

**United Nations Sustainable Development Goals (UN SDGs)**  
**Professor Doctor Shiva Ji**  
**Indian Institute of Technology, Hyderabad**  
**SDG 13: Climate Action Part 1**

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The image is a composite of several elements. At the top left is a presentation slide titled "UN SDGs : 17 goals to transform our world" with a sub-heading "Module 21 • SDG13: Climate Action". To the right of the slide is a circular graphic of the 17 SDGs and a specific icon for SDG 13 (Climate Action). Below the slide is a QR code and contact information for Dr. Shiva Ji, including his affiliation with the Design for Sustainability Lab and the Department of Design at IIT Hyderabad. On the right side, there are two video thumbnails showing a man speaking, likely the professor.

Hello everyone, I welcome you to module 21 of NPTEL course on UN SDGs, this is on SDG 13 that is climate action. So, you are seeing how we are progressing and now issues they started from a very individualistic and household basic to social issues environmental issues city level issues infrastructure issues, community level consumption level and now we are at one major the SDG of climate action.

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Let us, see some facts and figures to limit global warming to 1.5 degrees centigrade as called for in the Paris agreement. Greenhouse gas emissions must begin falling by 7.6 percent each year starting in 2020. So, global climate change, as we know, is very clear, by now to all of you, that is a global phenomenon caused by certain things, and those are such a collective things which require collective effort because it is not one problems, one person's problem, it is not created by one person, it is not going to get solved by one person.

So, it is an collective problem collective approach to which we can actually solve and that is where SDG's become a unifying mechanism, unifying framework to fight for it, to work for it. And for that, climate action, if you see what is being done related to this that is what we are going to study in this one. So, if you see what is the goal over here taking urgent action to tackle climate change and its impacts. So, climate change has become a very universal phenomena. And so, we want to minimise it and how will that be done, to reduce the overall impacts of climate change, that is the compromise.

And with that respect, only you may be aware IPCC Intergovernmental Panel on Climate Change is an organisation which is working for last several years to study the impacts to their extent, so, they are studying like, in numerical figures, you can simply understand like, how much of impact is occurring, what are the causes and how it can be rectified.

So, they are working on of course, the qualitative this way plus quantitative figure also so, that there is a definite number and identified source is identify ways to address this and all of that, so, that action plan can be prepared, because, before creating the action plan, you must know, and you must be aware of, what you are going to fight for. We have discussed earlier

data collection, why is it so, crucial, to understand this whole phenomenon. So, that understanding comes through data collection and after is the analysis.

So, once you analyse, you get what is happening in quantitative numbers and then you can prepare your work plan. So, that is the climate action and what we are seeing over here in this SDG. So, in one of those reports, I think now, it is proven also by other research agencies, independent agencies and several nations that if we limit these emissions by so and so percentage then the global warming that phenomenon is going to get under the range of 1.5 degrees centigrade. Because if it rises above, it may rise above also presently with the present course of action which is actually rising, more with a more 2 percent.

In some cases, it is projected at 3 percent up to 4 percent also there is a possibility with everything goes as the way it is, this has been going for a long time. It may the earth's temperature may rise at the rate of 4 degrees centigrade, which is going to be detrimental for the ecological balance of the planet.

And that may create havoc of all proportion from the sizes and that will be very much a catastrophe in one sentence to say. So to minimise this to a workable percentage where we can continue also with our development activities, but sustainable development mechanism to contain it. So, that is the premise and for that what is needed one example over here that we must limit greenhouse gas emissions and all of these hydrocarbons which are coming out of industry (05:22) and personalised vehicles and all of those units, they must begin falling by 7.6 percent per year and they should start in 2020.

And they should become to nil figure in few years, because, we must try it to completely remove our reliance from hydrocarbons, we just figure actually must come to 0. So, that target, if we start addressing it by 7.6 percent per year, definitely, this is possible to retain this rise at 1.5 degree centigrade. So, I hope you are understood by now, what is the premise and what we are going to do study in this climate action.

So let us see, well, why is it needed? The climate crisis continues unabated, as the global community shies away from the full commitment required for its reversal. I said, we intend to make it 0, but this 0, how is it possible? If everyone is not committing, how is it possible? And if you commit and few does not that also creates disparity and some imbalance kind of thing.

