

Indian Institute of Science
Bangalore
NPTEL
National Programme on
Technology Enhanced Learning

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Global Supply Chain Management

Lecture -17

CEMEX –part 2

Prof.N.Viswanadham

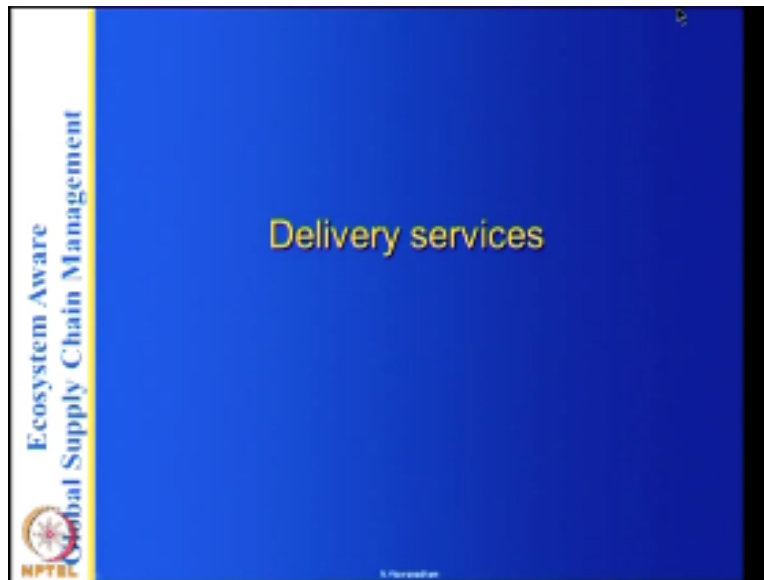
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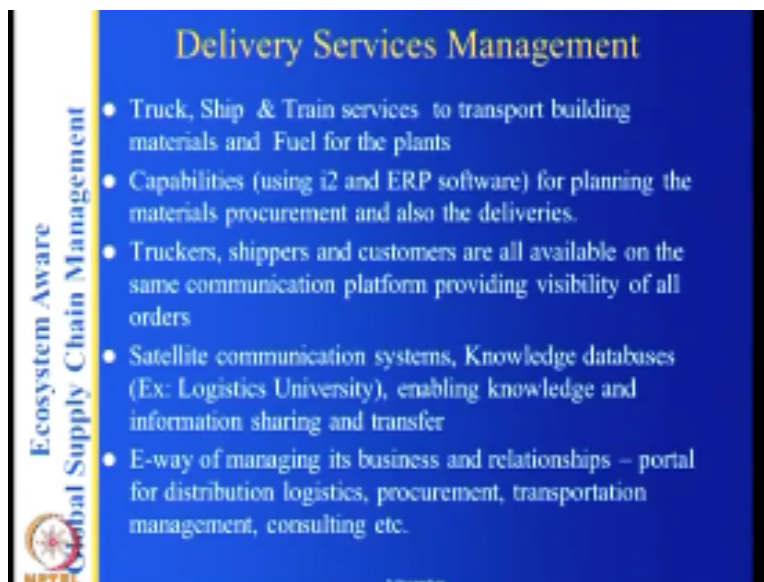
Well we will look at now the third element of the ecosystem that is the delivery services.

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Which is a very important thing for some CEMEX because ultimately delivery services are the ones which are going to deliver the products are literally building solutions to the customers , let us see how it does because delivery services management is for example, truck ship and train services to transport building materials.

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And fuel for the plant basically these are the logistics services that are needed and capabilities for example, I to which is the software. Which is a supply chain planning software and ERP solutions for planning materials procurement and also the deliveries because you are dealing with several of this building materials and they have to be sourced from several of these manufacturers and depending on the customer ,demand depending on the time sensitivity of the

demand. So you do not want to keep too much of inventory and so depending on that you have to do the material procurement and also do the deliveries of a plan trucks of shippers and customers are all available on.

The same communication platform providing visibility for all orders so they have created a communication platform or all the customers trucker shippers everybody's there on the same platform and satellite communication systems knowledge databases and an example, they have a logistics university enabling knowledge and information sharing and transfer so basically hear me this CEMEX has this culture that the girly the company itself promotes that the sharing of knowledge as well as use of raise communication systems rather than the personal visits so that is how the whole delivery services management is done through using 8 EV know for example.

You first answer electronic wave managing its business and relationships portal for distribution logistics procurement transportation management consulting etc so you can see although it is a cement company you know 20 years back it started all this ye way of communicating with the partners e way of doing business here way of selling products and so on so that is the delivery service management that the cymeks has now for example here for example.

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This is the factory that is CEMEX and this is the seller and there is a customer here and customer obviously it wants some building materials and there is a truck here and cement trucks can deliver orders. In a 20-minute window so in particularly in big cities or anywhere you know people may not have space to save they cement so basically if they want they want in a 20-minute window this can be given an order it can be delivered and there is the global digital which enables tracking with the orders and payments so for example you can track the all your order on a cell phone using the satellite communications and here dynamic synchronization of

operations you know for example ,the controls operations tracks vehicle movements and automatically optimizes.

The order fulfillment so here there is the dynamic synchronization of all the operations so there is a plant production and track the vehicle moments here and automatically optimizes the order fulfillment so for all customer orders there is a production. I mean basically this is a cement factory where things or things are produced and stored and warehouses and so on but if you look at same CEMEX and its agility it looks like as though your project you are it is like order to delivery in other words it is built to order kind of framework that CEMEX has developed using satellite communications and so on so it shows that no things are not very difficult if you have the motivation to do it use communication technologies to basically deliver. An order and collect your money.

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e-Enabling CEMEX

- e-Enabling CEMEX is about building an open corporate information structure that allows all employees and partners to access the company's information and resources.
- e-Enabling consists of three major areas:
 - **e-selling:** Electronic storefront that delivers customized online services to customers.
 - **e-procurement:** CEMEX's purchasing process allows employees to purchase supplies online based on their exact requirements.
 - **e-workforce** using a corporate Intranet: Connects CEMEX employees globally; promoting greater knowledge sharing

So that is the E enabling some acts that he is an CEMEX this is one of the fundamentals it is also called as CEMEX way CEMEX is about building an open corporate information structure that allows all employees and partners to access company's information and resources and then this is one thing that that is unique to some CEMEX that it has the information system which always partners can access through a password and all the employees they have they have they can they have a course where much they can learn on this or they can also see.

What the plans are so that what are their what is their functions and how they should do what we should do during the day and so on everything is accessed and open enabling consists of three major areas one is you selling electronic store front that there was customized online services to customers so as we have seen in the earlier diagram, there the customer orders electronically and it is delivered through him in a truck within 20 minutes that is selling

procurements some expertise of process allows employees to purchase supplies online based on their exact requirements.

