

**Indian Institute of Science
Bangalore**

NPTEL

**National Programme on
Technology Enhanced Learning**

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Global supply chain management

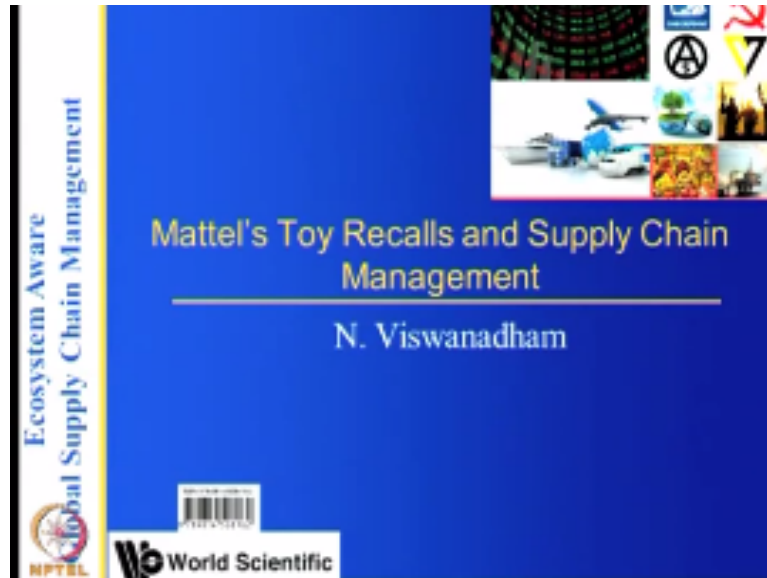
Lecture-12

Mattel toy recall and supply chain management

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Today we are going to talk about product recalls which is a very important issue in supply chain risk management so we have seen the supply chain risk how several risks happen.

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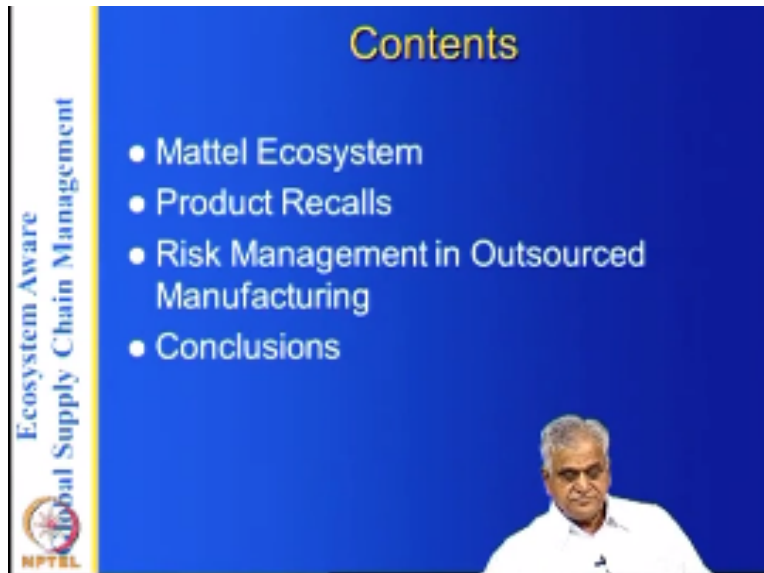
And how to how they can be mitigated but particularly in some issues such as food processed food particularly fat foods and also in toys and children is toys there is whenever the there is some problem with the products they had to be recalled because they are usually stored in the house and they may be used at a later point it does so it is very important to inform the public particularly people who have purchased it and also recall them.

Wherever they are whether in the house there in a warehouse and so on one of the issues that first in 2007 for a company called metal a metal is a toy company which is world's number one which does Barbie dolls and others is based out of United States and it outsources a lot of its toy production to China it has a lot of employees like 200 employees in Hong Kong or to basically.

Wallasey the management of the outsourcing arrangements with the various players in China but still in 2007 there was a test or recall and there was a lot of problems for matter so taking metals case let us look at how product recalls can be handled in a supply chain risk management setting recalls happy calls happen in other this one like there was cell phone batteries exploding there were auto components misbehaving and so on.

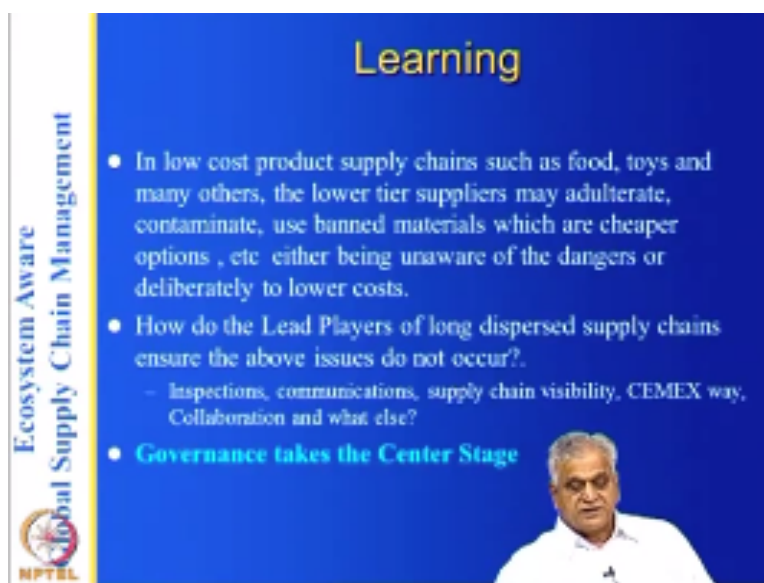
So there were recalls by Toyota recalls by Nokia and other companies so this is a product recalls is an important issue and it has been raising because after the outsourcing so we will first look at what is the ecosystem vehicle well in fact we are going to map the ecosystem and then look at product recalls.

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And what is the risk management and outsource manufacturing now here when the we are outsourcing products which are of low value in other words they are not like TVs or they are not like cell phones which cost hundreds of dollars these are basically a Barbie doll may cost at the most ten dollars so and also pet foods and others which are cheap items but they are all outsourced that is because of low cost resource availability in countries like China India and so on so that how do you do the risk management in those areas then we will conclude this lecture.

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So in Low cost product supply chains such as food twice and many others the low note our suppliers medal trade contaminate use span materials which are cheaper options etc either being

unaware of the dangers or deliberately to lower costs now for example one of the items that they use is for example they adulterate right they beef with horse meat they contaminate this because a lack of Hazy and stalled facilities.

