

**Logistics & Supply Chain Management**  
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**Lecture 07 : International Logistics**

So, hello dear friends. So, welcome back to NPTEL online course on Logistics and Supply Chain Management. So, now we'll spend maybe a couple of sessions on discussing the International Logistics. I'm Dr. Vikas Thakur, Assistant Professor of Department of Humanities and Social Sciences, IIT, Kharagpur. So, in this session we will try to address the basic concepts under international logistics and then we will see what are the key components.

We will go for what are the we will divide this whole lecture into two parts. First we will talk about very important that is your cross-border transactions, how the financial transactions will happen, what are the different methods, what are the steps, what are the challenges because many stakeholders are involved in that supply, long supply chain. So we'll talk about those transactions, right? And then major stakeholders in international logistics consignments, and then we'll talk about small case, right? So let's start with the international logistics. So, you can see that international logistics is an increasingly important discipline for the global economy as more companies leverage it to reduce cost and take advantage of highly specialized capabilities in different regions countries right worldwide.

And when we are saying that it is one part where we can take the advantage. So, just I will elaborate little bit on this. divided this total supply chain into three major stakeholder one is your suppliers another one is your manufacturers and then finally we have customers now we are saying that this is international network right so when we are saying that international networks so obviously minimum we will be having two countries or more than two countries so let's talk about that perspective for international logistics for suppliers for manufacturers for customers so first suppliers so i told initially that this is not one supplier this can be layer of suppliers where there may be suppliers of suppliers right who is supplying the first raw material to the second one second one is supplying that processing that raw material and again at its final product it is providing as a raw material may be the for the next supplier so this is how it is going on right so as a international suppliers maybe we have why we are going for international supplier this is first question so first maybe there is a raw material availability right so easily you are getting the raw material that's why you are getting going there maybe you are getting

cheap raw material then you are going there maybe resources whatever resources we are using for processing that material for generating that raw material we are getting easy resources in terms of let's say you talked about your material you are getting easily you talk about your manpower maybe cheap manpower you are getting there so then you want to go there right maybe in terms of technology as well in terms of market right so when you are going overseas these are few reasons why you are going overseas so my suppliers let's say there are pros and cons right if I am having localized suppliers anything happens wrong in the distribution network right so even if I am having local suppliers still I can ensure the supply smoothly supply of that raw material But because it is very near to me and we can implement just in time as well, no need to maintain the inventory, safety stocks and that cost also we can reduce, right? But if your supplier is overseas, that means in advance you need to plan the inventory. let's say it is taking 10 days for any shipment for completing that replenishment cycle when your inventory is reaching to your store it is taking 10 days right and if anything goes wrong in between those 10 days anything can happen right so then your whole production will be stopped so this is one very crucial point when you are going for overseas suppliers but other hand let's say looking for some lighting solutions and you know chinese market is well known for lighting solutions and i will get the fair quality at very very reasonable price right and if i will say compare with the local vendors so they are charging very high obviously their cost of production is very you know that high because of the technology they are not using at that efficient level or manpower resources skills required they are not using at that level right. so this is the plus point when we will go overseas may be the quality of raw material we are getting overseas is better than the local one right these are some of the pros and cons when we are saying when we are going for overseas suppliers let's say manufacture manufacture is also not single manufacture there may be so many co manufacturers also in that right so let's say these co manufacture now why any US apparel industry wants to set up their you know manufacturing hub somewhere in maybe Pakistan or maybe Bhutan or Bangladesh Nepal why they are picking those strategic location the very basic reason is first is raw material availability then the skills required then the third thing is cheaply they are getting all these resources as manpower as raw material and then they are processing it and this is how walmart is making it happen that with five dollars t shirt they are sending selling that five dollar t shirt in US market right you you just imagine they are crossing so many countries the distribution cost is there logistics cost is there but still they are able to manage that that they can process overseas and again sell back to their country right so this is not only one example so many other companies are also doing like that only then the next thing is and in that process manufacturing may be sometimes a technology if we're talking about automobile industry so japanese are known for their technology for their quality products right toyota who can forget about toyota manufacturing system right so their tps production system So, they

are well known for their quality standard production systems they have set up over the time and the concepts they have developed in that industry.