So if the employees want to buy something now here is the e-procurement there already the same CEMEX must have negotiated with the people so they have all the purchase decisions are made and are the prices and all that kind of thing supposing they have to buy some steel for a particular customer and the employee who is in charge can purchase that online based on that exact requirements and if you can be supplied either to their distributor store or it can be supplied directly to the construction site and program.

Which is important one if you work force use a corporate intranet connects CEMEX employees globally promoting greater knowledge sharing so one thing about some CEMEX is there is standardization of all the procedures and so on so if CEMEX acquires a particular company it may be Italy integrates it into this CEMEX way so this there is no cultural and other differences it does not care about the cultural and other differences you are in Europe you are in Asia you are in this and so on so while respecting.

The personal freedom but the way the company works is the you work force users corporate internet and connects all employees globally promoting greater knowledge sharing and also there is standardization of processes and procedures.

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The CEMEX Way: The IT Legend

- CEO Zambrano can check sales figures or kiln temperatures in any plant in the world from a communications center in Monterrey.
- Cemex's ready-mix delivery trucks are equipped with dashboard computers that allow tracking by global positioning satellite (GPS) technology."
- "Post-merger integration teams" i.e. executives armed with laptops, were dispatched to analyze the new acquisition, to cut costs & to harmonize its technical systems and management methods with CEMEX's.

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So CEMEX Way the legend their CEO Zambrano can check sales figures are killing temperatures in any plant in the world from a communication center in Monterey so you have basically a control tower from at the CEO at the CEO can it has it has 50 countries so many cement plants it can check and communicate with anybody in some acts this is what we can sell

the sales because to kill in temperatures anything CEMEX's ready mix delivery trucks are equipped with dashboard computers that allow tracking by GPS technology.

So basically the if you are transferring ready makes from there it has to be ready mix it is a concrete so it has there is a time element during which it has it gets otherwise it gets hot so basically depending on the distance and so on there are global positioning satellites which allow tracking and post-merger integration teams this is called PMI first mature integration is this was one of the standard things executives armed with laptops were dispatched to analyze the new acquisition to cut costs to harmonize its technical systems and management methods with sem excess so when it acquires.

I may need acquire out of containers and the acquisition is a big thing for CEMEX's and it spends billions of dollars in acquiring some of these companies and but before integration there is a premature integration teams they basically they are executives they were dispatched to analyze the new Inquisition to cut costs to harmonize the technical systems and management methods with that of CEMEX. So CEMEX is a league with dull and cisco has one of the world's leading digital inventors.

So if you say this about the cisco or dell you are not surprised but the surprise comes here is because it is a cement company but if you would just sell in cement you should understand the one fact that if CEMEX is just selling the cement then all this would not have been a necessity because it is in a country and it will it will sell cement and usually the cement is ordered a week before or two weeks before and it is inventoried and but here you are selling solutions and solutions like ready mix which is you have to deliver within 20 minutes and the orders can be cancelled so there because if you want to give all this freedom then you know you have to have this kind of IT services.

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The CEMEX Way, an information system and process standardization program

- In 2000 CEMEX also initiated a company-wide program : **The CEMEX Way**, to incorporate best practices developed by various CEMEX units around the world into the standard platforms.
- This program allows knowledge sharing as well as a more information-oriented employee on a global basis.
- CEMEX was able to ride the wave of change in its industry using CEMEX Way

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So CEMEX was an information system. And process standardization program so in 2000 CEMEX initiated a company-wide program called CEMEX way to incorporate best practices developed by various CEMEX units around the world into a standard platform so basically if there are some standard operating procedures which are followed in other plants. I think what CEMEX does is to integrate them and it should be followed everywhere so whatever is good in their equations they are followed if something is not to their liking.

I think they will change it so before acquisition teams go and find out how easy or difficult it is to integration so integration standardization is an important element before CEMEX or purchase or acquire some company this program allows knowledge sharing as well as a more information oriented employee on a global basis so wherever you are working whether you are in India China or in US or if you are working for CEMEX then all employees are the same the knowledge base is the same and the knowledge acquisition capabilities of the same.

So but CEMEX of course expects people to follow and use all the facilities so that to enrich themselves so CEMEX was able to write the wave of change you know it is industry using CEMEX so basically here is the point in civics way is the one that unifies standard digest the operating procedures and there is an IT system there are logistics and all that and there is a planning software I to ERP and other kinds of things and you have experts dealing with this supposing there is a there is a downturn in Europe and if all the orders that that you have in Europe or canceled and if they you have European cement plants.

They find out if they can that cement can be sold somewhere because they have logistics or another other equipment or ships they want the ships and which they can be used to transfer the cement extra cement to do this so the shipping is expensive but there because of the efficiencies are the processes that they have that may not be that expensive and it is better than not selling at all.

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The Cemex Way

- The Cemex Way is the **core set of best business practices** with which Cemex conducts its business **throughout all of its locations**.
- The approach was instituted in recognition of the need to build **"one Cemex"** that is more flexible in response to rapid growth and maintains a consistent customer focus worldwide.

So this CEMEX way is basically with a core set of best business practices with which CEMEX conducts its business throughout of all its locations so what are the core set of best business practices which CEMEX follows that is this CEMEX way.

So it is the same throughout this one the approach was instituted in recognition of the need to build once CEMEX that is more flexible in response to rapid growth and maintains a consistent customer focus worldwide so you are in 50 countries 200 plants but still you are alone your once CEMEX and that is the latter the kind of response more flexible in response to the rapid growth and consistent customer focus.

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Integrate acquisitions quickly and achieve optimal operating standards

- CEMEX implemented several standardized platforms to reduce costs, streamline processes, and extract synergies from global operations.
- CEMEX takes steps to improve product quality & reduce the environmental impact of its operations.
- With each international acquisition, CEMEX refines the technological and managerial processes required to integrate acquisitions into the CEMEX corporate structure. Was able to consolidate acquisitions more quickly and effectively.

Integrate acquisitions quickly and achieve optimal operating standards you can see how complex are they delivery services you know here because we have put other thing order delivery services here. It could go into institutions or it can go into resources and all that but everything is happening online you know there is IT and logistic services this basically getting into delivery and it is the delivery to the employees , delivery to the suppliers, delivery to the employers, and so on so basically the last one so how do you integrate acquisitions quickly and that you optimal operating standards and that is implemented several standardized platforms to reduce costs streamline processes and extract synergies from global operations if there is something that is going good in a plant they acquired.

In Europe they will just follow it worldwide to all the plants so but then they also streamline all the processes and then choose cause CEMEX take steps to improve product quality and reduce environmental impacts of its operations we are going to see in the next slides that CEMEX is very concerned about the sustainability of its operations or the impact of its operations on the environment with each international acquisition CEMEX refines the technological and managerial processes required to integrate acquisitions into some x corporate structure was able to consolidate acquisitions more quickly and effectively.

