


Social Innovation in Industry 4.0
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Lecture 48
ESG Gap Analysis and Carbon Crediting

Environment, Social and Governance, these three letters make ESG. The ESG framework is the focus of the talk of this week. We have talked about what is ESG, how ESG is connected to Social Innovations, how technology is part of the ESG framework reporting, what are ESG standards, what are ESG frameworks and raters and anchors and what do they do. In this lecture, I would like to talk about the ESG Gap Analysis and Carbon Credit.

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- ✓ Significance of ESG Gap Analysis
- ✓ Process of ESG Gap Analysis
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The slide contains several logos: the IIT Kanpur seal, the MedTech IIT Kanpur logo, and the Engineering Lab logo with the tagline 'ideas to products'. The text 'Social Innovation in Industry 4.0' and 'Dr. J. Ramkumar' is also visible.

What is ESG Gap Analysis? Significance of ESG Gap Analysis, Process of the ESG Gap Analysis, then Carbon Credit in India, and Certain Challenges faced by Carbon Crediting, this will be covered in this lecture.

What is ESG Gap Analysis?



SWOT

- An ESG gap analysis is a process of comparing an organization's current ESG performance to its desired performance.
- It can be used to identify areas where the organization is doing well and areas where it needs to improve.
- ESG gap analysis can also be used to demonstrate to investors and other stakeholders that the organization is committed to ESG and that it is taking steps to improve its performance.

Source: <https://images.gap.gao.gov/gf/27w/0201cdehdq9>

What is ESG Gap Analysis? ESG Gap Analysis is a process of comparing an organization's current ESG performance to its desired performance. It can be used to identify areas where an organization is doing well and areas where it needs to improve, that is, which are the weak points, which are the strong points.

It is a kind of the short analysis, not of a person, but of a company because it is ESG Gap Analysis, it is involving environment, it is involving social, it is involving governance. A lot of data and a wide range of the stakeholders are there, so that is why it came as a separate concept to be talked about. ESG Gap Analysis can also be used to demonstrate to investors and other stakeholders that the organization is committed to ESG and that it is taking steps to improve its performance.

Significance of ESG Gap Analysis

ESG gap analysis can be a valuable tool for organizations of all sizes. It can help organizations to:

- ✓ Identify their ESG strengths and weaknesses.
- ✓ Set realistic ESG goals.
- ✓ Develop a plan to improve their ESG performance.
- ✓ Track their progress over time.
- ✓ Communicate their ESG performance to stakeholders.




Source: <https://www.esggo.com/data-analysis>

ESG gap can be valuable tool for organization of all sizes, it can help organizations to identify their ESG strengths and weaknesses, set realistic ESG goals, develop a plan to improve their ESG performance. Then, track their progress over time, communicate their ESG performance to the


stakeholders, that is, they keep a full track of what ESG is doing and they also try to keep it reporting to the investors or the people who are the major stakeholders of the company.

Process of ESG Gap Analysis



The step-by-step process to identify key ESG priorities and information gaps involves the following steps:


- ✓ Step 1: Rank ESG Topics for Disclosure by Order of Importance
- ✓ Step 2: Note the Gaps (and Overlaps) in Your Strategy
- ✓ Step 3: Rephrase Metrics as Actions
- ✓ Step 4: Build Your ESG Action Plan



So, there is a step-by-step procedure or process of ESG Gap Analysis to identify key ESG priorities and information gaps, the certain steps are, rank ESG topics for disclosure by order of importance.

Step 2 is, we note down the gaps and overlaps in my strategy, then if you rephrase the metrics and actions as per the requirements, then we build our ESG action plan.

Process of ESG Gap Analysis



Step 1: Rank ESG Topics for Disclosure by Order of Importance
 Jot down all of the ESG topics relevant to your business that you may be required to report on, and rank them in order of importance.

For Example:

Order of Importance	Environmental	Social	Governance
1.	✓ Energy Management	Supplier Management	✓ Compensation Policy
2.	Energy Management Systems	Diversity Equity and Inclusions	ESG Reporting Standards
3.	Greenhouse Gas Emissions	Health & Safety	Board-level Oversight - ESG
4.	Climate Change, Opportunities and Risks	Stakeholder Engagement	Governance Policies
5.	✓ Environmental Policies	✓ Workforce Development	✓ Risk Assessment

It can also be helpful to make note of topics where you have already made significant progress, and ones which may require a bit more attention going forward.