So they store they store food outside without in non temperature environments and they use lead paint which are cheaper instead of stuff like less paint so the cost substrate because these are all low cost and they think nothing is going to happen so how do lead players in other words players who are basically outsourcing their so-called manufacturing of these low-cost items to China India and so on in long dispersed supply chains ensure.

That avoid shoes do not occur do you suggest inspections is it communications or supply chain visibility is a next way that we are seeing in some extra X ray it basically deals with all the suppliers and so on collaboration and what else I mean do you want to hear the create a recruitment platform where all the materials required for all the suppliers all the tires is procured under contract by the metal itself.

So the point here is that because of the low cost of the product and people do not want to spend more time and use you know sophisticated IT platforms and so on so the issue in this in such cases what is the governance how are you going to ensure that the products that are produced are safe particularly to the children to the animals who cannot say once they get sick they cannot even tell you that they are sick so that is the basic learning in this particular case.

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The slide features a blue background with a yellow vertical bar on the left. The vertical bar contains the text 'Ecosystem Aware' and 'Global Supply Chain Management' in white, with the NPTEL logo at the bottom. The main title 'Mattel Company Profile' is in yellow. The bullet points are in white. A speaker is visible in the bottom right corner.

Mattel Company Profile

- Started in 1945, Mattel has grown to become the world's largest toy company
- Mattel is responsible for many of today's most popular toy brands : Barbie, Tickle Me Elmo, and Hot Wheels
- Mattel sold products under license based characters from *Sesame street*, *Barney*, *Walt Disney* , *Warner brother movies* and *Harry Potter books*
- 2006 sales exceeded \$5 billion and in 2007 \$6 billion
- Most of Mattel's toy manufacturing is done through outsourcing, mainly in China (about 65%)
- In 2007, at the time of the product recalls, Mattel was the world's largest toy maker

Let us look at the moocher the company profile metal started in 1945 it has gone to become malls largest toy company and matches responsible for many of today is twice like Barbie tickle-me-Elmo and hot wheels and so on so metals all products on the license based characters

from Sesame Street Barney Walt was white Disney one of the movies and Harry Potter books so you can see that the kind of brand based product brand products.

That metal says it is basically a top company in the world and 2006 is actually their 5 billion and in 2007 6 billion dollars and most of metal store manufacturing is done through outsourcing mainly in China and about 65% Of the toys are done in China and in 2007 at the time of product recalls metal was the world's largest toy maker so in 2007 July is the time then the product recalls first recall was made and because there were some problems we look through.

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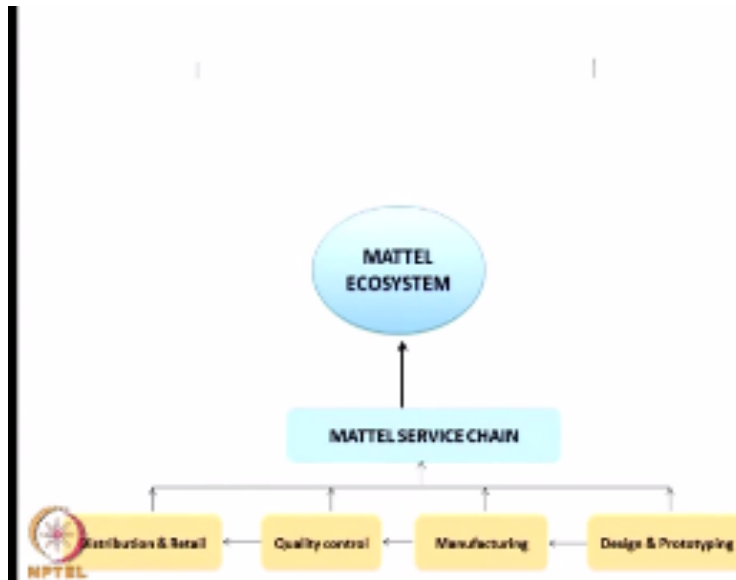


Those so if you look at what is the metal ecosystem is the eco system consists of parents because it will parents who buy the toys children retailers manufacturers suppliers and raw material suppliers you know suppliers and suppliers quality control at all at all the stakeholders are in the yet metal at suppliers garments employees in China Hong Kong and USA media and other financial institutions so you can see the stakeholders.

Who are who are there unless not only it in a metal employees is the all the entire care one tier two tier three employees and there of course there are lots of financial institutions and media video takes a central role whenever there is a problem in this very rightly so because once there the children get infected or they die.

Because of the problems associated with the with the dolls then of course the media gets it to correct and so this killing one has to look at all the stakeholders.

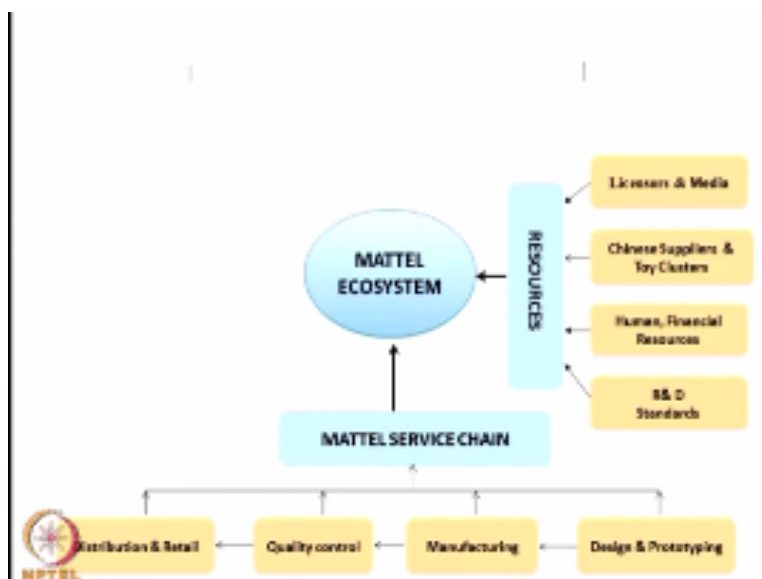
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Let us map the supply chain what is the metal ecosystem so the metal service chain is a design and prototyping there is the first is done at metal and manufacturing which is out sourced that quality control at all stages of manufacturing so how did it is and distribution until tail now the distribution and retail you tell those are big ones like I mart Tesco and others so these are all there they basically cost control is the thing and then of course.

A lot of competitive sort metal so the product recalls could be product design troubles there could be problems with the manufacturing like light or the products are not done non well and of course this quality Control for any kind of materials that are used which basically come out or which are harmful to the people and of course the distributional retail.