So, if you are getting that technology somewhere from Japanese technology, this was the very basic reason for Hero Honda Venture. So, Honda was having technology, Hero was having vast network distribution network within country India. So, they started joint venturing that organization, they came into two wheelers. started although there is another story how it ended up but this was the basic reason why they came into that joint venture right there is another reason why usually organizations are going for overseas now customer like I am having access to foreign expertise foreign technology foreign resources same way I am having now access to the foreign customer as well so in that way my market is now more open right so but market is more open I'm getting more customers my brand is growing right so that visibility is there so if I'll say if my app is there let's say I am using Ola so Ola is promising you wherever any corner of the world you will go you just install this app you need food you will get that Ola is not providing food Uber is providing food right but let's say Ola right so you want taxi we will provide you taxi at the fare rates right and this is one stop solution you will get everything in that right you can make the payment still using your own currency and that will be automatically converted and will be you know credited to the partner who will be giving you the services obviously every customer will feel safe if you are going in the foreign countries obviously you are little worried about the transportation the hotels restaurants how you will take care of all those things if any player is providing you one stop solution and you are familiar with that player right you will feel more comfortable right you will not be worried about your financial transactions investing into that right so this is the concept why international logistics is required so when I am saying sourcing hiring and delighting customer around the world sourcing around the world obviously your logistics network will ensure that your suppliers around the world are providing you the raw material to your manufacturing unit right so that is only possible when your international logistics is there you can hire manpower you can again even your manpower you can transport from one point to other point right and then customer around the world I told you very small example of Ola or Uber where one platform is providing you all the solutions right so it's not only about the movement of you know your physical movement of the product right it talks about your movement of money and information this is important that's why i told you when you are making online transaction and if you are in UK US or some other country so if you are using still ola or uber right uber is there so if you still you are using in india uber you are using there as well uber so you will feel more comfortable even if something goes wrong you are not getting the taxi that amount is debited debited from your account even then it will be credited later on so that promise that faith is there when so international logistics this is again very important part not only logistics we talked about not only the physical movement of the goods but also the

money and the information right So, obviously when you are spending more than two countries, so international logistics will be there. Why we are going for that? Already we just I discussed on the very first slide, first is cost efficiency.

There are challenges because when you are going overseas, multiple tech structure is there, tariffs duties are there. long distance cost will be there right these all cost will add up then you need to take care of regulatory frameworks right complex system you need to so that means all these challenges will add up to the cost where you will talk about cost efficiency but still because i told you there are so many companies are doing like that ok I remember if you talk about sunflower oil or other raw material which we are producing in India we are sending to some African countries and again importing the finished product in India and that is cheaper than what we are processing the same material here in India and selling back to Indian market right so there are so many examples that we can if you will go overseas obviously the market will open up for us and we can leverage on those efficient resources and we will be cost efficient in the end if you talk about reliability there is misconception about this local rule that if something goes wrong how you will trace even if shipment is coming and on the way something goes wrong right so your whole lot is gone this is not only the lot is gone may be your next shipment is awaited for next may be 20 days so for 20 days what you will do right so that reliability how you can rely on the foreign sources in terms of raw material in terms of foreign market so then there are challenges sometime maybe there is demand from the foreign market so you are prepared for that you can mitigate those all those things are there but what if there is no demand so then we need to pick which strategy we will go for that when we are exploring the international markets right we have different strategies if we have continuous demand we should you know start our own distribution network when we are not sure about the demand it is fluctuating then we can outsource somewhere right now this much we can understand right When we talk about relationships, so reliable, efficient operation, it is easier to build friendships and making friends in many places, right. So, now instead of your in your manufacturing plant you are not you know. focusing only on one vendor. Now, we have vendor 1, vendor 2, vendor 3, vendor 5, vendor n.

So, if anything goes wrong in this part of the world or in this part of the world, still we have these many vendors, we can survive with our distribution network. So, in some cases an international logistics may be one competitive advantage that attract international customers and may be when we are having low differentiation in terms of USPs when we are talking about then we can do fairly well in these international markets. So, just to give you that experience of international market. So, here I have included

some video links. You guys can just quickly go through these videos and then we will continue our discussion on the topic.