So everyone's efforts are (( ))(06:44) that is what precisely given over here, if everybody's not part of it, then it is a futile exercise. It is going to get bad in other sense. Because if we want to reverse this whole phenomenon of global warming or subsequent climate changes, we must stop it 2010 to 19 was the warmest decade ever recorded for the record. Bringing with its massive wildfires, hurricanes, droughts, floods, and other climate disasters across different continents.

So, you see, there are direct repercussions, we cannot deny this as a matter of phenomena. And it is impacting all of us in some way or another, if not today possibly tomorrow. So, there is no escape from this because anyways, we are all part of this planet and we are going to live and survive on this planet. So, there is no other planet B earth B.

So, if this is getting disturbed, clearly everything comes to a disturbing position, how are people being affected by climate change, let us see that. Climate change is affecting every country in the world, it is disrupting national economies affecting lives and livelihoods, especially for the most vulnerable. We have seen earlier some certain sections of the society they are bearing these burns more. Weather patterns are changing, sea levels are rising and weather evens are becoming more extreme.

Earlier we discussed like, there used to be a kind of certain pattern of the weather climate. But now, there is a significant disturbance in these cycles, either it is peaking very high, or it is peaking very low. So, these extremes are unprecedented, they have not happened this, in the old time, before and either it is too dry or it is too wet, that means either it is a very extreme, drought kind of situation, or it is an extreme water flood. And both are not good, because excess of anything is bad.

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The slide features the text of SDG 13: Climate Action. It includes sections such as 'What happens if we don't take action?', 'Can we solve this problem or is it too late to act?', and 'What can we do to help achieve this goal?'. The slide is annotated with handwritten notes in red ink, including 'GHG', 'X 8 billion', 'SDG 13', and 'SDG 17'. A video inset in the bottom right corner shows a man speaking. The logo of NPTCL is visible in the top right corner of the slide.

So, those are the consequences, we are facing across the world, affecting more than 39 million people in 2018 alone. What happens if we do not take action. So, this is interesting. Let us see. If left unchecked, climate change will cause average global temperatures to increase beyond 3 degree centigrade.

I told you again, some calculations it is projected that temperatures may rise at a rate of 4 degrees centigrade also, if we do not control and will adversely affect every ecosystem like, water cycle, air currents all of those salinity in the soil, everything. Already we are seeing how climate change can exuberate.

Storms and disasters and threats such as food and water scarcity, which can lead to conflict, doing nothing will end up costing us a lot more than if we take action now, we have an opportunity to take actions that will lead to more jobs, greater prosperity, and better life for all while reducing greenhouse gas emissions and building climate resilience. That is why it is essential. Can we solve this problem? Or is it too late? So this is always a wonderful question.

There is never late the day you rise the day you are awakened the day you realise, you start acting, I think it can work around, but of course it unless and until it reaches it is a threshold, if it reaches this threshold breaking point, there is no turning back after that. So, one must actually take care of it, there is a finite time left to do this, otherwise, there will be permanent changes which are going to happen on this planet and that is irreversible.

To address climate change, we have to vastly increase our efforts, much is happening around the world, investments in renewable energy have soared, but so much more needs to be done. The world must transform its energy industry and transport food, agriculture and forestry systems to ensure that we can limit global temperature rise to well below 2 degrees centigrade, maybe even at 1.5 centigrade.

In December 2015, the world took a significant first step by adopting the Paris agreement in which all countries committed to take action to address climate change, many businesses and investors are also committed, committing themselves to lower their emissions, not just because it is in the right thing to do, but because it makes economic and business sense as well.

So well, there is no choice also, if we go by climate change, changes perspective. It is not an option, it is necessary it needs to be done. Plus, while doing so, sustainable development format, it has advantages from a business perspective, also social perspective also, environmental perspective of course.

So, any which way there is no loss. So, what is wrong in adopting sustainable approach for doing your regular business also. Are we investing enough to tackle climate change? Climate change related financial flows, saw a 17 percent rise from 2013 to 2016. You see this number, largely due to private investment in renewable energy, there is major investment happening right now in this sector.

And most of R and D projects are also being given to this field, where, if you are working on renewable energy sources, then that is a hot topic these days. Which represents the largest segment in total climate related flows to the amount of 681 billion dollars, this is the volume of funding, going in this direction.