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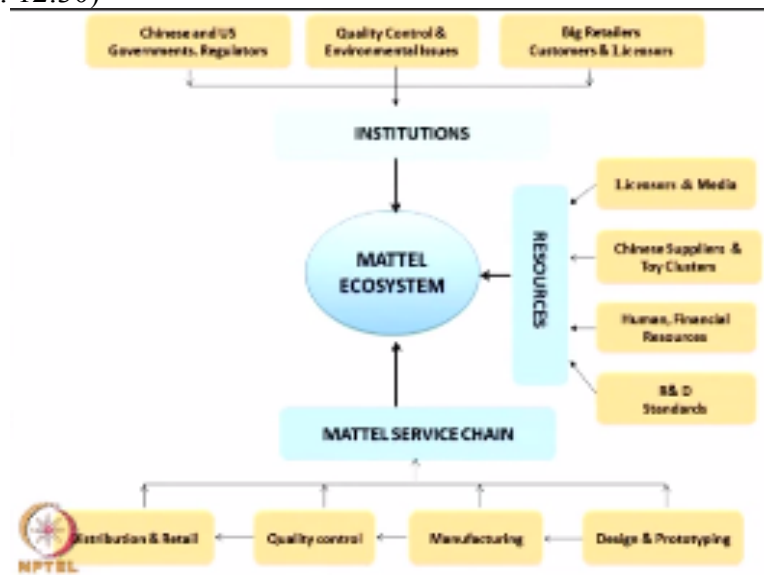


Then if you look at the resources there are licensed women media and training suppliers and toy clusters they become very important because the it is a low cost item and it be the supply chain is law in other words in other word they have to be the toys are made at various places in China and finally their ship to the United States particularly for seasons like Christmas and so on and the toy clusters because all the raw materials and the and the people talent.

Is available for manufacture of these toys and human financial resources and RND standards RND and standards you know there is research and development for manufacture of this one and also there is standard setting this is what happened one thing that happens in low-cost manufacturing when a lot of institutions are involved the and they contribute towards the product of the safety and also the quality of the product.

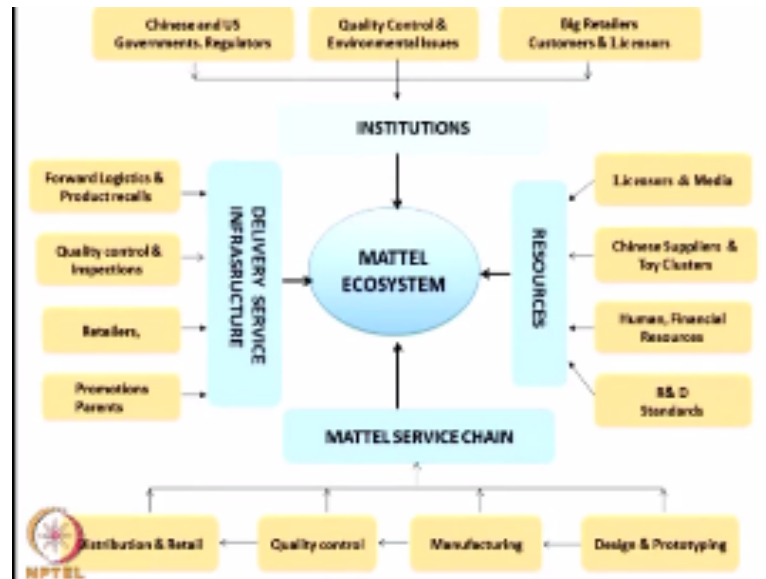
Then standards become important and it is also important that these standards should be whatever these standards be should be understood by all the players so in other words what is the kind of paint you use how long you are going to dry what is the kind of hair what is the color of the hair what kind of dye you are going to use all these are important because this is an embryo look and natural colors but they are artificial colors and there could be dangerous.

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You look at the institutions then balances Chinese and US governments and regulators and we were going to see particularly for this manufacturing there is the Chinese manufacturing authority which actually clears both the export and import and so on and similarly similar thing the U.S. Quality control and environmental issues that are concerned about these big retailers customers and licensures so big way that they tell us like Wall mart let us go and other their put supplier price pressures.

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When it be a follower logistics that is the moment of the material from China to United States or from various countries one part to the other but also whenever there is a product recall. Because they were product recalls are important and every company which is involved with either food or toys or for that matter anything where may go wrong the protocol the product recall becomes a big issue and you should have the reverse logistics for product recalls in place and most companies do not have this kind of capability would go to that bulky control and inspections now the big question is whether you are going to inspect.

At every stage or you are going to inspect the final quality product these are all the issues that one of course retailers and promotions and parents play a big role because they are the ones who are going to buy it for the chocolate children and parents should be advised to look at the safety features of any particular toys but parents usually go by Brand so somebody else children has the has a Barbie doll so they go for the Barbie doll the respect.

Of whether it is safe it is a new design whether the design is correct or not people do not inspect this so this is the kind of the core system that we have once you have the map of the eco system like this you can see when something goes wrong he is responsible for what in other words for example then there is the when there is a paid the problem then you can immediately put the blame on Chinese suppliers.

On the regulators who allowed it and also any quality control and inspections so but on the other hand more positively if you want to improve the quality of the products then you should inspect the suppliers you should develop the standards you should also have the Quality Control

and inspectors and also inform the regulatory authorities but should something happen then they should have the product recall which is the reverse logistics in place.

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So what if supply chain I mean here the metal supply chain is Naturals first Barbie dolls were produced in Japan in 1959 and from Japan it has moved to China nowadays.

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The Mattel Supply Chain

- Mattel's first Barbie dolls was produced in Japan in 1959.
- Mattel had its own production facilities and maintained tight control to address the possibility of trademark infringement.
- Mattel inspected materials when they arrived at the factory door. Suppliers were closely monitored for problems such as lead-based paint & vendors were terminated for violations.
- Mattel developed about 5,000 new toys each year. New toys were produced in small batches for approval. When full-scale production began, toys are inspected periodically.
- Mattel sub contracts to 30 - 50 vendors to produce non-core products and also components of core products such as the fabrication and painting of eye balls for certain dolls.

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Module has its own production facilities and maintain tight control to address the possibility of trademark infringement because the design of it all is the toys is trademarked so it is like a patent and it cannot be infringed then people can go to court and measure inspected materials

when they arrived at the factory door and suppliers were closely monitored for problems such as lead-based paint and vendors were terminated for violations.

So you can see that it is on board with various quality control that we developed about 5000 new toys new twice each year and new toys were produced in small batches for April 1 then full-scale production became twice or inspected periodically I think you should notice that during the Bialy inspection of the materials and other things happen this when the full-scale production happens the toys are inspected periodically.