So, this you can see. as many players stakeholders are involved and then the very you know timely solution is there provided by your amazon global logistics so let's try to understand what they are saying and we can see just they have highlighted we have Let us say here we have manufacturer 1 or supplier 1, supplier 2, supplier 3. These all are providing the product and we are keeping it in some warehouse or you can say the fulfillment center. and from fulfillment center we are maybe this is we are talking about international logistics the next player will come into maybe we will ship it so some shipping agent shipping agency or company will be there then shipping carrier will be there who will be transporting it to another warehouse or fulfillment center near to the customer and then finally the last mile delivery again will happen to customer 1 customer 2 customer 3 so you can just see how many different players are involved in that so suppliers are there then here also logistics your transportation come into picture fulfillment center is there then there is shipping agency will ship from this port to this port again the logistics or distribution transportation network will work you know take that inventory to nearest fulfillment center right and then you can see from that fulfillment center the finally the demand is met this is how international logistics is working now you just imagine working with those so many different stakeholders players and internationally so this managing all that long chain is a big challenge right so with amazon solution you can easily manage that so let's go through what are the key components as discussed key customer clearance so when you are exporting to you know different countries there are you know some taxes are there customs are there duties are there so you need to you know be aware about what type of structure they are following so maybe in one country one kind of maybe services are completely free in another country maybe up to some level it is free and then after that they are charging some taxes in India also recently we have implemented GST so you need to take care what are the goods coming in first category second third fourth and accordingly that will be there so keeping track of all those things and also not fixed this tech structure is not fixed right may be like we are revising other countries are also revising so who will be taking care of all those things right so this is one big concern in international logistics talking about supply chain visibility Somehow up to some extent RFID, IoT sensors still we are not fully utilizing but RFID has made our life very easy. You might have seen when we are visiting one stop solution market like your Big Bazaar or Vishal Mega Mart or any type of Spencer stores, right? so they are just tracking with the tracking gun they are tracking the product that barcode and reading that and full information is provided the inventory number what is the inventory level left behind when the product is being consumed the pricing information how much inventory is left on the shelf in the store in the warehouse right so that information digitally you know shared with all the stakeholders with the

manufacturer that this much inventory is depleted today I need to prepare for that much inventory for the next day at the same point of time the raw material supplier will also get the information that these many products are consumed so we need to prepare the raw material for next consignment right so this is how we can ensure the tracking of the inventory and we can implement GPS tracking for tracking the you know when inventory is moving on the road so we want that real time visibility and tracking so that we can effectively manage mitigate and optimize the logistics operations right again inventory management in international logistics like i told you that see this is international market so like we are facing fluctuations in demand in the local market same way we can face the demand there as well so then how much inventory will keep internationally that also may be the little costlier right when we are keeping inventory on the ports may be little high cost is there so that we need to maintain because throughout the channel at any point you talk about we are keeping some some inventory at every point right so if you are holding maybe average maybe for two hours or maybe two days so if you are asked for maybe holding it for maybe another one day so that will charge high for you so how we can maximize this services level and inventory turnover that also we need to keep in mind So, inventory turnover is the total sales how you are making daily total sales and the average cost of the inventory you are keeping that is the formula to calculate the your inventory turnover.

And average inventory you can calculate what is your beginning inventory, what is your ending inventory divided by 2 you can sum up these 2 inventory and just you can calculate the average. then risk management with international logistics like what can be the risk geopolitical instability if there is political instability then also there will be risk complete shutdown is there elections are going on or some hesitation is going on or something means kind of events are going on so that instability is there currency fluctuation is also there so we need to understand this currency fluctuation how it will impact let's say I am importing for let's say 100 rupees or may be in Euro so let's say the price of Euro is 1 Euro is equal to 100 rupees so today I imported 1 Euro product so I have been charged 100 rupees tomorrow this our currency value depreciated now it has increased to 105 but still I am purchasing for 1 Euro so that means importing for same product same amount I am paying 5 rupees extra Same is the case with exporting. Let's say I am now exporting 1 euro. and will give me 100 rupees but tomorrow if it is depreciated for same export now I will be getting 5 rupees extra right and if it is appreciating the effects will be reverse so this currency fluctuation we need to keep in mind when we are doing the import and export business so these rates can affect your profit margins up to longest extent right So, then what are the international trade barriers, natural disasters, supply chain disruptions, local supply chain disruptions also you need to take care. When you are let us say if you are coming to Indian market then you need to understand the Indian you know geopolitical scenario and the disruption in the supply

chain, what kind of disruptions can happen in India or what can be the effect of that right.