Source: <https://www.aqicore.com/blog>

Let us see the step 1 that is ranking of the ESG topics for disclosure by order of importance. So, we need to jot down all the ESG topics which are relevant to our business and we maybe, required to report on and rank them in order of importance. For example, the order of importance based upon

the environmental factors, social factors and governance factors. The highest order is given to energy management, supply chain management and compensation policy and the lowest order is given to environmental policies.

Here, the lowest order is given to workforce development. Here, for governance, the lowest importance is given to the risk assessment. Depending upon the company's goals these orders ranking could be different. For instance, for social, one company is putting an order as supply chain management order 1, diversity, equity and inclusion order 2, health and safety order 3, stakeholder engagement as order 4, and workforce development as order 5. There could be a swap between the order 3 and 4. For a different company.

Like, stakeholder engagement could go as a third order of priority and health and safety might come down as a fourth order of priority depending upon the company's own strategy to identify the gap. This is also helpful to make note of topics where you would have already made significant progress and the ones which may require a bit more attention going forward.

Process of ESG Gap Analysis

Step 2: Note the Gaps (and Overlaps) in Your Strategy
 In the example below, we've taken our top "E" topic from Step 1 (Energy Management) and provided examples of relevant disclosures and frameworks and the key performance metrics that each encompasses:

Metric	CDP	DJSI	GRESB	GRI	ISS & ESS	SASB	TCFD
Energy consumption data coverage as a percentage of floor area, by property subsector.	X	X	X	X	X	X	X
Total energy consumed by portfolio area with data coverage, percent renewable, each by property subsector.	X	X	X	X	X	X	X
Like-for-like change in energy consumption of portfolio area with data coverage, by property subsector.	X	X	X	X	X	X	X
Amount of reductions in energy consumption achieved as a direct result of conservation and efficiency initiatives.	X	0	X	X	X	0	X
Energy efficiency measures implemented in the last three years.	X	X	X	X	X	X	X

Source: <https://www.equinox.com/blog>

Then is step 2, that is we note the gaps and overlaps in our strategy. In the example below, we have taken a top environmental topic from step 1, that is energy management and provided examples of relevant disclosures and frameworks and the key performance metrics that each encompasses. For instance, metric is energy consumption data coverage as a percentage of floor area by property subsector. Here, you can see which of the frameworks are corrected. Because we are talking about the consumption data coverage, so CDP is connected, DJSI is connected.

Wherever it is connected we are putting crosses here. So, all the frameworks which are being used are corrected here. Let me take an example of the fourth metric here, that is the amount of the reductions in energy consumption achieved as a direct result of conservation and efficiency initiatives. It's a result of conservation, energy conservation. CDP is connected, DJSI is not connected.

Here, SASB is not connected. So, we are connecting, we have data for which kind of framework here. So, that is, how we are trying to see the key performance metrics of our present status of the specific kind of the strategy that we have.

Process of ESG Gap Analysis

Step 3: Rephrase Metrics as Actions

- Rephrase each performance metric as a high-level action by tacking an action verb onto the beginning.
- In our continuing Energy Management example, let's assume that we now decide we want to focus on GRESB and CDP. Here's what our list of action steps might look like:

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Actions
Collect energy consumption and calculate data coverage as a percentage of floor area, by property subsector.
Calculate total portfolio energy consumption and coverage, differentiate grid versus renewable energy and calculate total percentages of renewable vs. grid energy consumption.
Isolate operational buildings with 24 months of data and calculate their like-for-like change in energy consumption and data coverage.
Identify energy efficiency conservation projects and calculate total reductions in energy (kwh) associated with these projects.
Identify all energy efficiency measures at each building in the portfolio implemented in the last three years.

Source: <https://www.esgdata.com/blog>

Then, if you rephrase the metrics as actions, rephrase each performance metric as a high level action by tacking an action verb on to the beginning. In our continuing, energy management example let us assume that we now decide we want to focus on GR, ESB and CDP only.