So this is the thing with most companies when they acquire somebody particularly from abroad then integration of that company into the parent company he is a difficult task if this company is from another country then there are cultural differences , their language differences, and also there are difference or differences in terms of habits the rules the institutions the social groups so you have to basically manage this and standardize and brings everything into CEMEX way and so that it is once CEMEX that is it becomes a difficult thing.

But it was able to consolidate acquisitions more quickly and bring them to its focus rather than having multiple companies worldwide so let us look at institutions this so in three you know so far what we have looked at is we looked at the supply chain and supply chain becomes complex because it is not just this event. So it is not just you put into the kiln cement kiln and then you get the cement out in fact you should be surprised we did not talk about the supply chain for this event at all because cement is just one incidental product we are concentrating on the services.

So your cement the building solutions is the one that CEMEX supplies and we looked at the resources that are needed and there are more human nightie and logistics on that kind of resources and we looked at the delivery mechanisms and the delivery mechanism so they you can see that we are not looking at how do you deliver cement from one truck to another but we are looking at how do you integrate your employees we are looking at how do you integrate your company's your new accommodations bring all of them into CEMEX way so it is a big global attitude than in other words.

Since you are a solutions company cement production is automatic and it is taken for granted so you are in the more higher level social networking and process delivery rather than just the cement so let us look at the what we were the problems that it faces about the institutions.

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Globalization- Entry

- The pattern of multinationalization in the cement industry is that the presence of the Big 6 firms is bunched i.e. the largest MNEs have a tendency to locate in the same country markets.
- **Mimicry or strategic convergence or imitation herding** so as to appear with-it or so as to avoid standing out.
- The major cement MNEs typically enter new markets by acquiring existing capacity, often during economic downturns.
- MNEs achieve competitive advantage by operating the physical assets more efficiently

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Which are the government's and sorts of groups so if you are looking at a turns the patterns of multinational hydration the cement industry is that the presence of big six forms is punched in other words the largest Ebony's have a tendency to locate.

In the same country markets well why is this happening God knows why all the company's wholesome CEMEX all these six companies of different origins if one company enters Bangladesh everybody enters Bangladesh when the bond enters India everybody enters in the fl and does China they interpret the chain so be Mimicry your strategy convergence or imitation hurting so as to appear with it are so as to avoid standing out so it is either mimicry or it is hurting so if somebody enters china and they make profit so you feel to enter and do not enter china then your management may fire you saying that why did you not enter china other company is entered china and then it made profit so you want to go.

Since all the summer company is entered you also want to enter china supposing some all the companies which I did enter sale oh you can say that everybody has failed so we have failed so that the management would not single you out but on the other hand everybody does who enter China or some other country they do well and you do not enter then you will have a problem so this is the problem of heading or strategy of convergence or you can call it mimicry whatever but it is true particularly the dissonant companies that you know when one enters.

The others also enter and so on but this is true with most other verticals as well the major cement company multinational enterprises typically enter new markets by acquiring existing capacity of an during economic downturns that is because you know building a factory and all that it becomes difficult to kill and all that it takes time so if you acquire what is existing during an economic downturn then you can wrap up very quickly and try to get to the solutions as fast as possible MNEs achieve competitive advantage by operating a physical assets more efficiently so in other words.

How do what is the difference between various companies if one company if you are just selling cement you have to basically lower your costs make or operations more cheap and try to use more your physical assets more efficiently and reduce the cost so that you make some profits but on the other hand we are dealing with a company which is different it has it is selling not just cement it is selling business solutions but the entry business we are talking of cement companies so cement companies basically concentrate on their physical assets as well as trying to improve.

The efficiency of the results and that is where most of these plant their work for 25 24 hours a day north for this one because it is a continuous plan in continuous process.

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The slide is titled "Institutions" in yellow text on a blue background. On the left side, there is a vertical yellow bar with the text "Ecosystem Aware Global Supply Chain Management" and the NPTEL logo at the bottom. The main content of the slide is a bulleted list of six items:

- Restrictions from markets, governments & society
- Trade barriers (government intervention)
- Import restrictions (to feel secure from international competition)
- Imposition of antidumping duties
- Environmental regulations and the application of rules and limits on market access and pricing within and across countries.
- CEMEX faces substantial currency risk, as it operates in many countries

At the bottom right of the slide, there is a small text "© 2019 NPTEL".

Restrictions from markets governments and society. I think this is important in this event this one you have restrictions when the markets why markets because they are local companies producing cement and your their face computation if you come in so that will be restrictions from them they try to use their political influence when the governments of course there will be government's put.

You are basically putting restrictions on pricing restrictions on sustainability of your this one the GHG gases and so on but also society that is because you are coming into the country or enter into a region and universe is not a very one of those products which are enjoyable you know in other words it is a high temperature large GHG gas producing cement using lime and other kinds of materials so it is not a neighbor it is not a very good neighbor so the society may not appreciate it so there will be restrictions from all of them and one has to face this in a cement industry and that of course trade barriers the trade barriers have government intervenes for example anti-dumping or some other this one and also quality of the of this event.

When if you are importing or exporting those that could be tailed barriers and import restrictions to feel secure from international computation in other words there could be restrictions and also one thing one should understand the indirect procurement cement is an indirect procurement by the government's so the government procurement could be huge.

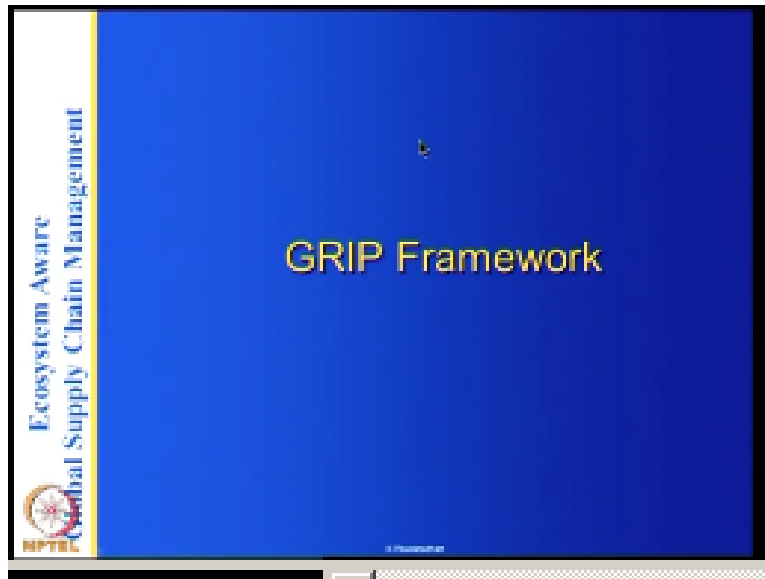
In other words all the buildings airports and the government buildings there on the roads all these are basically the gum and toned and the money comes from the government so if the government differentiates the foreign owners and local and so on it wants to give it to the local companies and all that then that the kind of restrictions you face the drain from your computation which is okay in other words anything that the government buildings government construction activities if the depth is secure only from local cement companies and not from foreign companies.

