

Business and Sustainable Development
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Lecture - 29
Risks and Opportunities

Hello, welcome to this session. So, in the previous few session we have discuss about like the green supply chain what are the different opportunities, what of the different way we can bring the sustainability agenda or the sustainability issues into the each loop of this product lifecycle chain and also we have seen what are the different regulations.

So, if we see the both the intervention in the supply chain and regulation in the other hand so, it gives us a message that there are two way we can address the sustainability issues or mostly the organization they do it in two way. In one they try to make the changes in the every loop wherever possible to bring the sustainability agenda or bring the sustainable practices.

Or few of the organization they keep waiting for the regulation that if the regulation is guiding them to do that or the regulation is directing them to do that then only they incorporate the sustainability agenda in the product lifecycle chain. Now, with the organization they do it so, any changes any intervention we know that it has few inherent risk and also it is not only about risk it also gives the opportunity for the organization to do a value creation.

So, if you remember in the very beginning when we started the course we discussed that how each intervention whatever is being done for the sustain to incorporate the sustainable practices or for the sustainability, it will lead to it will create some value. So, in this session we will see that when the organization when they are addressing the sustainability agenda or if they are not reacting to the sustainability agenda.

Or if the if there are regulation associated with sustainability that is coming into existence, that is coming into actions, what are the different kind of risk typically the corporate they are facing and also what are the opportunities that can be created from this risk.

And, also we will try to see few examples where the startups the new business opportunity have emerged because of this risk what are associated with the sustainability or what are associated with the climate change. So, to start with now let us understand what are the risk factors over here.

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The slide is titled "Risk Factors" and is divided into two main sections: "Product Risk" and "Financial Risk".

- Product Risk**
 - Reduction in the quality of few materials because of environmental change if no steps taken to make product sustainable
 - Regulator may prevent from producing
 - Will require costly redesign to meet the standard
 - Lose popularity – poor environmental standard
- Financial Risk**
 - Risk of legal expenses
 - Compensation for environmental and human damage
 - Fine and other penalties for breaching regulation
 - Increased insurance cost

At the bottom left, there is a logo for "MPTEL" and a source note: "Source: Financial times briefing on sustainable business, Brian Clegg". At the bottom right, there is a small number "3" and a blue circle.

So, this has been categorized into three or four type of risk. So, the first one is the product risk. So, if the organization if they are not addressing the sustainable agenda or they are not changing their process, they are not changing the inputs associated with the product at some point of time there will be reduction in the quality of the few materials because of the environmental change.

And, if no steps being taken to make product sustainable or if you are not looking for the better quality of inputs or we are not looking at what are the other alternative materials that can be use and these materials are changing because of environmental change, then if no steps are taken then there would be reduction in the quality of the few materials.

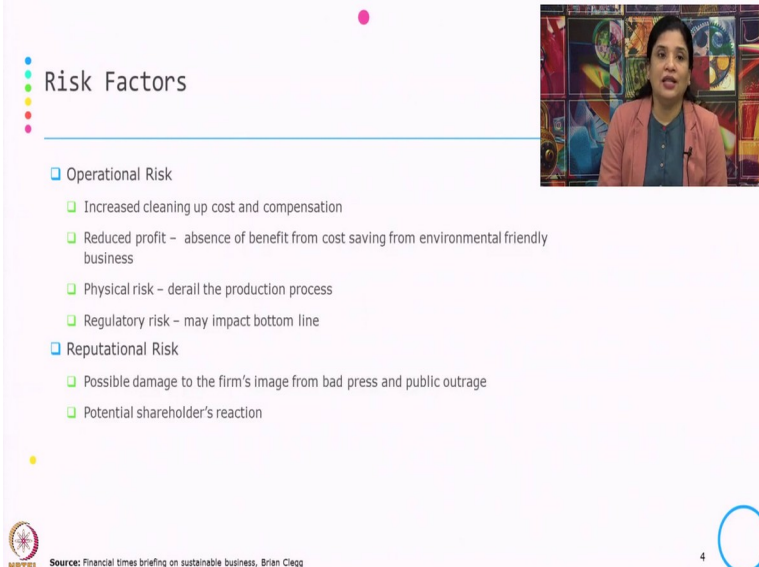
And, when there is a reduction in the quality of the materials those are being used in the product the regulator may prevent from producing. And at that point of time it will require a costly redesign to meet the sustainability standards and possibly the first three first one and the third one it is will have the implication of the cost.

