of wagons.

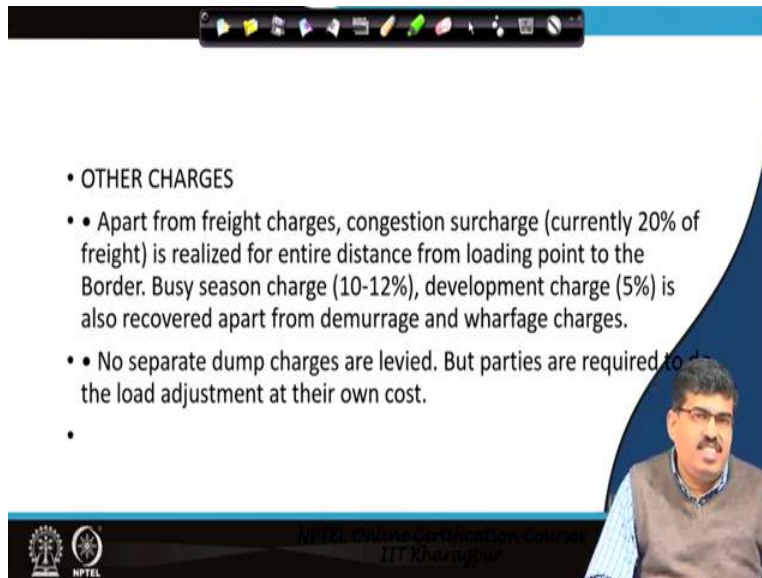
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- **More on dumps**
- Fresh RR (Paid-To pay) is issued at the Dump granting telescopic benefit on the total distance and recovering freight charges upto the border. The freight for the distance over Bangladesh or Pakistan is calculated and recovered by those railways.

Let us just study something more on Dumps fresh railway receipt paid to pay is issued at the Dump granting telescopic benefit on the total distance and recovering freight charges up to the border. The freight for the distance over Bangladesh's or Pakistan is calculated and covered by both these railways.

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A presentation slide with a blue header and footer. The header contains a navigation bar with various icons. The main content area is white with a blue curved border on the right side. It features a bulleted list under the heading "OTHER CHARGES". A small video inset of a man is in the bottom right corner. The footer contains the NPTEL logo and the text "NPTEL Online Course on Railway Engineering IIT Madras".

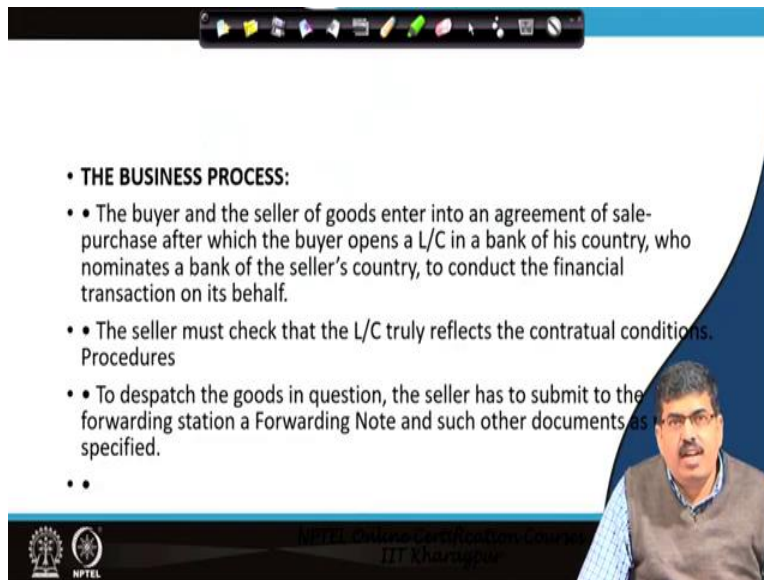
- **OTHER CHARGES**
- Apart from freight charges, congestion surcharge (currently 20% of freight) is realized for entire distance from loading point to the Border. Busy season charge (10-12%), development charge (5%) is also recovered apart from demurrage and wharfage charges.
- No separate dump charges are levied. But parties are required to do the load adjustment at their own cost.
- 

What are the other charges apart from the freight charges, congestion surcharge is there the entire distance, busy season charge is there. No separate dumb charges are levied but



parties are required to do the load adjustment at their own cost. So, this is something from the from the railways side.