So this is when one has to be extremely careful when there is a full full-scale production and there is a lot of demand for toys that is when the first year second year third year suppliers because oh they do not have the material they buy a local low standard materials and metal sub contracts to 30 to 50 vendors to produce non-core products and also components of core products such as fabrication painting of high balls for certain doors.

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Toy Production in China

- By 2007 about 80% of the world's toy production was made in China. Nearly 80 % of toys coming to the U.S. were made in China.
- Mattel produced about 65 % of its toys in China. Most of these toys were produced in about 5,000 factories located in Guangdong province owned by Hong Kong entrepreneurs.
- Toy distribution had evolved from specialty retailers to mass market companies such as Wal-Mart who pressured the suppliers to drive down costs.
- Mattel had moved manufacturing to China in the 1980s.

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So production in China in 2007 about 80% of the worlds toys production were made in China and nearly 80% of the toys coming to us were made in China and metal produced about 65% of his choice in China and most of these toys were produced in about 5,000 factories located in conjunct district prophets warned by Hong Kong entrepreneurs and toy distribution had award from specialty retailers to mass-market companies such as Wall mart who pressured suppliers to drive down the cost the earlier they used to be Toys R Us kind of shops but now these toys are available in almost every big retail store natural had moved manufacturing to China in the 1980s.

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Supplier Selection & Monitoring at Mattel

- Factories in Mattel supply chain should procure paint and other materials from certified suppliers and follow corporate safety standards. Mattel did not price pressure suppliers, particularly on paint related products.
- Vendors subcontracted with other suppliers, who might further sub contract to other suppliers for parts or materials.
 - For instance, a company that was making a doll might subcontract certain processes, such as painting the eyes to another company. That company might obtain paint from still another supplier.




So now how does the metal handle the supplier selection yes and what does it monitor so factories and natural supply chain should procure paint and other materials from certified suppliers and follow corporate state safety standards and then basically this is a standard that that they tell everybody metal did not price pressure suppliers particularly on paint related products and when does interacted with other suppliers who might further subcontract to other.

Suppliers for parts or materials so they are skinny this is a multi tier the supply chain basically where you have not only tire one supplier so you have pair 2 type 3 type 4 and so on and finally ends up with raw materials like paint and dyes and so on so forest is a company that was making at all might subcontract certain processes such as painting the eye is to another company that company might obtain the paint from still another supplier so.

The point is that when you have a low cost product like a doll and you have a multi-tier supply chain and the risk come can emanate from any one of these suppliers and just because it is a multi-tier the lower the lower run suppliers are more prone to adulteration and use low-cost materials low quality materials then rehire of this one here they may they may not be anywhere and be they are being supplied by somebody else and then they just you it because of the cost pressures.

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Supplier Selection & Monitoring at Mattel

- Mattel prohibited subcontractors using multiple layers of additional suppliers. Mattel required vendors to notify the company of all subcontract deals with option inspect them.
- Mattel had 200 employees based in Hong Kong whose sole responsibility was training and supervising its Chinese contractors.
- Mattel was considered to be the best role model for how to operate prudently in China. *New York Times*

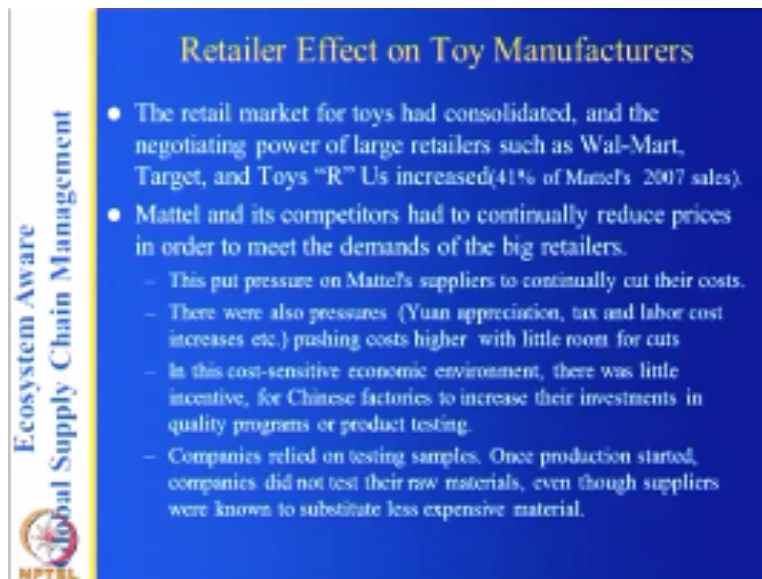
The metal prohibited subcontractors using multiple layers of additional suppliers metal required vendors to notify the company of all subcontract deals with the option to inspect them so what metal was trying to do is basically to it is aware of the of the lead poisoning or poison paint which children what happens is the hands of a particular doll or the eyes of a doll or painted with lead and if the light discontent is high when the chain child puts the did all the hand or the leg or the this one or licks the doll.

Then the child gets infected with the light contact light paint which may lead to death so this is this is the kind of this one that that is why these people are aware of these kind of dangers and so they want to put pressure on their suppliers by having inspections and that you had 200 employees based in Hong Kong whose sole responsibility was training and supervising these signing contracts now this is where if see if the product recalls have to happen that means is that is lead poisoning.

Somewhere or some other thing happens then these 200 employees or responsible now how seriously these people take their job this is under question because when things happen and metal is considered to be the best role model for how to operate prudently in China there is a New York Times article just around 2006 putting metal at the top of the world in terms of how to handle that there is a role model for having operate prudently in China.

But because it is known that in China there are larger problems associated with A intellectual property B duplication of these materials by imitation because when they are making the dolls they can make the dolls for somebody else and see for no quality use of low quality products so for all these reasons people have to be extremely careful and metal being a low-cost product manufacturer and that naturally has to be careful about this and metal ones basically was given the role model for prudently operating in china.

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Retailer Effect on Toy Manufacturers

- The retail market for toys had consolidated, and the negotiating power of large retailers such as Wal-Mart, Target, and Toys “R” Us increased (41% of Mattel’s 2007 sales).
- Mattel and its competitors had to continually reduce prices in order to meet the demands of the big retailers.
 - This put pressure on Mattel’s suppliers to continually cut their costs.
 - There were also pressures (Yuan appreciation, tax and labor cost increases etc.) pushing costs higher with little room for cuts.
 - In this cost-sensitive economic environment, there was little incentive for Chinese factories to increase their investments in quality programs or product testing.
 - Companies relied on testing samples. Once production started, companies did not test their raw materials, even though suppliers were known to substitute less expensive material.