However, investment in fossil fuels continue to be higher than in climate activities to the amount of 781 billion dollars in 2016. So, if you see hydrocarbons, like, based fossil fuel based, investments, there are still higher than renewable energy, this is renewable energy. And this is a fossil fuel-based fuels.

So, this is still higher compared to this one, but, the rate at which it is increasing, I am sure in the coming years, it will exceed these fossil fuel, budget, of the whole world. So, maybe in the latest reports, you can check, you may keep on checking every year when we are going to meet this target to achieve a low carbon climate resilient transition, a much greater scale of

annual investment is required. Yes, only then we will be able to exceed this. In 2019, at least 120 of the 153 developing countries had undertaken activities to formulate and implement national adaptation plans to enhance climate adaptation and resilience, an increase of 29 countries over the previous year. So, more countries are coming up. That is heartening thing. More participation is happening, more awareness is happening.

And I am sure very soon this will likely happen. Furthermore, progress in meeting the 2020 disaster risk reduction target has been slow. So, you had one point, where some improvement can be done. What can we do to achieve this goal? There are several things in the previous module itself we discussed how we can reduce consumerism and we can contribute to this whole waste generation, energy consumption, resource exhaustion, all of those issues.

And in a way these are the activities which are causing greenhouse gases, which is in turn is (( ))(15:14) global warming. So, these are all interrelated phenomena this is not an independent, that your choice of not buying something definitely carries one teeny tiny, fragrant piece of contribution towards improvement in all of these.

So, is not to underestimate your effort, whether it is 0.00001 percent or even smaller than that, because multiplying by 8 billion people choices, definitely is a huge task to achieve so everybody's participation is needed. That is why everyone's efforts are needed. You can visit this website, Un dot org slash en slash act now. For more inputs from individuals, organisations, NGOs, and countries what they are doing more details you can refer on, these links.

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The slide displays the following content:

- SDG 13** (Goal 13: Climate Action)
- GOAL 13** (Icon: Earth with lightning bolt)
- TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS**
- Key Messages:**
  - How to sustain resilience?** (Handwritten notes: Cape network, Syndi)
  - What can cities do?** (Handwritten notes: Cape network, Syndi)
  - How cities make the effective climate action?** (Handwritten notes: Cape network, Syndi)
- UNEP** logo in the top right corner.
- 16:17** in the bottom right corner.

So, let us proceed. So, what it means is to take urgent action to combat climate change and its impacts. This goal aims to strengthen resilience and adaptive capacity to climate related results and natural disasters in all countries, integrate climate change measures in all policies and strategies and improve education, awareness raising and capacity in this field.

So, policies, strategies everywhere, because it needs a systemic approach one single contribution is also welcome, but if it is systemic. So, it is going to have a whole sum collective impact and all of those in chain some nodes, which are part of it will play the role and will get benefit also in turn.

How is culture relevant over here links between cultural activities, traditional knowledge, environmentally sustainable practices, which should be explored and fostered. In the first lecture itself, we discussed it is not that the humans have come on this planet for the first time, they have been (17:28) here for you know 1000s, 100000s of years. So, how were they able to cope up with this nature that we know they live in the sink. And that is where this modern industrialised period actually has forgotten.

So, there are lot of clues which you can derive from your own cultural activities own traditional knowledge systems your own scriptural books also there are a lot of remedies stuff given for situations how to handle, how to handle medicines, how to handle reconstruction material, how to build houses, how to make something, how to we do calculations how to source stuff from the forest and agricultural fields. I think all of these things are documented in Indian cultural, scriptural books also, if you want to refer there are a lot of knowledge base.

So, again, we can look back to those resources, because those are our traditional treasures on which we have thrive for all of these 1000s of years and 100000s of years. So, they have been environmentally sustainable practices, which we can again, explore and faster to suit our today's requirement, we can adopt to them, and I think I am sure that there will be positive impact of that. Creative professional can be involved in awareness raising activities on climate change here. So, since you are also part of this course, I am sure you are also getting benefited.

So, how you can make use of this knowledge source is the requirement of this hour, and is expected out of this course also to make you all aware and put that knowledge to use in whatever means you can do on you can contribute. So, I am sure you will be happy to contribute to that.



What can cities do? Explicitly recognising cultural policies, the connections between culture and environmental sustainability, including concerns about climate change, resilience and sustainable use of resources. Establish a working group or task force to link the work of local government departments of culture and environment. involve artists, cultural professionals when devising strategies.