Here is what our list of action steps might look like. You see the first word, the first word it is said by an action verb. So, this is the action verb, collect energy, collect energy consumption and calculate data coverage as percentage of floor area by a property subsector. Then action, calculate, total portfolio energy consumption and coverage, differentiate grid versus renewable energy and calculate total percentages of renewable versus grid energy consumption. Renewable means that is the green energy, grid energy means that is coming from the regular power supply.

Then we isolate, then we identify, then again we identify. You can see the factors which are given here or the actions which are given here having the starting point of the first word are the action verbs collect, calculate, isolate, identify. The last one is to identify all energy efficiency measures at each building in the portfolio implemented in the last three years. So, this is what is to be collected. So, this is rephrasing the metrics as actions.

Process of ESG Gap Analysis



Step 4: Build Your ESG Action Plan

With all of this information in hand, return to your ESG priorities and gap analysis and work backwards, making informed decisions about which steps you can realistically take to arrive at your desired outcomes.



Then, we need to build our ESG action plan. So, with all this information in hand. We return to our ESG priorities and Gap Analysis and work backwards, that is we make informed decisions now about which steps we can realistically take to arrive at our desired outcomes. I say, which steps we are taking, so by when, that is the timeline.

Then, we are to be a little clearer with which kind of the framework we are trying to talk about. We are talking about CDP and also we are talking about GRESB. Then, we are talking about the specific performance metric, that is, we are talking about energy. So, we build our ESG action plan accordingly and try to choose the right framework, that is CDP and GRESB were chosen.

The example that is taken, is close to the place Amsterdam so GRESB is a framework which is based upon an organization, based in Amsterdam Netherlands. So, that is why this framework was the example that is taken here.

Carbon Credits



- A permit that allows the holder to emit 1 tonne of carbon dioxide.
- Projects that prevent the emission of Greenhouse or remove the greenhouse from the atmosphere earn these credits, which can in turn can be 'sold' to other businesses and individual to 'offset' the emission they make.
- 1 Carbon Credit = 1 Tonne of Carbon Dioxide Emission.



Carbon Credits



Carbon credits are tradable certificates representing a reduction in greenhouse gas emissions, typically equivalent to one metric ton of carbon dioxide (CO₂) or its equivalent in other greenhouse gases.

Purpose of Carbon Credits:

- Incentivizing and rewarding
- Combating climate change



<https://imgsrc.gyp.com.au/9820/66f6b649f37c7>

Next comes Carbon Credits. Carbon Credits are tradable certificates representing a reduction in greenhouse gas emissions, typically equivalent to one metric ton of carbon dioxide or it is equivalent in other greenhouse gases. The purpose of Carbon Credits incentivizing and rewarding combating climate change.

When I say, incentivizing and rewarding, that means we try to reduce and remove greenhouse gas emissions from the atmosphere, when I say combating climate change, we are trying to encourage businesses and individuals to take some actions to mitigate their carbon footprint. A permit that allows the holder to emit one ton of carbon dioxide that is Carbon Credit. Projects that prevent emission of greenhouse or remove the greenhouse from the atmosphere on these credits, which can in turn, can be sold to other businesses and individuals to offset the emission they make, that is one Carbon Credit is equal to one ton of carbon dioxide emission. So, Carbon Credits are given to the people who have saved one ton of carbon dioxide emission.

Kyoto Protocol



- Developed under the UNFCCC (United Nations Framework Convention on Climate Change), aimed at fighting global warming.
- Goal was to see participants collectively reduce emissions of GHGs by 5.2% below the emission levels of 1990 by 2012.
- If participants continue with emissions above the targets set by Kyoto protocol then they are required to engage in emission trading i.e. buying 'credits' from other participant countries.
- US and Australia have not signed the Kyoto protocol.