But, if you look at that when regulators may prevent to produce this will bring that loss of the popularity in the market and because then it would be known as that the organization would be known as that they are having a displaying the poor environmental standard because the regulator have stopped them producing a specific product. So, these are some of the product risk associated if the organization they are not addressing the sustainability agenda.

Then the second risk what is associated with this is the financial risk now the first kind of for the first category of risk comes under financial risk is the risk of legal expenses whether it is related to penalty whether this is related to non compliance whatever the expenses or the lawsuits these are the part of the finance if you are not meeting the standard.

Then compensation for the environmental and human damage – fine and other penalty for breaching the regulation and in this process there would be increase insurance cost because there is a whatever the image or whatever the perception about the organization it had changed and because of that this will increase the insurance cost.

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Risk Factors

- ☐ Operational Risk
 - ☐ Increased cleaning up cost and compensation
 - ☐ Reduced profit – absence of benefit from cost saving from environmental friendly business
 - ☐ Physical risk – derail the production process
 - ☐ Regulatory risk – may impact bottom line
- ☐ Reputational Risk
 - ☐ Possible damage to the firm's image from bad press and public outrage
 - ☐ Potential shareholder's reaction

NPTEL Source: Financial times briefing on sustainable business, Brian Clegg

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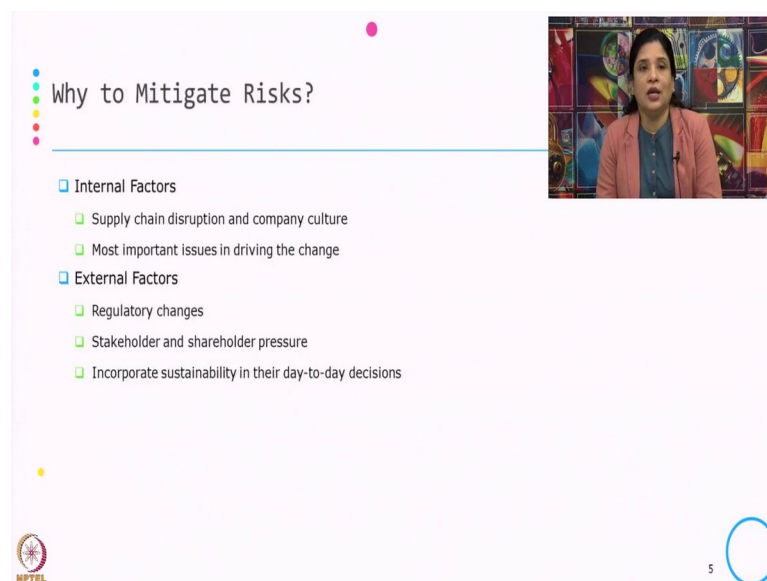
Then the next category of risk is operational risk it increase cleaning up cost and compensation, it will reduce profit because whatever the benefit they would have got because of the cost saving associated with the environmental friendly business they

will miss that and that will lead to reduction in the profit then there is there are also evidence that how typically the natural event or the environment hazards that derail the production process and typically in term of the physical risk what they pose to the organization and the regulative risk may impact the bottom line of the business.

Then the last one is the reputational risk. And, this reputational risk is typically the points what comes under this reputational risk or the items which comes under the reputational risk is that possible damage to the firms image from the bad press and public outrage.

And also because of there is a because not meeting environmental standard or not addressing sustainability agenda there is a damage to the image and whenever there is a damage to the corporate image that infect the relationship with the shareholder and that may lead to the potential shareholder reaction which is not positive.

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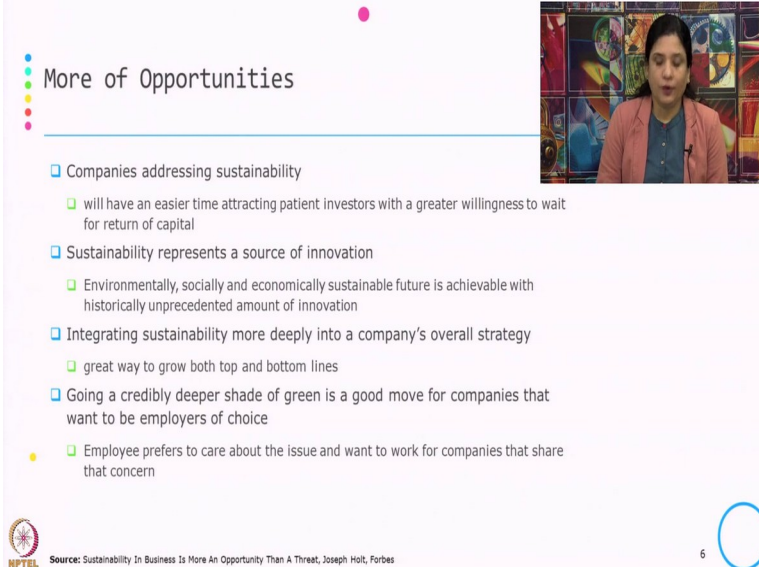
The slide is titled "Why to Mitigate Risks?" and is divided into two main sections: "Internal Factors" and "External Factors". The "Internal Factors" section includes "Supply chain disruption and company culture" and "Most important issues in driving the change". The "External Factors" section includes "Regulatory changes", "Stakeholder and shareholder pressure", and "Incorporate sustainability in their day-to-day decisions". A video inset in the top right corner shows a woman speaking. The slide also features a logo in the bottom left corner and a page number "5" in the bottom right corner.