So, basically inputs from the agricultural side. How cities make this effective? Some examples if you see in the Dakar the school of commons project aims to use collective creativity to address urban problems including through the renovation of public spaces in the form of urban gardens, citizen engagement and creation of jobs in the field of ecology.

In Banda Aceh efforts following the 2004 Tsunami addressed cultural heritage, including research and conservation as well as capacity building and public awareness in order to ensure that valuable buildings and urbanism were not destroyed in the reconstruction process. In Chicago, the environmental sentinel project was a climate monitoring artwork of 453 temperature sensitive native flowering tree to engage citizens and scientists in understanding local microclimates and effects of climate change.

Some organisations including Julie's Bicycle and COAL provide advice, maybe you can search for these, separately of these initiatives. And that would be a good case study for you guys. Cities and other stakeholders interested in reducing emissions and fostering adaptation to climate change within the cultural sector.

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**SDG13**

**SDG 13: Take urgent action to combat climate change and its impacts**

The impact of climate change is acute in the Arab region as temperatures continue to climb. Vulnerability is on the rise as vast numbers of people confront growing water scarcity and droughts. An increase in disasters and extreme weather events takes a toll through loss of life and economic damages. While many countries are investing in climate adaptation and diversification of their economies, and adopting national disaster risk reduction strategies, more comprehensive, regional and multi-stakeholder efforts are needed. The region must strengthen the science-policy interface to tackle climate change, and better integrate climate change impact and risk assessments into development systems.

SDG 13: Climate Action

01:00

So, this is what it mandates take urgent action to combat climate change and impacts. The impact of climate change is acute in the Arab region, we have seen previously also, most of slow progress of SDGs and lot of impact or many drawbacks (21:27) are still existing in the Arab region.

As temperatures continues to climb, that is rising everywhere. But those impacts are very much acute in the Arab region. Vulnerabilities on the rise as vast number of people confront growing water scarcity and droughts and increase in disasters and extreme weather events take a toll through loss of life and economic damages, loss of life and economic damages.

While many countries are investing in climate adaptation and diversification of the economies, and adopting national disaster risk reduction strategies, more comprehensive regional and multi stakeholder efforts are needed. The region must strengthen the science, policy interface to tackle climate change and better integrate climate change impact and risk assessments into planning systems.

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**SDG13**

**Key facts**

- +1.5°C** The Arab region has experienced an average increase of 1.5°C compared to pre-industrial levels<sup>1</sup>
- By 2030, the effects of climate change will reduce renewable water resources by 20 per cent as a result of decreased precipitation, increased water demand as temperatures rise, and expanding seawater intrusion into coastal aquifers due to rising sea levels<sup>1</sup>

**96% disaster-related deaths in LDCs**

The number of annual disasters has increased since 1990.<sup>2</sup> The number of lives lost due to disasters between 2010 and 2019 was more than double the number of the previous decade. Most of these deaths (96 per cent) were in the least developed countries<sup>1</sup>

**National development plans**

While development plans in all countries address agricultural and pastoral production, few address climate change and environment

SDG 13: Climate Action

Some key facts 1.5 degrees centigrade, the Arab region has experienced an average increase of this much 1.5 degrees centigrade compared to the pre industrial levels 96 percent disaster related deaths in LDCs low developing countries, the number of annual disasters has increased since 1990.

So, if you see a number of such instances are increasing after this year the number of lives lost due to disasters between 10 and 19 was more than double the number of previous decade

more than double than the previous decade definitely it rising you cannot deny at any level most of these deaths 96 percent of these were in the least developing least developed country.

So, now, you see these facts are an eye opener facts which are even highlighting the realities of today's world, number of disasters are rising and it is getting double from the previous decade and that to 96 percent of its deaths have occurred in the least developed countries .

So, we know who is actually bearing the (( ))(23:29). By 2030 the effects of climate change will reduce renewable water resources by 20 percent as a result of decreased precipitation increased water demand and temperature rise and expanding sea water intrusion into coastal aquifers due to rising sea levels. Another disaster we know how oceans are here and this is the land.

And freshwater sweet waters pockets are aquifers are there in the ground at different levels. By rising sea levels, these pockets are also going to get inundated or be contaminated by the saltwater that saline water it will be rendered useless. So, there is increased water demand, there are more number of people to drink consume and in more number of industrial demand decrease precipitation rain, snow fall all of these they are decreasing slowly.