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Retail an effect on toy manufacturers what is the retailer effect the retail effect on toys had consolidated retail market has consolidated and negotiating power of large retailers such as Wall mart Target twice or has increased that is 41% of mortal metals 2007 sales were through these people so naturally when they are procuring from large quantities and they had their putting things on sale Christmas sale for sale and so on.

And they basically had to put pressure on the cost metal and this competitor a set of continuously reduced prices in order to meet the demands of the big retailers now the ones will decrease the price is already like increase in the salary of the employees it increases year by year because their increase meant increases and similarly they price once it comes down they decrease as year by year so this puts pressure on metal suppliers to continuously cause scars.

Because metal and it better the retailers demand metal and metal puts pressure on their suppliers then were also pressures like because it is a it is a global fi a global supply chain you want which is the chain in currency it is and tax another labor cost increases etc so there is a labor cost increase you gotta appreciate it which means more dollars and pushing costs higher with little room for cuts and in this cost sensitive economic environment.

There was little incentive for Chinese factories to increase the their investments in quality programs or product testing now one thing that happens in most companies including organizations here that whenever there is a cost and time pressure the first thing they are going to cut take the quality checkups and the product reviews that they think the employees could do it by themselves so that is what these people have done companies relied.

On testing samples once production started companies did not test their raw materials even though suppliers were known to substitute less expensive materials so what happens is the

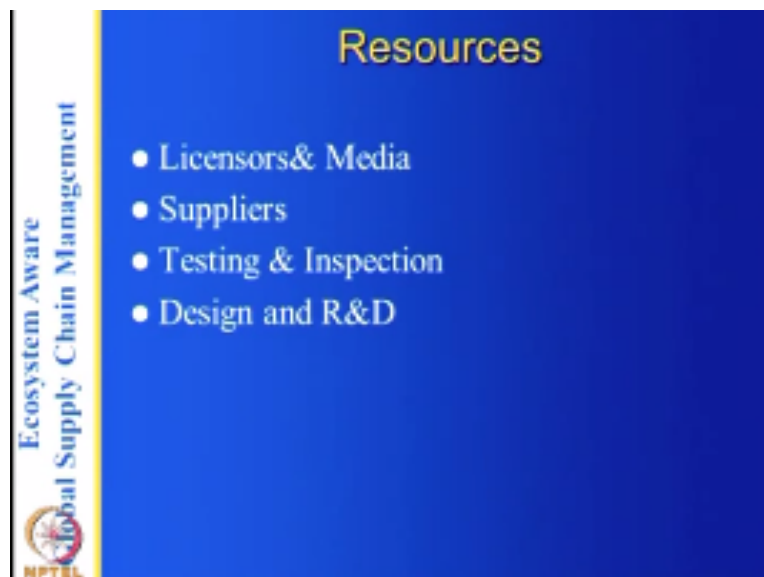
fundamental principles that metal used to follow inspect the raw materials when they come to the factory.

At the first factory door and you inspect the materials when they go to the factory door this particular thing is missed once the production has started and their time sample inspection of the final product that means they take 1 percent of the final products and they inspect them so this is where because of the price pressure or whatever they are going to of Course metal has a brand name it could have a few saying that look I cannot supply it at this.

One I mean Wall mart or whoever target has to listen to this because the choice is a popular item with the children so the sales of the toys is not because of but it is because of metal or the brand brands like metal and so on so there could have negotiated well with the target but most people fall to the price pressures of the big retailers.

Because there is always the big retailers can always get non brand products from other contract manufacturers and put their labels the same Barbie doll can be manufactured somewhere else without all these standards and all that and it could probably be cheaper and Wall mart or somebody can source from those areas so to prevent all that these branded suppliers are planted manufacturers they try to reduce the prices for this brand at retailers so what has the resources that we see in the resources their resources are the media and licensure is suppliers of course.

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The suppliers who are coming from China and so on testing and inspection design and R&D now this design of the of the products which are in this particular case metal has toys he is done at metal headquarters may be located in Hong Kong may be located in the United States

and there is an R&D associated with this now this R&D is basically sourcing what kind of what kind of oil toys are selling what are the new toys they go and go to the brands like Walt Disney and others.

What they are doing what kind of toys and so on so that the design of these toys know carefully you know the toys which is which clap and make sound the toys which run these kind of toys they require the batteries they require magnets and so on so basically these designs have to be design of the products and emit has to be done by some organization so these resources are usually met alone most of these people have their brand in their designs and the looks so what are the regulations in this.

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The slide features a blue background with a yellow title 'Regulations' at the top right. On the left side, there is a vertical sidebar with the text 'Ecosystem Aware Global Supply Chain Management' and the NPTEL logo at the bottom. The main content area contains a bulleted list of regulations.

- Administration of Quality Supervision, Inspection and Quarantine (AQSIQ), is Chinese top quality control agency.
- China enforced a nation-wide product quality licensing system, requiring official inspections of toys made for export. Companies exporting toys are required to apply for "quality licensing."
- The Guangdong Import-Export Inspection and Quarantine Bureau keeps records on potentially dangerous materials and paints in addition to checking finished products
- Under an agreement signed by the U.S. Consumer Product Safety Commission (CPSC) and AQSIQ, the use of lead paint in toys was prohibited. The agreement also included plans to improve education of Chinese suppliers about U.S. safety standards, share information between the U.S. and China, and increase inspections in China.

The regulations if you look at Administration of Quality Supervision Inspection and Quarantine yes you as I see this chain is top Quality Control Agency now it has all around 40,000 employees which regulate the products that go out of China enforced a national wide product quality licensing system acquiring official inspections of toys made for export companies exporting toys are required to apply for quality licensing so in other words the companies have to say that look we are going to supply only quality products.

They are licensed to export only under that kind of promise in addition of course their inspectors who are inspecting and of course one knows in China if you are caught then you will have problems they can town district.

And import-export Inspection and Quarantine Bureau keeps records of potentially dangerous materials and paints in addition to checking finished products so the sale and use of potentially dangerous materials like light infected paints and so on.

If they keep a track of this so basically this particular agency this Bureau has knowledge of who is producing this is materials and who is using them and how much and for what purpose so it looks like in China this particular because they are aware of these problems and once the there is problem then the Chinas name gets tarnished for that reason there they seem to be highly careful about regulating these issues particularly in terms of the low-cost products.

Like the toys and leather goods and so on under the agreement signed by US Consumer Product Safety Commission CPSC and here q as I see the use of light paint in toys was prohibited so you cannot use LED paint in toys the agreement also included plans to improve education of the Chinese suppliers about U.S safety standards share information between US and China and increase inspections in China.