That is the kind of discrimination that these you have to face we fear a foreign company so there could be important instructions and so on an imposition of anti-dumping duties an environmental regulations are the application of rules under and limits on market axis and pricing within across countries and CEMEX faces substantial currency risk as it operates many countries you know the dollar goes up and down and it depends on which currency to users and if it is only operating on one or two currencies so since it is for Mexico Mexican currency and the US dollar then for others it has to basically see if it receives a Indian rupees.

How do you convert the Chinese Yuan how do you convert it when to convert it because they use no currency foreign exchange currencies are changing every day so you may lose a lot of money so it basically faces substantial currency risk and not only makes any company foreign company faces those so these are kind of risk that it faces from the institutions but they may look simple but they are heavy in other words if you are involved in anti-dumping duties then you have to take it back if you are involved in environment regulations then you have to reduce the your gas emissions if you cannot you have to close down the Furies.

So how do you reduce the gas emissions the gas emission reduction depends on your processes so you have to change the processes so that takes time energy and also you have to stop production and all that so basically these are all may look simple one lines but all of them are highly involved.

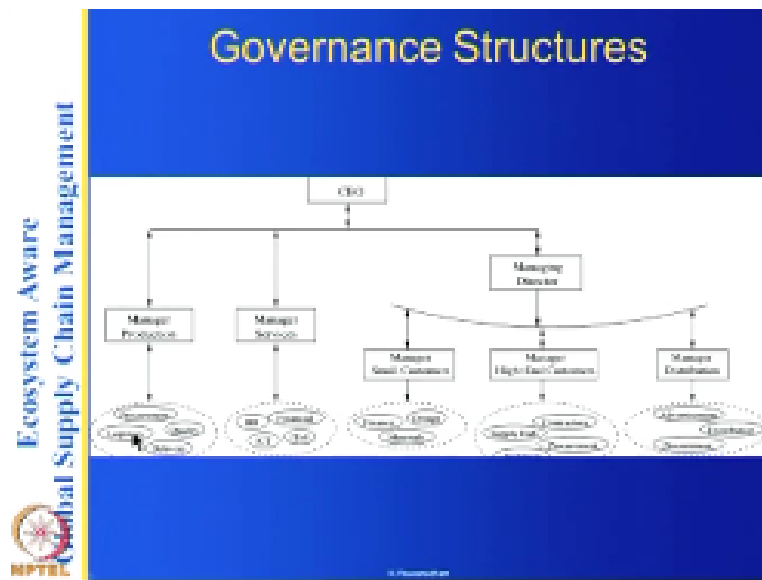
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So what we have done so far is look at the ecosystem of this one so while presenting the ecosystem we have presented all the properties of CEMEX you know its resources what is its supply chain what it is what it is selling what are the kinds of risks it faces from institutions and so on so let us, look at now the next step.

Once you have the ecosystem the next step is the drift framework the grip is the governance risk .I innovation and performance network performance framework as before what we will do is we will present each of them so what are the governance structures here.

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So you can see of course there is a CEO you have this is for building materials you are selling between building materials but still you are producing cement so you have a manager production who procures he maintains the logistics and the delivery of the cement and the quality so this is the cement vertical but there are services.

That you have to basically provide their funds financial services at ICT ITS and HR and all those these are for the entire company you will require these manage these services so I have separated these two from the rest of providing construction solutions here so these services are important for example your CEMEX way airplane and all these come under here narrator services this is basically the heart and soul of CEMEX but of course the cement production is important but the you know it is mixed with all the building materials later so you have several customers and you want to provide solutions for each of your customers.

So the managers small customers the small customers are housed building customers they want to build a house small house and they require of course the design the architect the design they may require the materials the building materials and also they require refinance so these people are all this manager here he cannot he is contacted and he provides is responsible for providing these solutions here and if you have higher end customers like somebody is building an airport somebody is being a building a big hotel and so on then you have contractors because the big con this one is the contractors you have the procurement of all the materials.

You have to maintain a supply chain and you have architects and so on and cement goes here the same it goes here and it goes here but it is incidental and finally if you are talking of distribution this one then you have a distribution you have procurement you have advertisement you have the computers training everything is done here and this is a part of the HR training here so you can see that the governing structure that we are proposing governance structure that

we are proposing here is basically customer-based governance structure here and taking out of course the cement production outside of this and also managing of the services.

That interconnect all these people and also it connects these services connect to outside people outsiders who are providing the services. I mean this gives us the impression that that selects when need to providing billing solutions it need not how to produce our product procure they cement from any CEMEX Factor's it can be from anybody maybe it is true but still this is the origin of a kind of organization structure that we have for CEMEX, so the governing structure typically is whatever we have been studying and it is based on the customers and also we have centralized production and services.

Which is very typical for this one and so that is itself here it acts as the as far the governance is concerned it acts as the vertically integrated this one and this is although we are talking manager production there are several factories all over all over the world they are 50 on odd countries so you have the C word feel same three were deals me several of these managers and you can think that that 50 of them here and CEMEX are the same under the under the CFO so basically they integrate all these 50 factories on all these people.

So you can see the complexity although we were saying just it is suppose instead of cement it is you are supplying services you can see the complexity of the organization structure which has to be dealt with so basically this is the kind of governance structure that selects should follow for their efficiency.

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So let us look at the performance. I mean the CEMEX this one as we said before that the it acts as an artist writer here and whereas it acts as an in vertically integrated enterprise in this

whenever cement production is considered so these services basically help in the orchestration what is the performance.