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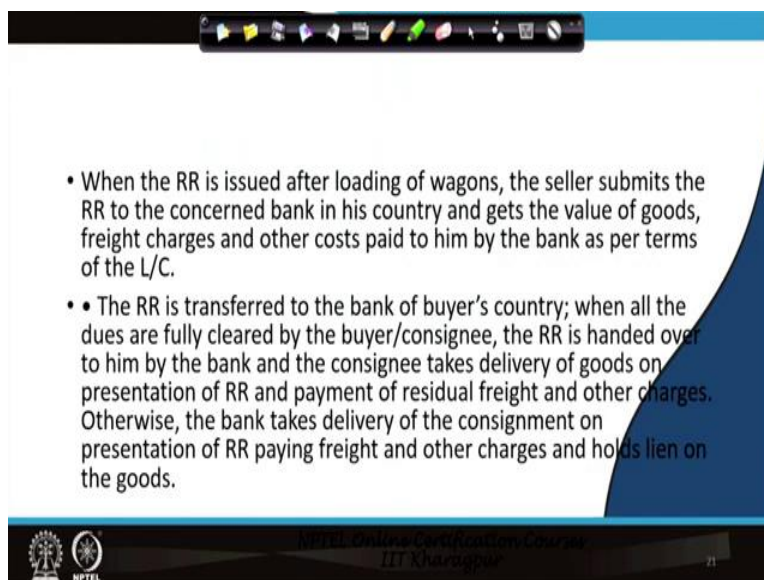
**• THE BUSINESS PROCESS:**

- The buyer and the seller of goods enter into an agreement of sale-purchase after which the buyer opens a L/C in a bank of his country, who nominates a bank of the seller's country, to conduct the financial transaction on its behalf.
- The seller must check that the L/C truly reflects the contractual conditions. Procedures
- To despatch the goods in question, the seller has to submit to the forwarding station a Forwarding Note and such other documents as specified.
- •

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What is the business process? The buyer and the seller enters of course enter into the agreement the open letter of credit as you were saying the railway receipt has to be deposited, seller must check the letter of credit truly reflects. So, as an as the process of international trade goes on, this is the manner in which it is done.

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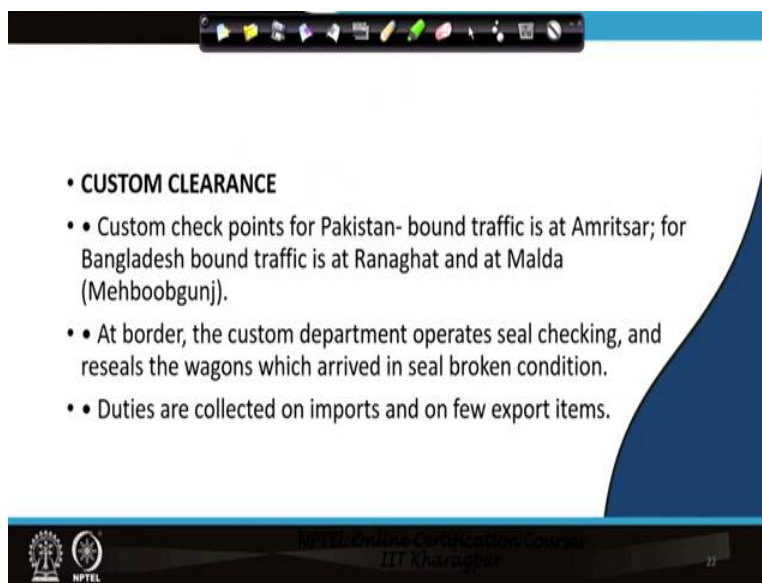
- When the RR is issued after loading of wagons, the seller submits the RR to the concerned bank in his country and gets the value of goods, freight charges and other costs paid to him by the bank as per terms of the L/C.
- The RR is transferred to the bank of buyer's country; when all the dues are fully cleared by the buyer/consignee, the RR is handed over to him by the bank and the consignee takes delivery of goods on presentation of RR and payment of residual freight and other charges. Otherwise, the bank takes delivery of the consignment on presentation of RR paying freight and other charges and holds lien on the goods.

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When the railway receipt is issued after loading of wagons, the seller submits the railway receipts to the concern bank of his country and gets the value of goods, freight charges and other costs paid to him by the bank as per the terms of the LC and the railway receipt is transferred to the bank of buyers country. When all the dues are fully cleared the RR is handed over to him by the bank and the consignee takes delivery of goods on the presentation of RR and payment of residual freight other charges.

Otherwise the bank takes delivery of the consignment and presentation of RR paying freight other charges and holds lien on the goods. So, that means if the consignee does not come back to claim the goods, the bank is now holding the goods and holds lien on the goods. That means that they now have the right to do whatever they want within some set of norms that some gateway is given, some time frame is given only after that you can do something, something, something. So, this is pretty much on the foreign, the ways things are done.