- Why to Mitigate Risks?
- Internal Factors
 - Supply chain disruption and company culture
 - Most important issues in driving the change
- External Factors
 - Regulatory changes
 - Stakeholder and shareholder pressure
 - Incorporate sustainability in their day-to-day decisions

Now, why do mitigate risk? So, we know that these are the risks what the businesses they are going to face, but why to mitigate this risk? There are some internal factors, there are some external factor. Internal factors is that there may be supply chain disruption if we are not looking at or we have not thinking to mitigate the risk and also it will impact the company culture.

And, these two are the most important issues in driving the change; external factor mostly with the regulatory change, stakeholder and shareholder pressure. And stakeholder shareholder pressure in incorporating sustainability in their day to day business and also the regulatory change. These are the two main external factor which needs to take an action or intervention to mitigate the risk associated with this.

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More of Opportunities

- Companies addressing sustainability
 - will have an easier time attracting patient investors with a greater willingness to wait for return of capital
- Sustainability represents a source of innovation
 - Environmentally, socially and economically sustainable future is achievable with historically unprecedented amount of innovation
- Integrating sustainability more deeply into a company's overall strategy
 - great way to grow both top and bottom lines
- Going a credibly deeper shade of green is a good move for companies that want to be employers of choice
 - Employee prefers to care about the issue and want to work for companies that share that concern

NPTEL Source: Sustainability In Business Is More An Opportunity Than A Threat, Joseph Holt, Forbes

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Now, here it has this is a nice article by Joseph Holt and the way he brought the entire sustainable the risk associated with sustainability in business for the way he brought out the opinion that sustainability in business is more of opportunity than a threat and why it is so because company addressing sustainability will have easier time attracting the patient investor with a great willingness to wait for the return of capital.

So, although it is true that you may not find investor, it is not easy money when you when the return of capital comes in the long term not at the short term, possibility is not easy to get many investor investing, but the patient investor who has the willingness to wait for the return of capital it is the; it is the easier time or the easier way to attract those group.

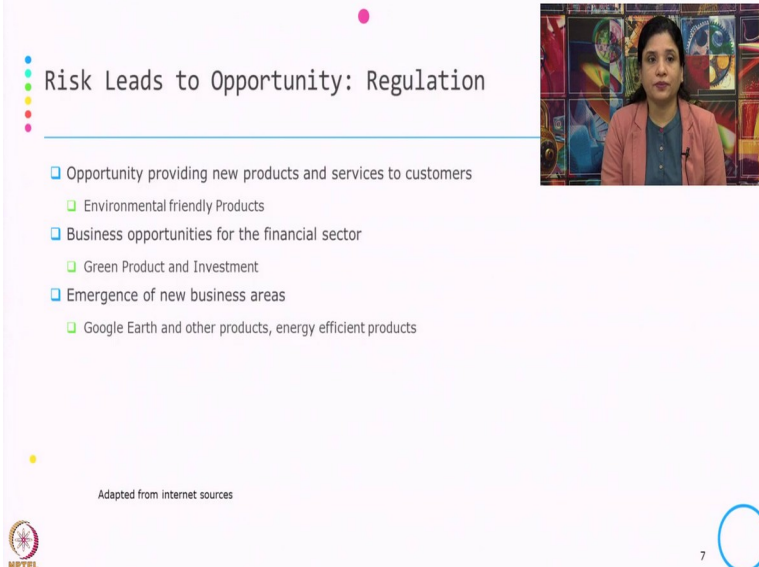
Then sustainability represents the source of innovation. The environmentally, socially, economically sustainable future is only achievable with historically

unprecedented amount of the innovation. So, sustainability always is the source of innovation. Then integrating sustainability more deeply into company's overall strategy is a great way to grow both the top and bottom line.