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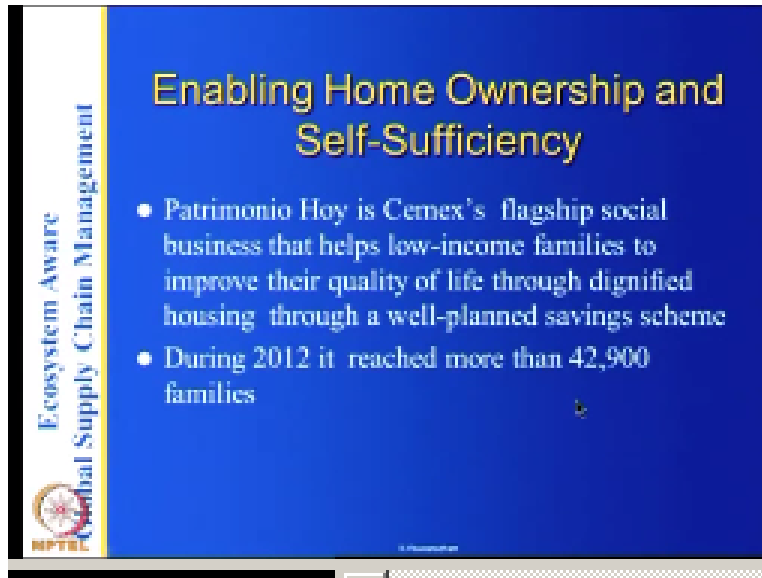


Let us look at the performance in do not eat one December 31st 2012 50 plus countries where CEMEX has presents and trade relations in approximately 100 countries so it has presents in 50 trade relations in 100 it just sell cements and he turns 43 905 employees worldwide 43.905 employees on this so it manufactures 94.8 millions of tons and one production capacity and it has 55 cubic meters million cubic meters of ready mix 159 million tons of aggregators 57 cement plants ,plus 12 with minority participation and eighteen ninety-nine mix concrete facilities 371 aggregate queries 221 land distribution centers 69 marine terminals.

So you can see that they have this I mean within give here we do not have difficult so many trucks on how many ships at once but it has been it has basically 69 marine terminals from where it basically shift the this one it has it is dealing with hundreds of 50 countries basically it supplies this it exports cement to from its plants and this is usually marine plants and also these marine plants on others in case of downturn and to balance out the inter-country variations in terms of demand CEMEX uses this marine terminals here.

So you can see that the performances are basically outstanding in terms of the contact and enabling home ownership.

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Enabling Home Ownership and Self-Sufficiency

- Patrimonio Hoy is Cemex's flagship social business that helps low-income families to improve their quality of life through dignified housing through a well-planned savings scheme
- During 2012 it reached more than 42,900 families

Vertical text on the left: Ecosystem Aware Global Supply Chain Management

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And self-sufficient so that is the full one of the this one is in terms of the performance how many patrimonios Hoy is a CEMEX flagship social business that helps low-income families to improve their quality of life through dignified housing through a well-planned savings scheme so during 2012 it reached 42 nine hundred families forty-two thousand nine hundred families that is the kind of Casillas our corporate social responsibility does.

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Innovations

- CEMEX named most Innovative Enterprise at 2013 Manufacturing Leadership 100 Awards

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What is the kind of innovations does selects named most innovative enterprise? In 2013 manufacturing a leadership manufacturer and leadership hundred 100 watts so it has basically received several these is 21. I am sorry it should be 20 Glove Award manufacturing Leadership Award so when we are looking at the performance of this it has received several awards and all that what you have to do is look.

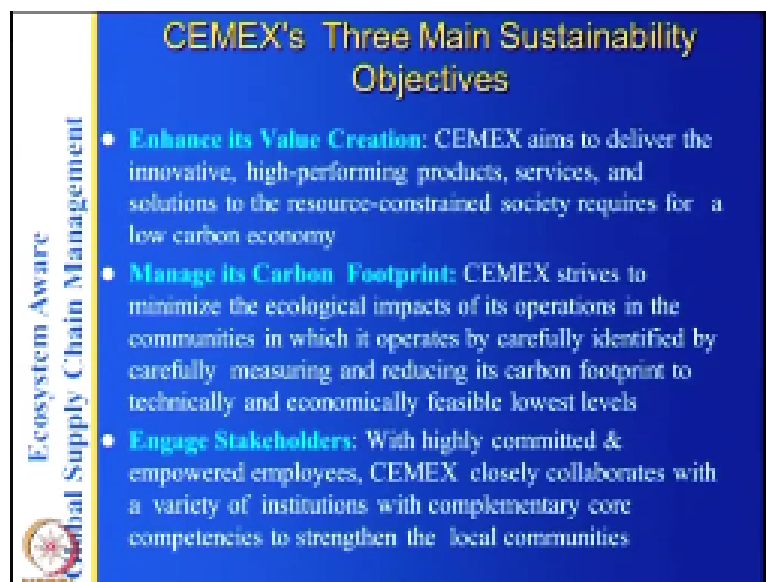
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At the sustainability initiatives what are the kinds of sustainability initiatives that test in terms of performance.

We are trying to judge it is the cymeks performance in terms of the GHG guesses on.

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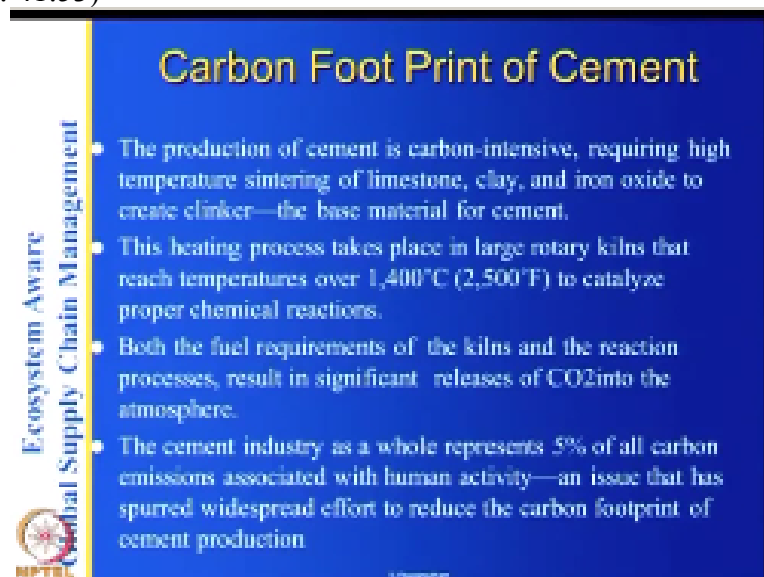


How so the three main sustainability objectives and has its value creation so make sense to deliver the innovative high-performing products services and solutions to resource constraint

society requires for a low-carbon economy so basically you are providing these products and services there is a resource-constrained society requires 400 carbon economy manage the carbon footprint sonic strives to minimize the ecological impact of its operations.

In the communities in which it operates by carefully identified by carefully measuring and reducing the carbon footprint though technically and economically feasible lowest levels now these are the things that are important you have to reduce your carbon footprint to technically and economically feasible lowest levels now the third one is engage stakeholders with highly committed and empowered employees CEMEX closely collaborates with a variety of institutions with complementary core competencies to strengthen the local communities in other words say selects cannot do everything alone so it basically collaborates with others and so on.