And the seawater is also is intruding in the coastal aquifers because of rising sea levels. So, if you see there is a war kind of situation on the waterfront from all sides. This is the criticality of water as a resource. National development plans while development plans in all countries covering agricultural and pastoral production few specifically address climate change and environmental concerns. So, this is where you know this comprehensive approach is essential.

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**SDG13**

**44 million affected by droughts**  
From 1990 to 2019, droughts affected over 44 million people in the region.<sup>4</sup>

**\$19.7 billion**  
From 1990 to 2019, economic damages from disasters amounted to over \$19.7 billion. This included \$6.8 billion from earthquakes, \$5.7 billion from floods and \$6 billion from storms.<sup>4</sup>

**Projections show that climate change will reduce water availability, alter agricultural production patterns, threaten livestock production, adversely impact forests and wetlands, and increase the vulnerability of people to water scarcity, agricultural employment loss and heatwaves.<sup>4</sup>**

**NDCs**  
Twenty-one Arab countries submitted nationally determined contributions in line with the Paris Agreement on climate change, including both mitigation and adaptation measures. Seven countries (Bahrain, Egypt, Kuwait, Qatar, Saudi Arabia, Somalia and Sudan) did not include emissions reduction targets in their submissions.<sup>4</sup>

**Per capita CO<sub>2</sub> emissions**  
Regional per capita emissions of carbon dioxide are increasing and were similar to the global average in 2013. In the GCC subregion, per capita emissions were almost four times the global average. Egypt and Saudi Arabia have the highest cumulative emissions in the region.<sup>4</sup>

SDG 13: Climate Action

440 Lakhs

MPTCL

03 Feb 2024

44 million affected by droughts from 1990 to 2019, droughts affected over 44 million 440 lakhs 4 crore 40 lakhs in this region. This is the, we are talking about the Arab region now. 19.7 billion dollars from 1990 to 2019 economy damages from disasters amounting to over this much. This included 6.8 billion from earthquakes, 5.7 billion from floods and 6 billion from storms.

Predictions show that climate change will reduce water availability, alter agricultural production patterns threaten livestock production adversely impact forests and wetlands and increase the vulnerability of people to water scarcity, agriculture, employment loss and heatwaves.

21 Arab countries submitted nationally determined contributions NDCs in line with the Paris agreement on climate change, including both mitigation and adaptation measures, seven countries Bahrain, Egypt, Kuwait, Qatar, Saudi Arabia, Somalia and Sudan did not include emissions reduction targets in their submissions.

So, you see, Qatar is the most polluting, per capita, most polluting and most impacting country on the planet. And these others also they have not submitted by including, emission reduction targets in their submissions. So you see, like, if not everyone comes together, how this target is going to get achieved, per capita Co<sub>2</sub> emissions.

The regional per capita emissions of carbon dioxide are increasing, and were similar to the global average in 2013. In the GCC sub region, per capita emissions were almost four times the global average. Egypt and Saudi Arabia have the highest cumulative emissions in the

region. So, if you see Co2 emissions for example. So in this region, the Arab region Egypt and Saudi, are the highest emitting countries.

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**SDG13**

**Climate finance**

In 2014, the region's share of global carbon dioxide emissions was less than 5 per cent. The region's share of global GDP stood at 5 per cent.<sup>1</sup>

Adaptation to climate change is a priority in the region, but bilateral flows from developed countries for mitigation exceeded flows for adaptation by a factor of five in 2016. Only 5 of 22 Arab States have accessed the multilateral Green Climate Fund, which supports the implementation of the United Nations Framework Convention on Climate Change, including through the Paris Agreement.<sup>2</sup>

SDG 13: Climate Action

17 Goals

In 2014, the region's share of global carbon dioxide emissions were less than 5 percent. The region's share of global GDP stood at 5 percent. Climate finance, adaptation to climate change is a priority in the region but bilateral flows from developed countries for mitigation exceeded flows for adaptation by a factor of 5 in 2016. Only 5 of 22 Arab states have access the multilateral green climate fund, which supports the implementation of the United Nations framework on climate change, including through the Paris Agreement.