So, those many things you need to take care. so next key component of international logistics is incoterms so international commercial terms are there so we need to ensure the rights and responsibilities of buyers and sellers so there can be so many issues when you are making the delivery something goes wrong in terms of quantity in terms of quality if something goes wrong with the transportation some incident happened in the transportation then what will you will do who will be responsible so risk is either with the buyer or with the supplier so that also we need to you know negotiate with the international suppliers So, what if even after recording every aspect and even then there is some, you know, dispute. So, where we will handle that dispute? If the buyer is from Indian market, supplier is from Chinese market, where we will settle that dispute, right? So, you need to take care of the cross border regulations as well. When we are transporting, already we talked about the regulations, transportation, environment, product safety features, maybe, you know, you need to take care. so yeah so then local culture and language consideration also so you might have seen I think the latest ad by Ola or Rapido so the if foreign tourist is coming to Indian you know India so even they can book the taxi or auto or whatever and they can speak in their language and our drivers can speak in their language and with ai enabled solution we can you know ensure that the talk is happening in the perfect way right how so this is a kind of thing very simple solution but this will you know make you comfortable even when you are away from your home so this will happen only when you have very strong global supply chain network okay including your suppliers manufacturer distributors customers across multiple countries and then you need to ensure the collaboration and coordination among those players only then you can optimize your logistics cost right and then you can optimize the inventory as well when you are having strong collaborations so if we talk about sustainability then obviously worldwide now awareness is being created about the sustainability measures and customers are also creating but in some countries like we talked about the French survey right in France people are more aware about that now in India also we are talking about that we should not use the single use plastic and it should be banned and people are you know they are starting using jute bags or they are carrying their own bags so in market also there are customers who are aware and conscious about all those things so if you are coming with those kind of measures sustainability measures obviously you will be taken as a positive thing right and people will you know react in that way but if you are still you know using the other way around so then your product can be rejected in the market so you need to go eco friendly practicing and energy efficient operations So this is the concept I was talking about the cross border transaction.

It can be easy as we are doing as customer to customer or you can make it as difficult as

B2B transaction. So that depends upon what is the local scenario. So if you talk about the value of cross border transaction, is to forecast reach will reach it by maybe 250 trillion dollars by 2027 and we will see it is more than 100 trillion dollar rise in one decade right so this is as big opportunity and why what are the factors because international trade and e-commerce now there is no concept of Indian market whole world is one market you can buy from anywhere you can sell anywhere right manufacturers are also expanding their supply chain across the borders as i talked about that if you are getting some cheap raw material cheap or maybe efficient technology or resources cheap resources you will shift your manufacturing hub overseas right so then we are talking about global investment and asset management globally we are managing our assets right in a proper way and now people sitting in the village they are also accepting the salaries from international players right so international workforce international market so this whole market is one market it is being treated like this so these are some of the factors which are pushing us for this right let's quickly go through what are the steps for cross border transaction first is purchase and initiation this is how it is happening right so we'll start the purchase cycle okay and will start the transaction then routing and processing so the payment information transaction is sent by an encrypted gateway and your bank is connected with that gateway right so transaction is processed quickly and efficiently if your bank is connected with that common gateway right then payment verification is being done it is verified and approved or maybe sometimes declined by the receiving bank if you are not having sufficient funds in your account right because not only if you are transferred maybe transferring 500 euros the cost is somewhere around let's say 45 000 so you need not to maintain only 45 000 there are some transaction charges maybe you you will end up with paying maybe 48 000 or 49 000 somewhere around 50 000 so that transaction charges are also there then transaction confirmation happens and it is approved right in the next stage so or may be declined then you will get the message that it is declined then transaction fulfillment will happen between the two parties right so still that digital you know transfer has not happened but yes it is approved because digital transfer will only happen through you know global automated clearing house which may take maybe 2 to 5 business days to clear that but yes once it is approved your order fulfillment can start so this is how the financial transactions happen whenever we are going for this and in the end tracking is one thing you can track the status of transaction reconciliation and settlement because it will take time now what are the challenges see we have talked about seven steps and seven different stakeholders are involved in that seven different players every stage like first player is here second player is here third player is here so that means every stage we are making small small holes which is time consuming right and not only time consuming they are charging as well even if we are verifying the account they are charging for that verification we are transferring the fund they are charging for that right so this is more expensive than domestic transaction so this is again one challenge and how we can mitigate that challenge again amazon wallet will help you