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Carbon Foot Print of Cement

- The production of cement is carbon-intensive, requiring high temperature sintering of limestone, clay, and iron oxide to create clinker—the base material for cement.
- This heating process takes place in large rotary kilns that reach temperatures over 1,400°C (2,500°F) to catalyze proper chemical reactions.
- Both the fuel requirements of the kilns and the reaction processes, result in significant releases of CO₂ into the atmosphere.
- The cement industry as a whole represents 5% of all carbon emissions associated with human activity—an issue that has spurred widespread effort to reduce the carbon footprint of cement production.

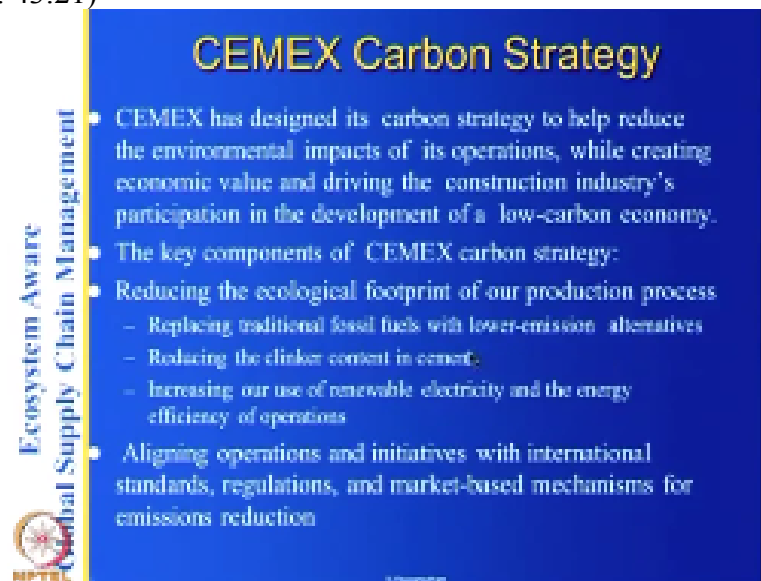
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So what is the carbon footprint of the melt the products of cement is carbon intensive course it is known requiring high temperature sintering of limestone clay and iron oxide to create clinker the base material for cement and the heating process takes place in large rotary kills that reach temperatures over 1,400 degrees centigrade to catalyze the proper chemical reactions both the fuel requirements of the kilns and the reaction processes result in significant religious co2 into the atmosphere so this is one thing that I have been say and this event industry as a whole represents five percent of our on carbon emissions associated with human activity.

This is the cement this one an issue that aspired widespread effort to reduce the carbon footprint of cement production so you can see that the kind of problems that that CEMEX faces when it enters new countries and it wants to regulate based on the restrictions on carbon this one so what is that that it does I mean it has a process which is very bad.

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The slide is titled "CEMEX Carbon Strategy" in yellow text on a blue background. On the left side, there is a vertical yellow bar with the text "Ecosystem Aware Global Supply Chain Management" and the NPTEL logo at the bottom. The main content is a bulleted list in white text:

- CEMEX has designed its carbon strategy to help reduce the environmental impacts of its operations, while creating economic value and driving the construction industry's participation in the development of a low-carbon economy.
- The key components of CEMEX carbon strategy:
 - Reducing the ecological footprint of our production process
 - Replacing traditional fossil fuels with lower-emission alternatives
 - Reducing the clinker content in cement
 - Increasing our use of renewable electricity and the energy efficiency of operations
 - Aligning operations and initiatives with international standards, regulations, and market-based mechanisms for emissions reduction

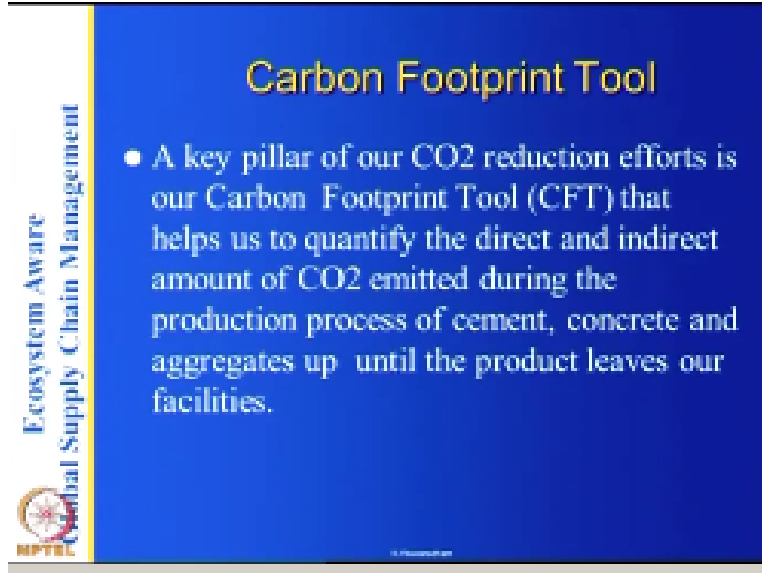
At the bottom right of the slide, there is a small text "© 2008 CEMEX S.A."

So what is your carbon strategy CEMEX has designated designed its carbon strategy to help reduce environmental impacts of its operations while creating economic value and driving construction industries participation in the development of low-carbon economy.

So how do you do it the key components are reducing ecological footprints of our production process replacing traditional fossil fuels with low emission alternatives reducing the clinker content in cement now rating increasing use of renewable electricity and energy efficiency in operations aligning operations and initiatives with international standards regulations and market-based mechanisms for emission reduction these are the standard thinks that there is was certified certifications and all that you can follow on this but you have to basically replacing traditional fossil fuels with low emission alternatives and then use of renewal renewable electricity.

And I can you use solar this one for making cement for running your kill or can you have solar forms somewhere so that you can trade garden so there are various kinds of alternatives that that deselect follows let us look at some of them so carbon footprint rule.

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Carbon Footprint Tool

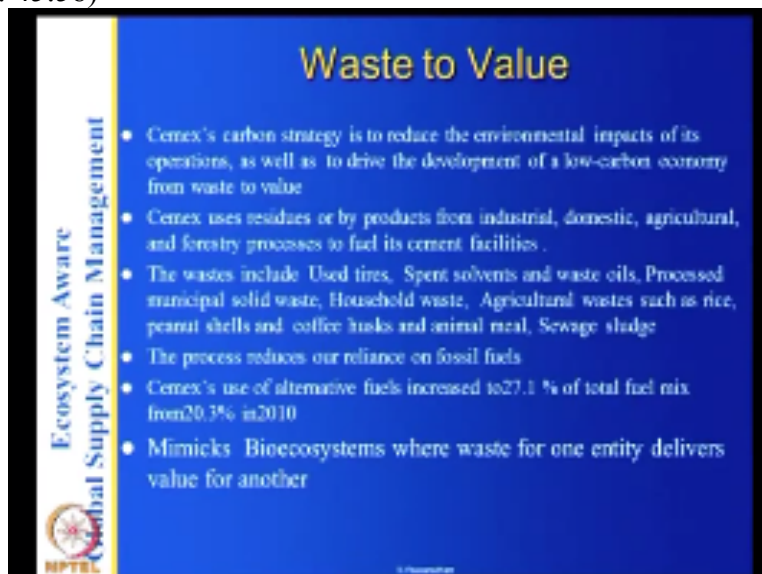
- A key pillar of our CO₂ reduction efforts is our Carbon Footprint Tool (CFT) that helps us to quantify the direct and indirect amount of CO₂ emitted during the production process of cement, concrete and aggregates up until the product leaves our facilities.