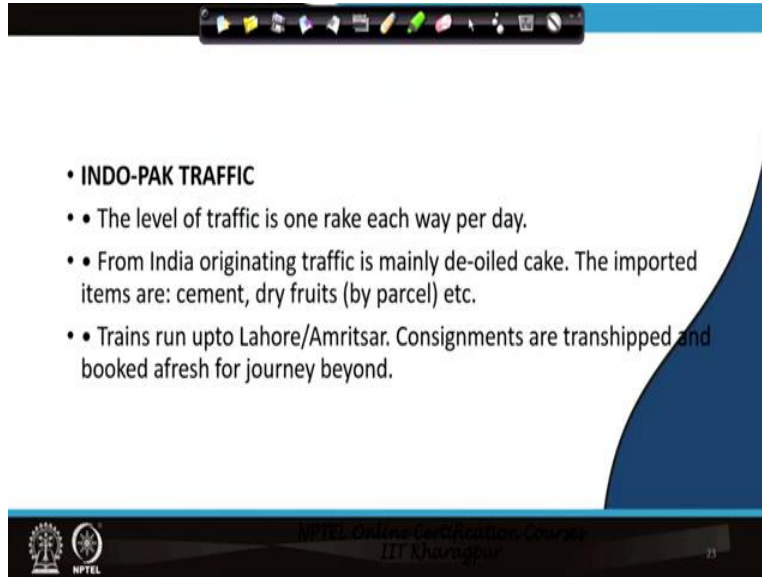
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- **CUSTOM CLEARANCE**
- Custom check points for Pakistan- bound traffic is at Amritsar; for Bangladesh bound traffic is at Ranaghat and at Malda (Mehboobgunj).
- At border, the custom department operates seal checking, and reseals the wagons which arrived in seal broken condition.
- Duties are collected on imports and on few export items.

Customs clearance, customs checkpoints for Pakistan bound traffic is at Amritsar. For Bangladesh bound traffic is at Ranaghat and at Malda Mehboobgunj. But over time, things are changing a bit and self declaration etc are happening. At border the customs department operates seal checking and receives the wagons which arrives in seal broken conditions and duties are collected on imports and on few export items.

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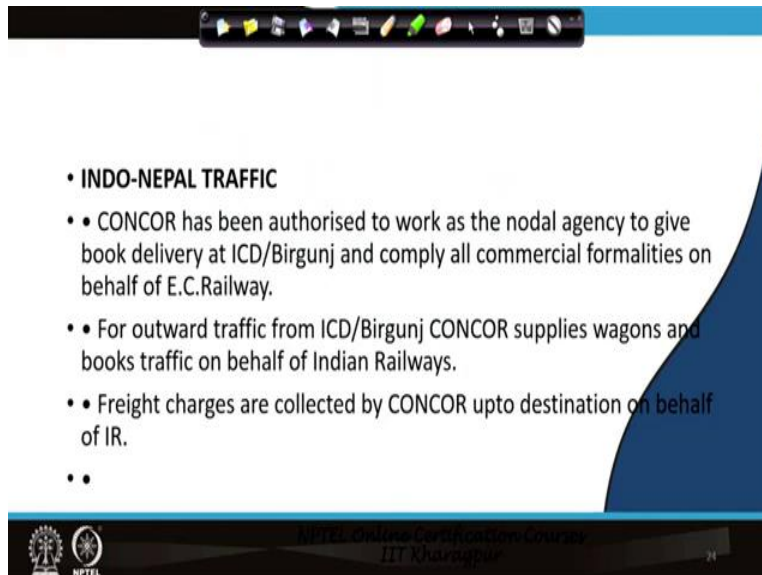
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- **INDO-PAK TRAFFIC**
- The level of traffic is one rake each way per day.
- From India originating traffic is mainly de-oiled cake. The imported items are: cement, dry fruits (by parcel) etc.
- Trains run upto Lahore/Amritsar. Consignments are transhipped and booked afresh for journey beyond.

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India-Pakistan, from India originated in traffic is mainly de-oiled cake. The imported items are cement, dry fruits by parcel, trains run up to Lahore and Amritsar, consignments are transhipped and booked afresh for journey beyond. So, that is the end point, Lahore and Amritsar.