So the point I am making here is that If you look at the regulations there are regulations are there but if things happen in spite of the regulations that is the suppliers violate and if you have a bad design then they are nothing regulator can do all the regulator can regulate is about it does not test your toys the design is yours but when you manufacture this particular toy in a particular this one it ensures that the quality of the products that are used in this toys so.

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The slide is titled "Delivery Services" in yellow text on a blue background. On the left side, there is a vertical banner with the text "Ecosystem Aware Global Supply Chain Management" and the NPTEL logo at the bottom. The main content area contains a list of bullet points in white and yellow text. In the bottom right corner, there is a small video inset showing a man in a white shirt speaking.

- Forward Logistics & Product recalls
- Promotions, Parents
- Helping their suppliers, educating and supporting them.
- Testing, Quality control & Inspections for safety
- Mattel had 200 employees based in Hong Kong whose sole responsibility was training and supervising its Chinese contractors.

What about the delivery services Farwell logistics and product recalls if our world logistics is of course fails to lose well some it was from China to Hong Kong and from Hong Kong or Shanghai or Hong Kong they are shipped to the United States although there are also promotions and of course the parents are the ones who are going to buy the toys for the kids and helping the suppliers educating and supporting them.

So that is another part of the delivery services because after all the forward logistics is forwarding something bad so you should tell all the suppliers not to own this one testing quality control inspections for safety and natural had 200 employees based in Hong Kong whose sole responsibility is training and supervise in Chinese this one so as whether they will service delivery services is concerned of course there are forward logistics that there and to the big retail stores like Wall mart Target and others and of course there are promotions and checking and quality control and all those so if you when we look at the ecosystem for this we have looked at the supply chain we have looked at the regulations we look like the resources we looked at the delivery services.

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So point out the product recalls happen in other words we are talking of a situation when we looked at the ecosystem because it is a toy and the case is we are looking at the safety of this product cause he emphasized that part of those parts were see a course of area of the ecosystem where the safety is guaranteed so it is not as though you can find fault with any of these ecosystem parameters they seem to be doing well so the reasons for tire recalls are design problems.

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Reasons for Toy's Recall


- **Design Problems**
 - Detachment of loose small parts
 - Small powerful magnets dislodged from toys & swallowed by children
- **Manufacturing Problems**
 - Use of paint with lead levels exceeding 0.06 %
- **Product Misuse**
 - Children often find creative ways to play causing detachment of parts and misuse of swallow



Now this is a general one in detachment of Lewis small parts in other words if there is a hand and a hand can come out and if there is a magnet inside the magnet can come out. Small powerful magnets dislodged from toys and swallowed by children and that goes into the intestines and then you know things can happen there and there could be manufacturing problem so you use a paint with LED levels exerting .06% and there is product misuse you know after all the products are being used by the children so they are supposed to play with the toys but they may beat the toys they may take it take a stake and then beat.

The toys or they can take the toys and beat it on the ground so the children does not find creative ways to play causing detachment of parts and misuse of swallowing then looking liquid that can swallow it and so on so when you are designing a particular product if you have problems with that they said you should take ways using it I mean who is your potential Europe who is your customer and the designs have to be customer sensitive.

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Reasons for Toy Recalls- Design Problems

- Use of small, powerful magnets in children's toys.
 - Magnets not encased properly due to deficient designs & could become dislodged and swallowed by children.
 - The ingested magnets could bind together across intestinal folds, eventually perforating the intestine causing serious injury or death. First death for this cause was reported in 2005.
- Parts could break off toys & can cause choking in infants.
 - Designer should ensure that toys intended for very young children did not have loose small parts, and that any small parts attached to toys (such as noses and eyes on stuffed animals, or buttons) could not be detached.

That is where I think the most of the problems come from the toys and recent retiree calls design problems use of small powerful magnets in small children's toys magnets not encased properly due to the efficient designs and could become dislodged and swallowed by children the ingested magnets will bind together across intestinal folds continuously perforating the intestine causing serious injury or death the first death for this cause was reported in 2005 and thought could break off dice and caucus choking in infants and designers should ensure that toy is intended for Varian children did not have too small parts and that any part attached to the toys such as roses eyes of stuffed animals or buttons could not be detached.

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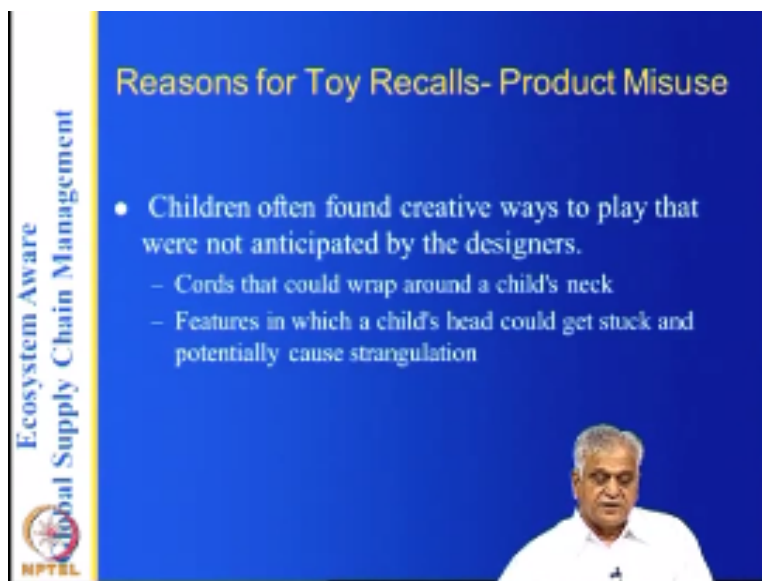

Reasons for Toy Recalls-Manufacturing Problems

- One recurrent problem was the use of lead paint.
- Lead was commonly used in paint until the 1970s.
- Paint with lead levels exceeding 0.06 % was banned in the U.S. for residential and consumer use in 1978.
- Companies manufacturing in China put processes in place to prevent the use of lead paint on their products.
- There were many possible reasons for use of lead paint
 - Paint with lead costs 30-60 % less than paint without lead.
 - Use of unapproved suppliers
 - Falsified certification documents by suppliers



What are the manufacturing problems in this one recurrent problem is the use of light paint that was commonly used as paint in 1970s paint with red levels exceeding 0.619 in the US for residential and consumer use the company's manufacturing in China put processes in place to prevent the use of light paint on that product there were many possible reasons for use of light planes why do people use like paint with light cost 30 to 60 percent thirty to sixty percent less pay less than paint with lead say in faith outlet use of unapproved suppliers falsified certification of documents by suppliers you know you can how do you know they child be this one I mean the supplier is going to supply from somebody saying that it is a good paint it has less than .06%.