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And then it has a key pillar of our CO₂ reduction effort this is our carbon footprint tool that helps us quantify the direct indirect amount of CO₂ emitted during production process of cement concrete and aggregates up until the product use our facilities well there is a standard proverb that one uses that unless you can measure you cannot control.

So you have to find out what is your CO₂ footprint so it has a tool for its factory where you know how much carbon is emitted at various points of points in time by its bite skills by its trucks and so on.

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Waste to Value

- Cemex's carbon strategy is to reduce the environmental impacts of its operations, as well as to drive the development of a low-carbon economy from waste to value
- Cemex uses residues or by products from industrial, domestic, agricultural, and forestry processes to fuel its cement facilities.
- The wastes include Used tires, Spent solvents and waste oils, Processed municipal solid waste, Household waste, Agricultural wastes such as rice, peanut shells and coffee husks and animal meal, Sewage sludge
- The process reduces our reliance on fossil fuels
- Cemex's use of alternative fuels increased to 27.1 % of total fuel mix from 20.3% in 2010
- Mimicks Bioecosystems where waste for one entity delivers value for another

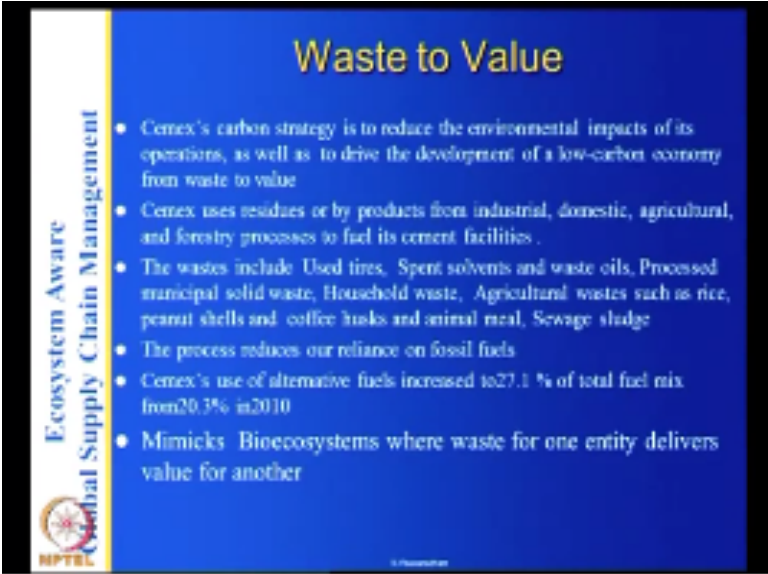
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Now the other thing that the CEMEX follows is ways to value CEMEX carbon strategy is to reduce the environmental impact of its operations as well as drive development of low-carbon

economy from waste value so CEMEX uses residues or bio products of industrial domestic agriculture and forestry processes to fuel seventh actress so one thing is to reduce the gases another thing is to use the waste that is generated by other processes in its cement kills the West includes used tires spend solvents and waste oils processed municipal solid waste household waste agriculture ways such as rice peanut shelves and coffee has an animal meal and sewage sludge these are basically used as floor and the process reduces their reliance on fossil fuels so one thing is you are converting all the waste total value.

But are you reducing the GHG CEMEX use of alternate fuels increased to twenty seven point one percent of the total fuel mix from 20.3 to 2010 so in other words twenty-seven percent of its fuels or from waste so it basically mimics the bio ecosystems where waste from one entity Denver's value for another so one of the good things that CEMEX is doing is to use to use the vest so that it basically reduces the waist and converts it to value making a biological this one.

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So developing alternate energy solutions this is another one that sevens does CEMEX ones have been formed in Mexico with a capacity of 25% of energy needed to run the Mexican operations and in 2011 allow it is a mix to avoid 480 89,000 169 tons of co2.

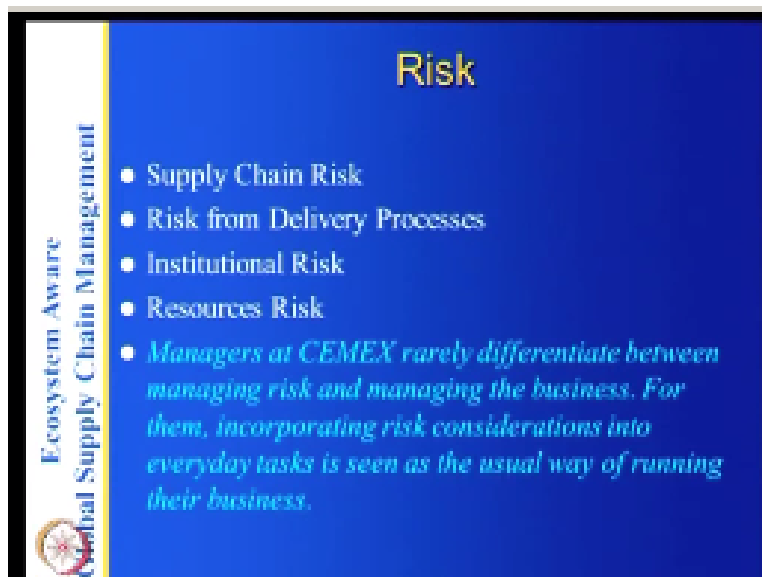
This one so CEMEX reduces the carbon footprint by using efficient process technologies and changing the way sources electricity in 2011 CEMEX Philippine la Philippines launched a collaborative project with Sinoma energy conservation limited to devise a system for capturing waste heat from kills to produce clean alternative electricity this is really a noble idea in other words cement basically generates lot of heat can you use that heat to run a turbine to generate electricity so that is the kind of thing that is destroyed.

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So this is about the CEMEX this one what are the risk mitigation strategies that CEMEX swallows.