to do that right so challenges with cross border transactions already talked about high funding cost right because that much fund you need to maintain in advance like i told you if your 500 euros you are calculating at 45k maybe you will not only reserve the 45k maybe you will reserve 50k because of the transaction cost will be there. right this is one example transaction fees are very high because of so many intermediary stages are there bank fees they are also charging merchant bank fee they are also charging so this will increase the transaction cost currency exchange rate already i explained you if what will happen if your currency will appreciate or depreciate if your currency value is increasing or if your rupees value is increasing or decreasing so for same quantity whatever you are buying may be earlier you are paying 100 rupees now you are paying 105 rupees right so this depends upon just two slides before i explain how this will affect the international trade right long transaction chains are there why because obviously so many players are there in the network multi currency cross border transactions if you are dealing with more than two currencies then so you can just multiply keep on multiplying the steps and then every time you are making transaction actually transaction will happen only between the first party and end party but in between so many transactions are happening every time you are processing that transaction you are paying extra for that right so and then obviously sale tax is there and as per that local structure you need to understand that and every time you are you know selling you are kind of if 15 players are involved 15 times you are selling the same product let's say initial cost was 10 rupees at 15 stages you have added up that maybe 0.5 rupees or 1 rupee or in the end you are landing up with maybe 18 or 20 rupees in the end right this is the tax implication the limited banking hours may be right now we have processed the transaction 24 hours you can digitally you can transfer but it will be settled reconciled only when the usual working hours are going on in that particular bank right so if you talk about the foreign market where the time lag is more than may be somewhere 10 hours 12 hours even right so that much delay will be there when you will be your final transaction will be reconciled then fragmented and truncated data formats different formats we are recording the data even your addresses sometimes spelling mistakes or formatting anything goes wrong it will be declined right and so every time we are kind of encoding and decoding the data only so this is a again big problem how we can solve this only one stop solution amazon global market right logistics and then legacy technology platforms so you might have seen in Indian banks if you visit any bank they have the you know counting machines even they are counting in that machine twice even then after that manually they are counting the how many notes are there in that particular bundle so this is how we are carrying the old technology and we are slowly we are adopting the new technology so that is another reason why it is taking so much time when we are talking about cross order transactions this is again one limitation and then complex compliance checks are there because it is international trade so you need to check against fraud sanctions and financial crime so that is there so see if my name is Vikas if I am transferring fund and let's say even if with that bank foreign

bank if any person with the name because has done anything wrong automatically it will be declined right so just if the names are matching without verifying anything else it will be declined so then again you will go for details and then it will take more time in that way right so this is one simple example you guys can just quickly go through these videos and then we'll continue our discussion on the topic so the right solution is right away there okay so amazon wallet will control you right in every situation quickly we will go through the major stakeholders in international logistics already we talked about first is exporter who will be selling the product importer who will be importing the product freight forwarder who will be coordinating and monitors all the necessary operations for transport and international freight logistics right so maybe sometimes some value adding activities are also done related to packaging or any kind of communication some custom agents will be there who will be taking care of all the documents formalities or whatever inspections are required and clearance of goods any documentation you need to prepare related to that shipping company is the legal owner of the vessels you will be booking those vessels and then you will be transporting using those vessels to the foreign country shipping agent will be there actually it is another legal representative of the shipping company at any given port right so this agent organizes administrative task related to you know in that particular port so this is how it handles your merchandise and related documents and then consolidator is there this consolidator actually selling the vessel space right if the vessel space is not fully occupied by one player they sell to multiple players right so this is the work of the consolidator carrier is who is actually transporting the product then insurance again very important if something goes wrong they are charging some premium for each you know transaction and then in that way you can ensure the safe delivery and obviously banks are responsible for this international thing because banks will ensure the transaction so that is these all are the players stakeholders involved in the international stakeholders international logistics so we can conclude that because challenges are there because many stakeholders are there and many stages are there so we need to somewhere compromise between cost is one thing and then your time is another thing right so that lag that whether we can afford or not So, what is the you know replenishment time we need to replenish the inventory and you need to meet the customer demand right and then we need to take care of the cost.

So, what is that one platform which can may be if I am selling product from here Kharagpur and it is going to somewhere in let us say in US market. as one player amazon can you know handle everything he is picking from here delivering there and i am getting one single invoice because transactions can be minimized in that way so that's all from this we will continue this session with what are the different options how we can go for international markets how we can expand into international market in the very next session thank you very much