So, in one way you talk about the product what gets into the market possibly the product itself and in the when you talks about the bottom line it starts from the designing or from the sourcing of the raw material. Then going credibly deeper shade of green is always a good move for the company, that want with the employer of choice because employee prefers to care about the issues and want to work for the company that share that concern of the sustainability.

So, typically the young population when it is about a choice that where they would like to work possibly they will always prefer a company, they will always prefer a organization where the employee is engaged for a bigger course that is for the sustainability agenda and better employee engagement.

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The slide is titled "Risk Leads to Opportunity: Regulation" and features a list of opportunities. A video inset in the top right corner shows a woman speaking. The slide includes the NPTEL logo and a page number "7".

- Opportunity providing new products and services to customers
 - Environmental friendly Products
- Business opportunities for the financial sector
 - Green Product and Investment
- Emergence of new business areas
 - Google Earth and other products, energy efficient products

Adapted from internet sources

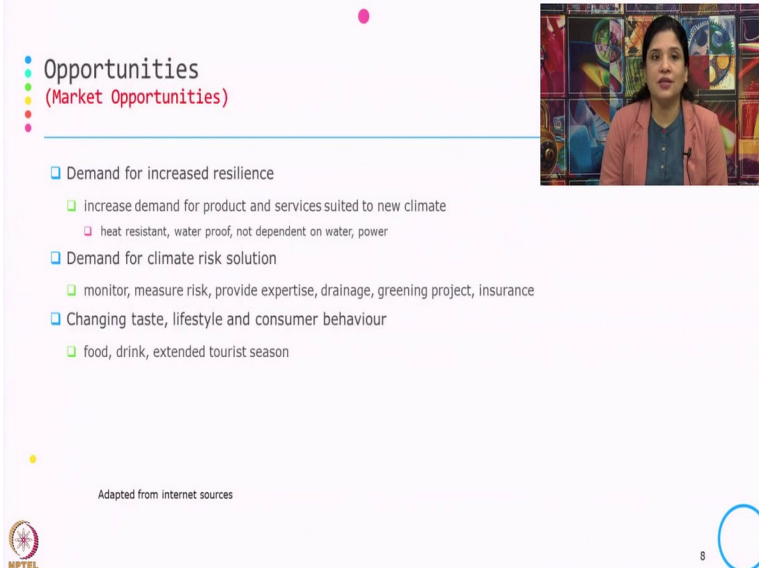
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Take a hint from the previous slide what we are discussing that it is more of opportunity. So, if you look at regulation that is the factor which triggers that the organization to should take the sustainability initiative. Now, let us see because of this regulation what are the opportunity it may come to the organization. So, opportunity providing new product and service to the consumer, the typical example can be environmental friendly product.

It is business opportunity for the financial product. So, entire arena of green the green bond, green instrument it should be rather than green product it should be the green financial instrument and green investment. Then emergence of new business area like Google earth and the other product, energy efficient product, low carbon solution or the sustainability startups, how you make the product from the waste or how this can be recycled one these are the new business area that has laid out that has come from the regulation.

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The slide is titled "Opportunities (Market Opportunities)" and lists several market opportunities. A video inset in the top right corner shows a woman speaking. The slide also includes the NPTEL logo and the text "Adapted from internet sources".

- Demand for increased resilience
 - increase demand for product and services suited to new climate
 - heat resistant, water proof, not dependent on water, power
- Demand for climate risk solution
 - monitor, measure risk, provide expertise, drainage, greening project, insurance
- Changing taste, lifestyle and consumer behaviour
 - food, drink, extended tourist season

Adapted from internet sources

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Apart from this, then we have few market opportunity like since there is a demand for increased resilience there is an increased demand for product and services suited to the new climate. So, you will find that since the temperature is increasing above 50 degree you need or above 40 degree you need the product with respect to heat resistant.

It is since and also the way the there is a unpredictable rain and what to say the climate is changing with respect to the and accordingly the rainfall pattern is changing then the demand for waterproof. Then, there is a shortage of water there is a shortage of power. So, this is the entire dependency on products which is not dependent on water or power the typical example of the alternative energy that is with solar.