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The slide is titled "Reasons for Toy Recalls- Product Misuse" in yellow text on a blue background. On the left side, there is a vertical banner with the text "Ecosystem Aware Global Supply Chain Management" and the NPTEL logo. The main content area contains a bulleted list of reasons for toy recalls. At the bottom right, there is a small inset image of a man in a white shirt speaking.

- Children often found creative ways to play that were not anticipated by the designers.
 - Cords that could wrap around a child's neck
 - Features in which a child's head could get stuck and potentially cause strangulation

Then that is that happens so what about the product misuse children often find creative ways to play that what not anticipated by the designers cars that could wrap around the child's neck features in which else had could get stuck and potentially cause strangulation.

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Mattel 2007 Recalls

- On August 2, 2007, Mattel announced a voluntary recall of 83 Fisher-Price products sold from May to August 2007 .
- On August 14, Mattel issued a second voluntary recall involving 436,000 toys worldwide, 253,000 of which were in the U.S
- More recalls on September 4.
- Reason: "Toys were produced using a non-approved paint pigment containing lead"
- On Sept 21st Mattel announced that the vast majority of the recalled toys, 17.4 million, had been due to loose magnets (defective designs), while a much smaller number, 2.2 M were related to manufacturing defects (excessive lead).

So let us look at the metal 2007 what happened when I this second 2007 metal announced a voluntary recall of fisher-price products sold from May to August 2007 on August 14th natural issued a second warranted a call involving four hundred and thirty six thousand toys worldwide two hundred and fifty three thousand of which were in the U.S. more recalls from September fourth the reason toys were produced using a non approved paint pigment containing lead.

That was the reason that was given by madam and in fact it was not metal but from August onwards August 2000 onwards there were media this one I mean some of these companies were saying that it is alleged paint and Jenny's suppliers were their band and all that but on September 21st metal announced that vast majority of the recoil toys 17.4 million had been due to lose magnets that is because of the defective designs.

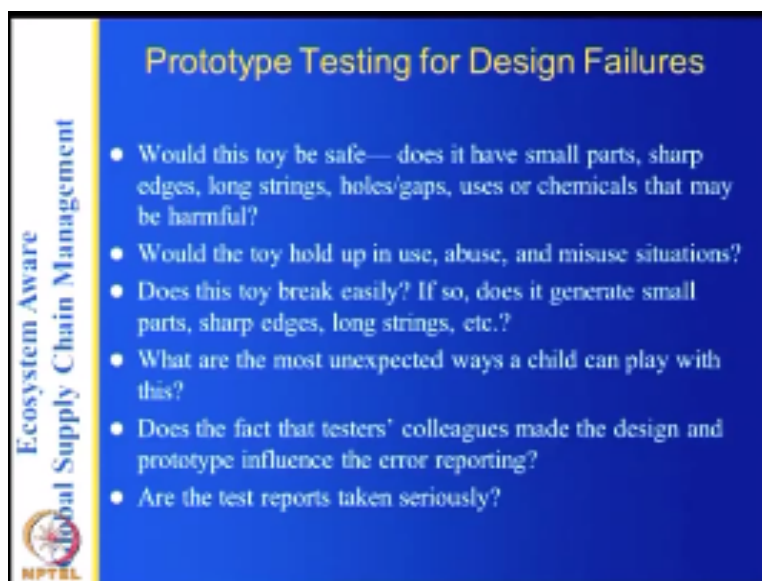
While a much smaller number 2.2 million were related to manufacturing defects excessive later so the fact is of course that both are at faulty metal design was not good because it has bar it has designs which are unsafe for kids and also it has parts which are loose and particularly those parts were magnets and the children can swallow the magnets and that could be dangerous for them and the other one is 2.2 million dolls were had manufacturing has excessive lead.

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So how do you be the risk management let us come to this issue here in other words is the general issue in all source manufacturing so prototype testing for design failures with this species this toys be safe does it have small parts sharp edges long strings holes.

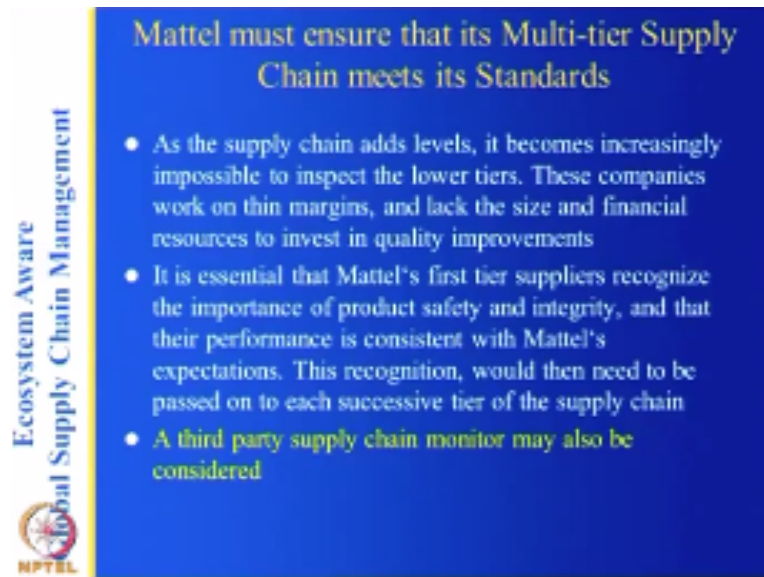
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Gaps uses or chemicals that may be harmful with the toy be holed up in the use of abuse or misuse not destroy break easily if so does it generate small parts sharp edges long strings etc what are the most unexpected ways in which a child can play now as the fact that testers colleagues made the design and prototype influenced they are reporting testers colleague made the design and prototype influenced the error reporting or the test reports taken seriously.

So Destiny better they be the shoe goes all the way from designers to the people who test it and who certified and so on this is at metal.

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The slide is titled "Mattel must ensure that its Multi-tier Supply Chain meets its Standards". It features a blue background with yellow text. On the left side, there is a vertical yellow bar with the text "Ecosystem-Aware Global Supply Chain Management" and the NPTEL logo. The main content is a bulleted list of three points.