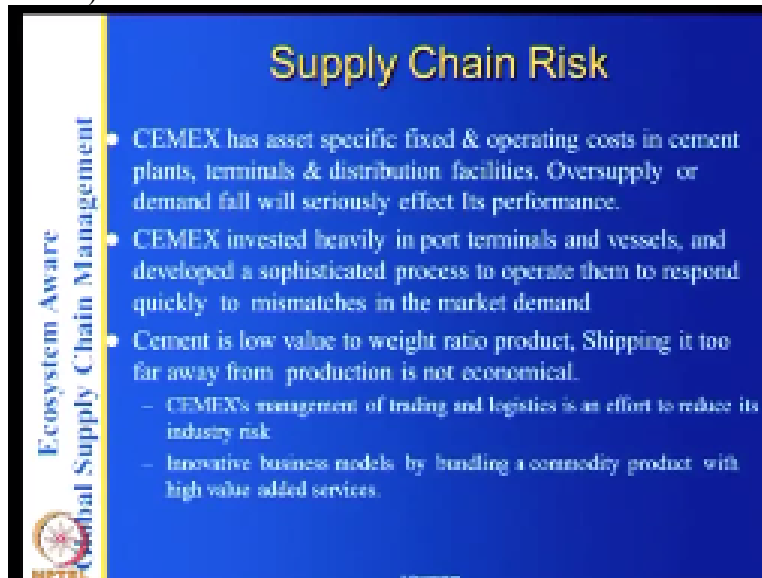
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So there are supply chain risk from delivery process is institutionalized salt also the managers at summits really differentiate between managing risk and managing the business I think this is a highly important point for them incorporation of risk consideration into everyday task is seen

as you usually run in business so risk is not nothing new risk of things happen I like daily operations so it is like control system.

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Supply Chain Risk

- CEMEX has asset specific fixed & operating costs in cement plants, terminals & distribution facilities. Oversupply or demand fall will seriously effect its performance.
- CEMEX invested heavily in port terminals and vessels, and developed a sophisticated process to operate them to respond quickly to mismatches in the market demand
- Cement is low value to weight ratio product, Shipping it too far away from production is not economical.
 - CEMEX's management of trading and logistics is an effort to reduce its industry risk
 - Innovative business models by bundling a commodity product with high value added services.

So supply chain risk CEMEX has a specific fixture and operating costs in cement plants terminals distribution facilities water supply or demand fall will seriously affect this performance and CEMEX invested heavily in port terminals and vessels and developed sophisticated processes.

To operate them to respond quickly to mismatches in the market demand so the risk of demand this one cement is low value to weight ratio product shipping too far away from production is not economical well that is known and CEMEX management of trading and logistics is an effort to reduce its industry risk innovative business models by handling a commodity product with high value added services so that is how CEMEX basically gets rid of the supply chain risk.

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Institution Risk

- Most important institutional risks CEMEX faces is the uncertainty regarding the application of environmental regulations and in pricing across countries. These uncertainties regarding acceptable behaviour may limit market access
- Given the increased public awareness of the role of cement production in global warming, Institutional risks come from social expectations about the role of companies and its management of environmental risks.

The institution risks are some explosives is uncertainty regarding the application of environmental regulations and in pricing across countries. So price environment for Galatians or the to these uncertainties regarding acceptable behavior may limit Market Axess given increased public a variance of the role of cement production in global warming institution has come from social expectations about the role of companies and management of environments so you can see that then the who have seen earlier that CEMEX does take care of the environmental brace by several ways.

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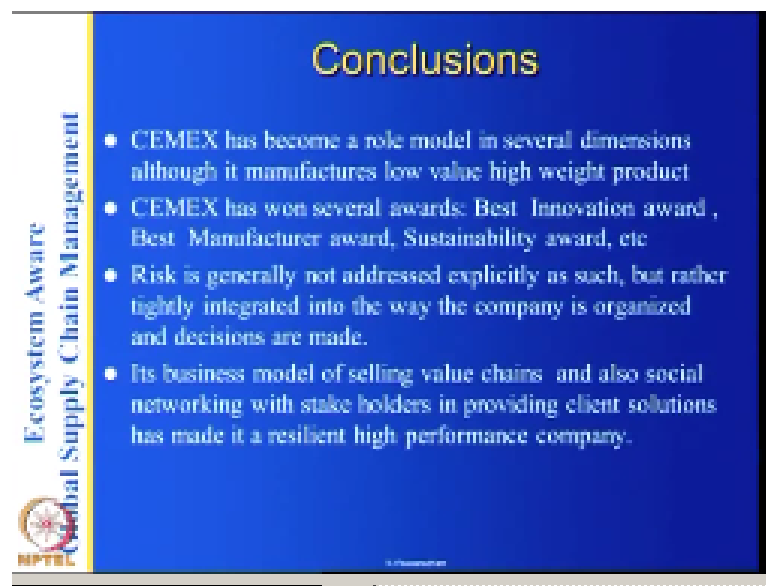
Risk Governance

- The day-to-day management of risks related to marketing, operations, community engagement, government relationships, and legal oversight are concentrated in the hands of local managers; those who have a more intimate knowledge of the idiosyncrasies of the local environment.
- Functions such as technology and finance are highly centralized.
- Though CEMEX is a highly centralized and hierarchically organized company, many risk management decisions are dispersed geographically and functionally

So how do you govern the risk the day-to-day management of risks related to market operations community engagement, government relationships and legal oversight are concentrated. In the hands of local managers and they have more intimate knowledge of the idiosyncrasies of the local environment because they are dealing with the day and day and functions such as technology and Finance are highly centralized that is what we have seen those CEMEX is a highly centralized and hierarchically organized company many risk management decisions are dispersed geographically and functionally.

So that is the typical unusual way it handles the risk so to conclude here is the order we have taken a cement company.

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Conclusions

- CEMEX has become a role model in several dimensions although it manufactures low value high weight product
- CEMEX has won several awards: Best Innovation award , Best Manufacturer award, Sustainability award, etc
- Risk is generally not addressed explicitly as such, but rather tightly integrated into the way the company is organized and decisions are made.
- Its business model of selling value chains and also social networking with stake holders in providing client solutions has made it a resilient high performance company.

And we have studied about it and have become a role model. In several dimensions although it manufactures low value high weight product that is why we are studying this here why is it a role model first of all its business model second of all it is virtually a highly environmentally poisonous product GHG gases and all that so people the government's does not like it and so it has to deal with several of those considerations. But it is an important product because building construction is an important for every country for every human being and there are several competitors all through the world.

So that is where its problem is CEMEX has won several awards best innovation award best manufacturing word sustainability award and so on and risk is generally not addressed explicitly as such but rather tightly integrated into where the company's organized and decisions are made and its business model of selling value chains and also social networking with

stakeholders in providing client solutions has made it analogy resilient high performance company.

So I think there is several things that one can learn from by looking at or closely they CEMEX this one so our aim is you know to show how our framework of ecosystem framework can be used to explain anything that CEMEX does and this is one of the classic role model examples that we have .

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