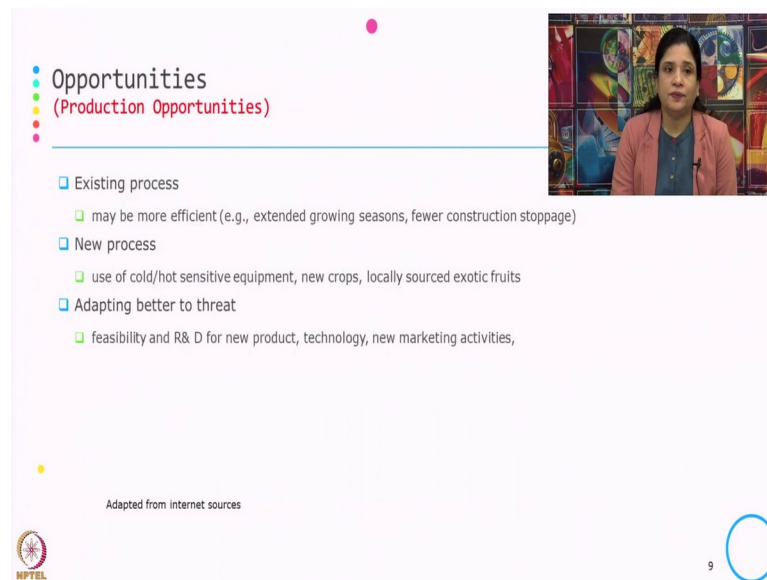
Then, demand for climate resolution that is monitor measure provide expertise drainage greening the project and insurance. So, if you look at this climate risk solution, this is the opportunity which has come to many stakeholder like to start with insurance. So, there is now a flood insurance, there is now whatever the drought insurance what we get.

Then also greening the project where you need the help of engineer, when you need the help of the consultant, we will provide the expertise, then the drainage, then also you will find many adaptation project where you need the help of the technology, you need the help of the skill of the engineering, you need the help of the expertise and also monitoring and measuring the risk associated with this.

So, this is giving the emerging business opportunity for almost all the stakeholder. And, when you go to carbon also you will see that many organization they have also started their from the core they have moved to that providing a low carbon solution or providing a consultancy opportunity to those organization who wants to move to the low carbon solution.

Then since there is a changing change of taste, lifestyle and consumer behavior there are the opportunity over here is about the food the typical example is that where you take the organic food where there are not chemical or pesticides. The drink and also extended tourist season because there is a change in the climate and because of that whatever the regular weather that have changed for few of the places.

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Opportunities
(Production Opportunities)

- Existing process
 - may be more efficient (e.g., extended growing seasons, fewer construction stoppage)
- New process
 - use of cold/hot sensitive equipment, new crops, locally sourced exotic fruits
- Adapting better to threat
 - feasibility and R & D for new product, technology, new marketing activities,

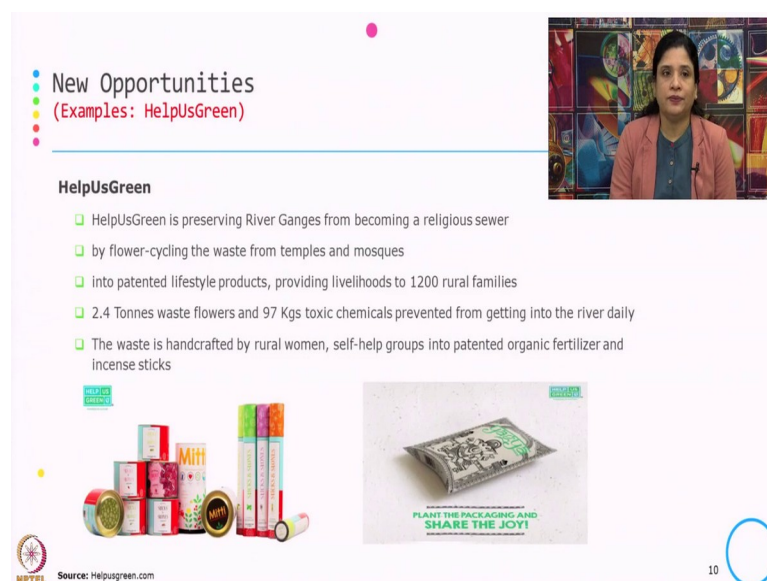
Adapted from internet sources

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This slide, titled 'Opportunities (Production Opportunities)', lists three categories of opportunities. The first, 'Existing process', includes the possibility of being more efficient, such as through extended growing seasons or fewer construction stoppages. The second, 'New process', involves the use of cold or hot sensitive equipment, new crops, or locally sourced exotic fruits. The third, 'Adapting better to threat', focuses on feasibility and R & D for new products, technology, or marketing activities. The slide is adapted from internet sources and is marked with the NPTEL logo and the number 9.