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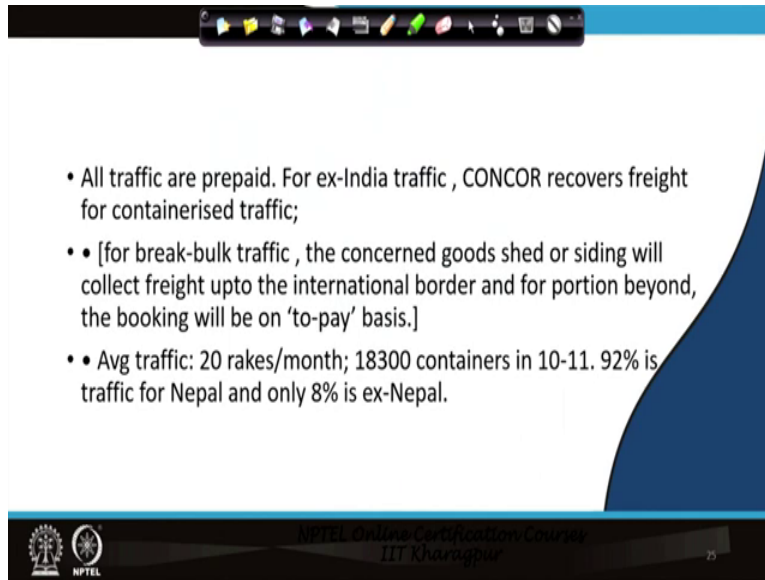
- **INDO-NEPAL TRAFFIC**
- CONCOR has been authorised to work as the nodal agency to give book delivery at ICD/Birgunj and comply all commercial formalities on behalf of E.C.Railway.
- For outward traffic from ICD/Birgunj CONCOR supplies wagons and books traffic on behalf of Indian Railways.
- Freight charges are collected by CONCOR upto destination on behalf of IR.
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India - Nepal, the Container Corporation has been authorized to work as a nodal agency to give book delivery at ICD, Birgunj and comply all commercial formalities on behalf

East Central Railway. For outward traffic from Birgunj CONCOR supplies wagons and books traffic of Indian Railways and freight charges are collected by CONCOR up to destinations on behalf of Indian railways. So, CONCOR is basically the operating agency.

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- All traffic are prepaid. For ex-India traffic , CONCOR recovers freight for containerised traffic;
- [for break-bulk traffic , the concerned goods shed or siding will collect freight upto the international border and for portion beyond, the booking will be on 'to-pay' basis.]
- Avg traffic: 20 rakes/month; 18300 containers in 10-11. 92% is traffic for Nepal and only 8% is ex-Nepal.

All traffic are prepaid for ex India traffic that is moving in, moving outside India from the Indian soil, CONCOR recovers freight for containerized traffic, for break bulk traffic the concern goods shed or siding will collect the freight up to the international border and proportions beyond the booking will be on 'to pay' basis.

What is the average traffic? 20 rakes per month, 18,300 containers in about 8-9 years back. 92 percent is the traffic for Nepal, for Nepal there is 92 percent goods go in and only 8 percent comes out that also helps you, that is what the problem that we did, how to cost for any unutilized capacity that portion the 10 kilometer cost has to come out. So, this is the average traffic rake movement etcetera.

Now, so, this is pretty much your movement across the borders of India, Indian wagon rake movement across and moving the products around the surrounding countries of India Bangladesh, Nepal and Pakistan. It is very important because if you can transport goods

by rail, particularly since you have the railway links only thing is that there is a border when you have the railway links then your transportation cost comes down tremendously.

That is one great advantage, if you have the railway links. Second thing is if you have similar types of infrastructure it becomes again a great advantage. Only problem with Bangladesh is that being a country where which has lot of rain fed and snow fed rivers, you know during the rainy season many portions of the railway tracks is underwater and during the rainy season the railway movement, goods movement through rail gets totally hampered, totally disrupted.

Even road movement gets disrupted but railway movement gets further disrupted. What is happening, the efficiency part is getting damaged because those wagons, those engines we are not using for 2-3 months, it is stuck somewhere etc. So, that is one problem.

Nepal anyway, movement through our and similarly, Nepal also there is another reason we move into the northern part of our country from West Bengal, sometimes via Nepal that is now getting allowed. So, slowly goods trains will also move in this direction. Now more and more trade actually if you can do by rail, your transportation cost comes down, your transportation time comes down.

Because a long haul is not possible using road transport, such long distances using road transport is difficult, consumes time, consumes resources, consumes infrastructure money. So, it becomes a bit difficult. So, this is, these are things that are guiding your international trade India vis a vis its neighbors and with more and more improved engines, more and more number of containers only container movement when you are going global with more and more GPS systems.

The cost per unit of transportation will come down tremendously, will come down effectively. So, this is what is happening. Now, what did we do in this particular week, in this particular week, we took you through the public systems aspect of supply chain, wherein you might feel that we did not deal with too much of modeling on numbers.

But this type of you need to do model, you need to understand, you need to appreciate what are the situations and settings through which business is moving. So, our purpose

this week was to present to you that setting and we gave you two broad orientations. One is how to value the public good and the second is we gave you how product movements, logistics movement actually happens to the rail transportation system.

Now, I am indebted to Mr. Shaban Kumar Chaudhary. IRTS retired for sharing his vast experience on goods movement from India to Bangladesh, Nepal and Pakistan, which has helped me to prepare this note for you and as I mentioned that this particular week as such there is no structured reference, please refer to these ppts and the lectures. This should be fine, thank you.