- As the supply chain adds levels, it becomes increasingly impossible to inspect the lower tiers. These companies work on thin margins, and lack the size and financial resources to invest in quality improvements
- It is essential that Mattel's first tier suppliers recognize the importance of product safety and integrity, and that their performance is consistent with Mattel's expectations. This recognition, would then need to be passed on to each successive tier of the supply chain
- A third party supply chain monitor may also be considered

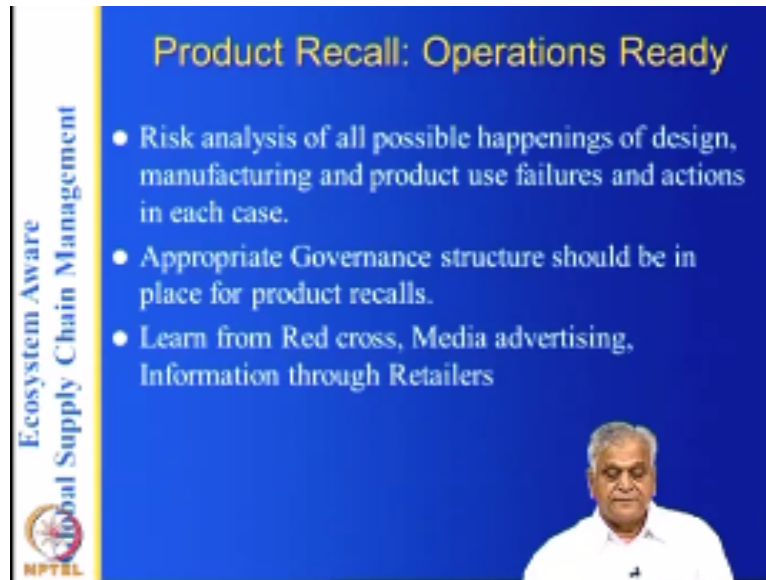
And natural must ensure that it is multi-tier supply chain meets its standards as the supplier and Eric's levels it becomes increasingly impossible to inspect the lower tires these companies work in the thin margins and the lack of size and financial pressures to invest in quality improvements it is essential that matters first and suppliers recognize the importance of product safety and integrating and their performance be consistent with patents expectation.

The recognition would then need be passed on to each successive tear of the supplier in fact when the product recall happened the companies that were involved with the mint metal they are very good companies and metal had a very long-standing relationship there but the fact of the matter is they are come to those companies have subcontractor to somebody who basically had this problem the third part is a pledge and monitor may also be considered.

Now here see the better point is can you have an Orchestrator who could who could do the entire monitoring for you a third party and where should he be placed and what should he monitor his are you monitoring the is usually the orchestrator monitor a product manufacturer on delivery to the suppliers this is likely and Foreman others but here we are we are looking at monitoring the quality control so of various suppliers so this is a part of the procurement of this so you should you should not only the monitor a third party should not only know the quality product for each of these products how they can be diluted or how can they can be poisoned and who are the suppliers where they are manufactured what is the relationship between the tears. Of suppliers between them are they in the same area so this is the kind of country knowledge on

the on the village on the town knowledge that is needed by the orchestrator so once that is needed then when you are Going towards to a particular to a particular manufacturer or a supplier then you can basically caution him saying that look you have your you are in the vicinity of this particular light highlight paint so if you use it and you will have problems if you have any problems if you cannot procure please tell us we will procure it for you so this is the kind of metal a ship that is needed here so product recalls always happens.

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Product Recall: Operations Ready

- Risk analysis of all possible happenings of design, manufacturing and product use failures and actions in each case.
- Appropriate Governance structure should be in place for product recalls.
- Learn from Red cross, Media advertising, Information through Retailers

That is because whenever there is a and there is a possibility of recall this can Alice's are possible happenings on design manufacturing product use failures and actions in each case and appropriate governance structure should be in place for product recalls then from Red Cross media authorizing information through three retailers and so on.

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Ecosystem Aware
Global Supply Chain Management

Conclusions

- Multi-tier supply chain partner selection and risk management are big issues in Globally dispersed supply chains.
- Design for manufacturing, Zero defect production, Customer safety are the hallmarks of manufacturing of the 70's.
- Managing accountability in a long, global supply chain is a difficult challenge.
- How do long dispersed supply chains ensure the above issues not compromised. Inspections, communications, supply chain visibility, Collaboration, Incentives in low cost SCNs, The CEMEX Way and what else?

So to conclude this unless we have talking about the multi tier supply chain partner selection and risk management and there are big issues multi tier supplier partner selection as well as multi tier risk management or big issues in globally dispersed approaches I mean there are issues in any outsourced supply chain whether it is local or global it has more globe in the sense you know if you are everybody is in the United States.

So everybody is from the same country then everybody is aware of the local laws the governing agency the controlling agency is the same the cost pressures would not be there because everybody is at the same page but here when you are outsourcing and people are from different countries then the risk management becomes an issue and also if it is a low cost product then it becomes much more design for manufacturing.

Zero defect production customer. Safety you are all hard marks of manufacturing in the 70s so when people were talking particular integrated manufacturing then you know people Who were talking about design for manufacturing zero defect production customer safety and so on these are all the you are taken forgiven but what happened and globally dispersed manufacturing so since everybody is on the in the same country and the same page they are all educated to four zero defect production design for manufacturing and all the customer safety and all that but when these are dispersed the same thing does not happen accountability.

Along global supply chains is a difficult challenge and particularly this becomes much more difficult it becomes much more difficult when the product that is involved is low-cost like toys or like food or anything that is low cost about ten fifteen dollars and also it is marketed through big retailers whatever may be brand when it is marketed through big retailers and all that there is a lot of cost pressure cost pressures and the cost pressures.

They go down the chain to from the retailer's to the manufacturers to the suppliers and so on and suppliers do not want to lose the market or the order and they try to do other things like adulteration like contamination sauce it from somebody who is cheap and use cheaper products and so on so how do you long displace supply chains ensure the above issues are not compromised in other words inspections of course.

They cost a lot of money and there is always corruption in inspections communications telling everybody what should be and of course supply chain visibility now supply chain visibility has problems because the local suppliers particularly 1 tire 2 tire 3 tire 4 tire and so on there may not be available on the internet and they may not be they may not have this kind of visibility that they need and of course collaboration incentives of low-cost.

This one is a mx way and what else so this is there are there are issues here about this of course one fundamental thing is why are we manufacturing these products using these why should I have a patent at all when you know in other words one thing that designers could consider used to remove all the products which are all the elements in the design which could be why should you use magnets in this so there are there are several males in with one hand one can look at it depends on the product it depends on the country it depends on various issues so that is where we stop and then we will see it later what Watt man structure do you suggest for low products supply chains this mxv and so on you .

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