Then in case of production opportunity the existing process can be more efficient there can be extended growing season, fewer construction stoppage and also it may give opportunity of a new process like use of cold and hot sensitive equipment, new crops, locally sourced exotic fruits these are the new business opportunity. And, also adapting better to the threat that is feasibility and R and D of new product, technology and new marketing activity.

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New Opportunities
(Examples: HelpUsGreen)

HelpUsGreen

- HelpUsGreen is preserving River Ganges from becoming a religious sewer
- by flower-cycling the waste from temples and mosques
- into patented lifestyle products, providing livelihoods to 1200 rural families
- 2.4 Tonnes waste flowers and 97 Kgs toxic chemicals prevented from getting into the river daily
- The waste is handcrafted by rural women, self-help groups into patented organic fertilizer and incense sticks

Source: Helpusgreen.com

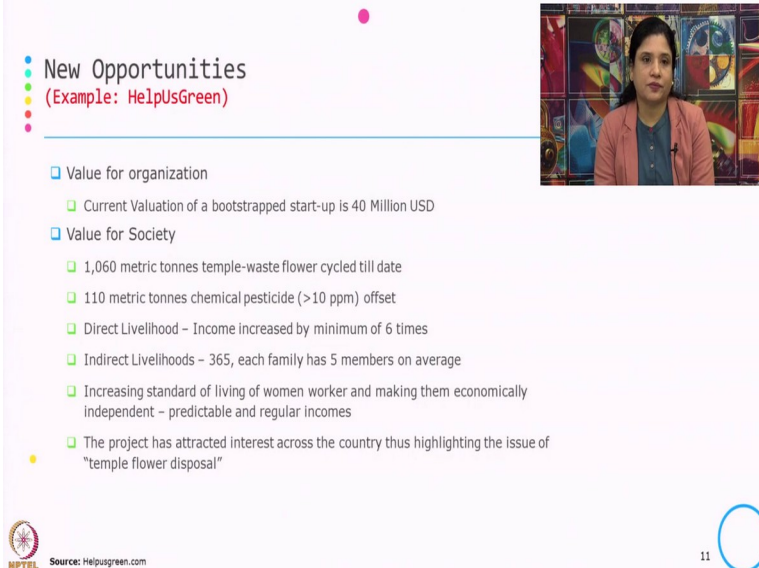
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This slide, titled 'New Opportunities (Examples: HelpUsGreen)', provides a detailed example of a business opportunity. It describes how HelpUsGreen is preserving the River Ganges by recycling waste from temples and mosques into patented lifestyle products, such as organic fertilizer and incense sticks. This initiative provides livelihoods to 1200 rural families and prevents 2.4 tonnes of waste flowers and 97 kgs of toxic chemicals from entering the river daily. The waste is handcrafted by rural women in self-help groups. The slide includes images of the products and a call to action: 'PLANT THE PACKAGING AND SHARE THE JOY!'. The slide is sourced from Helpusgreen.com and is marked with the NPTEL logo and the number 10.

Now, let me give you a few examples mostly in the area of the startup the new business when I say sustainability startup and how they have created a business and how they have created a value out of the waste. So, the first example is help us green and they are into preserving river Ganges from becoming the religious sewer.

By flower recycling from the waste from temple and the mosque and they have developed that into a patented lifestyle product providing livelihood to 12000 rural family. So, almost 2.4 tonnes of waste flower and 97 kg of toxic chemical prevented from getting into the river daily and the wastage handicraft by rural women self-help group and into a patented organic fertilizer and incense sticks.

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New Opportunities
(Example: HelpUsGreen)

- Value for organization
 - Current Valuation of a bootstrapped start-up is 40 Million USD
- Value for Society
 - 1,060 metric tonnes temple-waste flower cycled till date
 - 110 metric tonnes chemical pesticide (>10 ppm) offset
 - Direct Livelihood – Income increased by minimum of 6 times
 - Indirect Livelihoods – 365, each family has 5 members on average
 - Increasing standard of living of women worker and making them economically independent – predictable and regular incomes
 - The project has attracted interest across the country thus highlighting the issue of "temple flower disposal"

NPTEL Source: Helpusgreen.com

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So, the value of organization is 40 million USD, this is to start with when they have started with and now the valuation has increased further. And, the value for society is that till now they have recycled 1060 metric tonne of temple waste flower, they have 110 metric tonne chemical pesticide they have offset because of that.

They have given a direct livelihood income increase by minimum 6 times to those family those who are those who have engaged there. Increasing the standard of living of women worker and making them economically independent that is predictable and regular income. And, the project has attracted interest across the country thus highlighting the issues of the temple flower disposal.