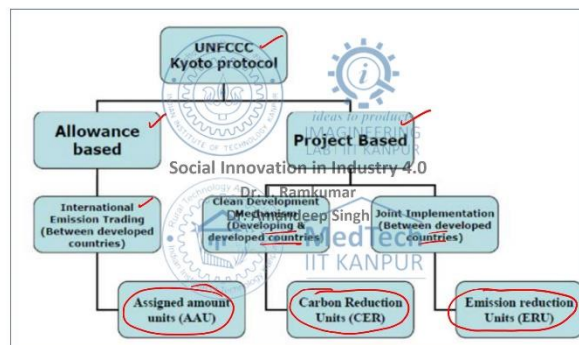


<https://images.app.goo.gl/2BpK78L5w4Bz#i27>

There is a protocol regarding Carbon Credits which is known as Kyoto protocol which was developed by UNFCCC, that is the United Nations Framework Convention on Climate Change aimed at fighting global warming. Goal was to see participants collectively reduce emissions of GSG by 5.2% below the emission levels of 1990 by 2012.

If participants continue with emissions above the targets by the Kyoto protocol, then they are required to engage in emission trading, that is buying credits from other participant countries. This was just an endeavor to motivate or promote the participants to work towards the environmental mitigations.

Kyoto Protocol Mechanism




Source: kapat53/carbon-credit-5163753

The US and Australia have not signed the Kyoto protocol, so this was the UNFCCC Kyoto protocol, in which alliance based and project based systems were there. In the alliance based systems, international emission trading between developed countries was there. In the project based systems,


clean development mechanisms that are developing and developed countries were both participating in it and joint implementation between developed countries was there.

So, in the alliance based system, AAU, (Assigned Amount Units) were the Carbon Credit units. Then, in the project based system, the Carbon Reduction Units, that is CER were the one, and ERU that is the Emissions Reduction Units were the other which were taken.

Clean Development Mechanism



- ✓ Part of Kyoto Protocol.
- Purpose of CDM is to reduce emission and contribute to sustainable development in developing countries.
- Under the UNFCCC Charter any developed country can tie up with a company in developing country that is signatory to Kyoto Protocol.
- Companies in developing countries must adopt new technologies emitting lesser gas and save energy.
- Only a portion of total earning of Carbon Credits can be transferred to a company in developed countries under CDM.




<http://graphics.sgg.ilo.org/1200/MW4305E066>

Clean development mechanism, this is part of the Kyoto protocol. The purpose of the clean development mechanism is to reduce emission and contribute to sustainable development in developing countries. Under the UNFCCC charter, any developed country can tie up with the company in a developing country, that is signatory to the Kyoto protocol.

Companies in developing countries must adopt new technologies emitting less gas and save energy. Only a portion of total earning of Carbon Credits can be transferred to a company in developed countries under the clean development mechanisms.

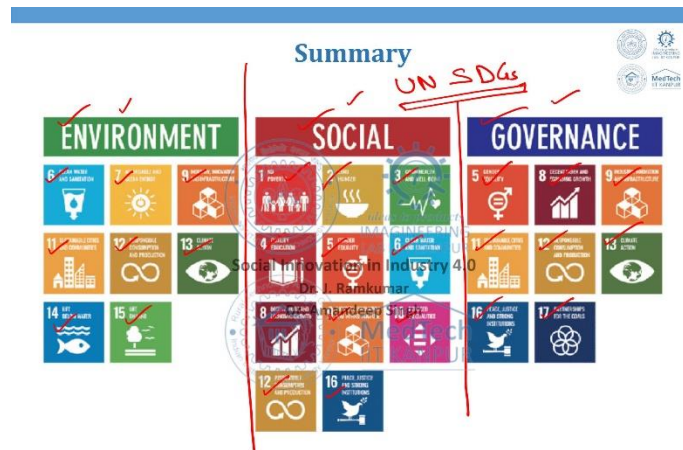
Carbon Credits in India - Challenges



- Even though India is the 2nd largest generator of environmentally friendly projects for reduction of carbon emission, Indian companies hesitate to generate monetary benefits through trade.
- Indian companies are holding on their CERs because they feel they would fetch them better prices later in Industry 4.0
- The lack of interest in future contracts is also primarily due to small size of most projects.
- Since carbon emission from small companies are comparatively low, companies are not really depending upon that incentive to upgrade themselves.

There are Certain Challenges that India is facing in Carbon Credits, it is even though India is the second largest in return of environmentally friendly projects for reduction of carbon emission. Many companies hesitate to generate monetary benefits through trade. Indian companies are holding on to their CERs, because they feel they would fetch them better prices later.