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New Opportunities
(Example: Graviky Labs)

Graviky Labs

- Carbon capturing start-ups in the world and only such start-up in India
- Create paint and ink from the pollution itself
 - Built a contraption that gets connected to the exhaust on the tail pipe of a vehicle
 - Collects the raw carbon (the soot)
 - A purification process successfully converts this air pollution into printing ink
- The same procedure can be done for chimneys or boats to collect effluence and then convert that into ink

AIR-INK

KAALINK™ is patent pending retrofit technology used to capture air pollution particulate, which is then processed into making AIR-INK

MPTEL Source: Graviky.com

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The second example what I am going to show you is that this is the example of Graviky lab and this is a carbon capturing startup in the world and only such startup in India when it was started. They create the paint and ink from the pollution itself. So, directly from the vehicle pollution they create the paint and ink. They build a contraption that gets connected to the exhaust of the tailpipe of a vehicle.

Collect the raw carbon and then they follow a purification process successfully converts this air pollution into the printing ink. The same procedure can be done for chimney or boards to collect the effluents and then convert that into the ink and the ink what they have created that is Air-Ink which is known as Kaalink it is a patent they file a patent pending retrofit technology used to capture the air pollution particulate which is then processed into making the AIR-Ink this specific AIR-INK.

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New Opportunities
(Example: Graviky Labs)

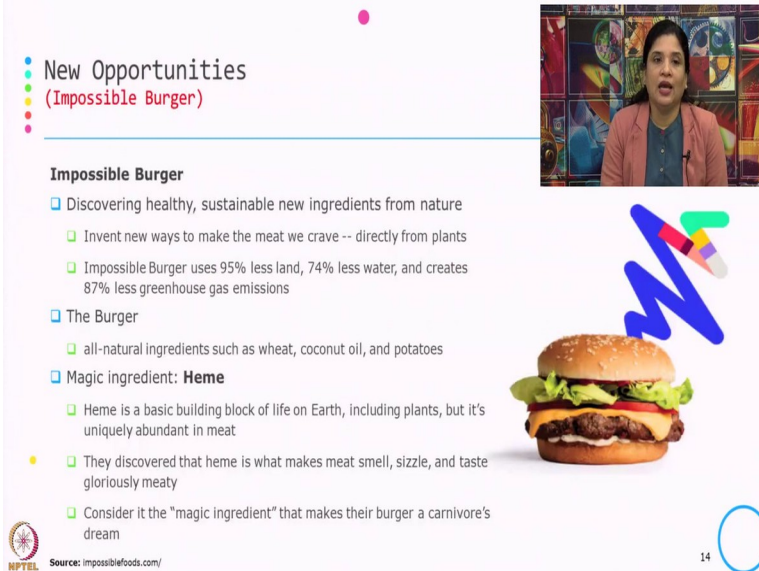
- Value for Organization
 - Organization worth 8 crore INR starting in 2016 seed, 120K US dollar
- Value for Society
 - 20,500 litres of Air Ink produced, 700 tons of carbon offset

NPTEL Source: Graviky.com 13

So, there is a there is a very different or very different calculation what they have done is that from the pollution of one bike for 40 minutes how much amount of ink can be created or from the pollution of car which is travelling 8 hours how much ink can be created from that specific vehicle.

This is the value for the organization they started with 8 crore INR in 2016 seed and the current valuation is 120K US dollar and value for society is that till the till now they have produced 20,500 litre of Air Ink and they have offset the carbon by 700 tons.

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The slide is titled "New Opportunities (Impossible Burger)". It features a list of bullet points under the heading "Impossible Burger". The bullet points are:

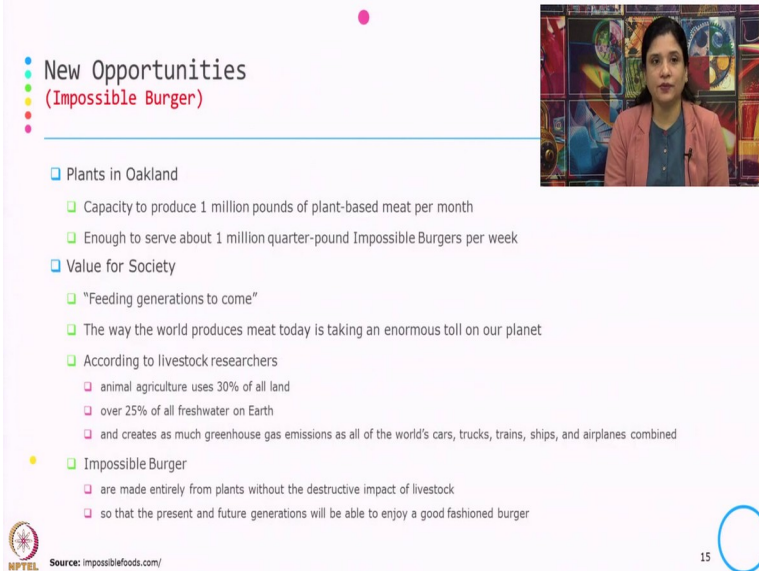
- Discovering healthy, sustainable new ingredients from nature
 - Invent new ways to make the meat we crave -- directly from plants
 - Impossible Burger uses 95% less land, 74% less water, and creates 87% less greenhouse gas emissions
- The Burger
 - all-natural ingredients such as wheat, coconut oil, and potatoes
- Magic ingredient: **Heme**
 - Heme is a basic building block of life on Earth, including plants, but it's uniquely abundant in meat
 - They discovered that heme is what makes meat smell, sizzle, and taste gloriously meaty
 - Consider it the "magic ingredient" that makes their burger a carnivore's dream

On the right side of the slide, there is a video inset showing a woman speaking, and a large image of an Impossible Burger with a blue and green arrow pointing upwards. The slide also includes the NPTEL logo and the source "impossiblefoods.com/" at the bottom left, and the number "14" at the bottom right.

The third example what we will take over here is that impossible burger and this discovering the main focus of this product is that discovering healthy sustainable new ingredients from nature and invent new ways to make the meat we crave directly from the plant. So, this is a plant based meat burger and they use 95 percent of less of land 74 percent less of water and create 87 percent less greenhouse gas emission.


The burger that is all natural ingredients such as wheat, coconut oil, and potato and whatever the magic ingredient heme, this is the basic building block of life on earth including plants, but it is in uniquely abundant in meat. They discover that this makes the meat smell, sizzle and taste gloriously meaty and they consider this as a magic ingredient that makes the burger into the carnivore's dream.

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New Opportunities
(Impossible Burger)

- ❑ Plants in Oakland
 - ❑ Capacity to produce 1 million pounds of plant-based meat per month
 - ❑ Enough to serve about 1 million quarter-pound Impossible Burgers per week
- ❑ Value for Society
 - ❑ "Feeding generations to come"
 - ❑ The way the world produces meat today is taking an enormous toll on our planet
 - ❑ According to livestock researchers
 - ❑ animal agriculture uses 30% of all land
 - ❑ over 25% of all freshwater on Earth
 - ❑ and creates as much greenhouse gas emissions as all of the world's cars, trucks, trains, ships, and airplanes combined
- ❑ Impossible Burger
 - ❑ are made entirely from plants without the destructive impact of livestock
 - ❑ so that the present and future generations will be able to enjoy a good fashioned burger

 Source: impossiblefoods.com/

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The video inset shows a woman with dark hair wearing a pink blazer, speaking in front of a colorful abstract background.

Their plant is in Oakland capacity to produce 1 million pound of plant based meat per month enough to serve 1 million quarter pound impossible burger per week. The value for the society is they are feeding generation to come the plant based meat burger and the way the world produce meat today is taking a toll on the planet.

And, according to the livestock researcher animal agriculture use 30 percent of all land, 25 percent of all fresh water on the earth and create as much as greenhouse gas emission as all of the world's car, trucks, train, etc., combined. So, impossible burger is are made entirely from the plants without any destructive impact on the livestock so that the present and future generation will be able to enjoy a good fashioned burger for a time.

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The image shows a presentation slide with a light purple background. At the top left, there is a vertical list of five colored dots (blue, green, yellow, red, blue) followed by the text 'Session Summary'. Below this, there is a horizontal line and a small blue square icon followed by the text 'Risks and Opportunities'. In the top right corner, there is a video inset showing a woman with dark hair wearing a pink jacket, speaking. At the bottom left, there is a circular logo with a star and the text 'NPTEL'. At the bottom right, there is a blue circle with the number '16' inside it.

So, what we have discussed in this session is that we have looked at what are the risk that is that may come to the organization if they are not following the sustainable practices or if they are not reacting to the regulation.

But, the risk there are pressure to mitigate the risk and that can create opportunities, opportunity in term of new product, new process, new business opportunity and also there we have seen the examples of the startups which mainly coming out of those sustainability concern and they are providing value to the society and also value to the organization.

Thank you.