Lack of interest in future contracts is also primarily due to the small size of most projects. Since carbon emissions from small companies and comparatively low companies are not really depending upon their incentive to upgrade themselves.



Summary

- ESG as a business practice can frequently seem daunting and overly broad – but it doesn't have to be.
- ESG disclosures can actually help you reduce and simplify the amount of work required to build a forward-looking plan for your ESG program.
- “Carbon Credits will be the World's biggest market”- New York Times.
- There is a Great opportunity awaiting India in Carbon Trading.

To summarize this week, I have just put the 17 SDGs. As I said, I will talk about United Nation SDGs, that is Sustainable Development Goals, at the end of this lecture. This is now divided into three parts ESG. These are not order wise, you can see because they were sustainable development

goals so society was the first priority because we are talking about ESG. I have put the environment first.

So, the goal regarding the environment, that is goal 6. That is clean water and sanitation which ensures the availability of sustainable management of water and sanitation for all. This is the goal given in the environment. Then, goal 7 is affordable and clean energy which means the energy should be accessible, should be reliable, and should be modern energy for all. Then, we have goal 9 here, that is industry, innovation and infrastructure.

That means, it has to be resilient industry infrastructure, which has to have inclusive promotion of the society and a sustainable system has to be there. Then, goal 11 is there, that is sustainable citizen communities which make cities and humans to have a safe and sustainable environment. Then, we have goal 12 which is responsible consumption and production which means this goal ensures sustainable consumption and production patterns.

Then goal 13, which is climate action that is urgent actions to combat climate change and its impacts. Goal 14 and 15 are there which are talking about the below water life and life on land. Then, goal 14 talks about the below water life, that in the oceans, seas, marine resources and how sustainable development could happen in them. Then, life on land that is to protect and promote sustainable ecosystems, that is to manage forest, to reverse the land gradation and to halt the biodiversity loss, these are all part of the environment

Then comes the social goals. The first and the foremost goal which was laid in the SDGs is no poverty. That is to end poverty in all its forms and from everywhere, then also we need to end hunger, that is zero hunger, that is to completely end hunger and achieve food security in each and every part of the world. Then, we have good health and well-being, that is to ensure healthy livelihood for everyone, and for all ages. Then, we have quality education that ensures inclusive and equitable quality education promotes lifelong learning opportunities for all.

Then is goal 5, gender equality, gender equality should be there, clean water and sanitation, then decent work and economic growth. Decent work means people should be employable, they should be productive employment for them, they should be decent work for all.

Then, goal 9 is also mentioned in social as well, that is in goal 9, which was mentioned in one man because goal 9 is talking about industry, innovation and infrastructure. And, when we are talking about industry, employment also becomes a part of it, inclusivity also becomes a part of it that becomes a social endeavor as well. Then comes the goal 10, that is reduced inequalities, that is gender inequality, race inequality, inequalities among countries that is also being reduced.

Then, goal 12 again comes here, that is responsible consumption and production. Then comes goal 16 here, which is one of the very important goals and it talks about peace, justice and strong institutions. Institutions, that help us to actually implement or actually practice all the goals of SDGs. Then comes the governance goals, gender equality is part of the governance, decent work and

economic growth is the part of the governance, industry, innovation and infrastructure is part of it.

Then, we have goal 11 here, that is sustainable cities and communities. The responsible consumption and production is part of it, climate action, that is goal 13 which is climate action that is to take urgent action to combat climate change and impacts. And peace, justice and strong institutions and the goal 17, that is partnership for the goals which is focused on strengthening the means of implementation of the global partnership for the overall sustainable development.

So, here, we can see the SDGs which are talking about peace and prosperity globally and are an urgent call for all the countries. The United Nations has laid down all of these, and these could also be divided into the ESG. The ESG, that is Social Innovation is a part of it and we are trying to talk about the UN SDG 17 goals which are aligned in the different sectors of the ESG, that is Environment, Social and Governance. So, with this, week 11 is completed. We will meet in week 12, where Professor Ramkumar will talk about Marketing in Social Innovation.

Thank you.