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**SDG13 SUSTAINABLE DEVELOPMENT GOALS #SDGsketch**

17 GOALS TO TRANSFORM OUR WORLD

**GOAL 13: Take urgent action to combat climate change and its impacts**

Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

Improve early warning systems, disaster preparedness, and resilience to climate change, including adaptation, disaster risk reduction and early warning

Integrate climate change measures into national policies, strategies and planning

Regional development codes committed to United Nations Framework on Climate Change to make quality R&D attention by 2025 is fully operational for Green Climate Fund

Provide mechanisms for raising capacity for effective climate change-related planning and management in least developed countries

SDGsketch by Dr. Laila S. Al-Sayid for more go to @LailaS1985 CC BY Info: info@lailasayid.com

SDG 13: Climate Action

17 Goals

So, what do we see at targets over here, strengthen resilience and adaptive capacity to climate related hazards and natural disasters in all countries. Improve education, awareness raising, and human and institutional capacity on climate change mitigation. Integrate climate change measures into national policy strategy and planning, implement development countries committed commitment to United Nations Framework UNF triple C to mobilise jointly 100 billion dollars a year by 2020 to fully operationalize the green climate fund GCC GCF. Promote mechanism for raising capacity for effective climate related planning and management in least developed countries, can refer to the link.

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The slide is titled "SDG13 Chile and its Efforts Towards High Quality in Photovoltaic (PV) Systems for Desert Conditions: Awareness, Assessment, and Implementation Approach". It features a map of Chile on the left, a graph on the right showing solar radiation levels, and a table with "Summary" and "Background" sections. A small video inset in the bottom right corner shows a man speaking.

**Summary**

This presentation has identified IEC 61215 and IEC 61215-1:2016 as the standards for PV modules and PV systems in desert conditions. The main objective is to strengthen the quality of PV systems in desert conditions while ensuring safety, reliability, and performance. The presentation highlights the importance of these standards in the context of Chile's solar energy potential and the need for high-quality PV systems to maximize energy output and ensure long-term performance. The presentation also discusses the challenges of implementing these standards in desert conditions and the need for awareness, assessment, and implementation approaches to overcome these challenges.

**Background**

Chile is a long, narrow country with a diverse climate. The northern region is a desert, which is ideal for solar energy. The country has a high potential for solar energy, but the quality of the solar radiation varies significantly across the country. The presentation highlights the need for high-quality PV systems to maximize energy output and ensure long-term performance. The presentation also discusses the challenges of implementing these standards in desert conditions and the need for awareness, assessment, and implementation approaches to overcome these challenges.

So, some case studies for your information here case study, number 1, Chile and its efforts towards high quality in photovoltaic systems, for desert conditions, we know Chile is on the western coast of South America. So, this is the very long stretched country. And, inundated by these mountain ranges and is sharply rises this and gradually decreases this does the cross section of Chile is a country. So, it has a huge swath of surface where it can use for solar farming. And this is where this plan comes so the country Chile at national level, it has happen SDG address as SDG 13.

So, let me read it for you. Chile implemented two standards you can read this IEC 61215 1:2016 terrestrial photovoltaic modules, design qualification and type approval and IEC this photovoltaic module safety qualification when installing solar plants in Alcatama desert located in northern region of the country.

This case study aims to demonstrate how the correct implementation of the standards leads to a longer lifetime of PV modules while contributing to the achievement of SDG 13.2 integrate

climate change measures into national policies. Strategies and planning the subsequent share of renewable energy in Chile's national energy mix would reduce the country's carbon emissions.

The main objectives is to strengthen the quality infrastructure for PV systems in desert conditions within three main pillars namely metrology standards and conformity assessment schemes. The first approach consisted of installing a national laboratory featuring capabilities and equipment to monitor key parameters concerning the solar industry.

So, you see how in the efficient solar panels are installed in this country. And that is included in the national plan and on the national development plan, and as an institutional effort to bear the fruit maybe you can search for more details of this project.

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The slide features a table with the following content:

<b>Strategy</b> Developing an extended version of IEC 61215 is crucial to adopt to the test of different climate related conditions and to provide a model that allows us to simulate the loss of power and the correlation factors between accelerated laboratory test and actual operational condition.	<b>Challenges and Current Impact</b> The current IEC standard is not suitable for desert conditions. It does not consider the high level of solar radiation and the high temperature conditions. This leads to a significant reduction in the performance of PV modules under real operating conditions.
<b>Results and Impact</b> The current IEC standard is not suitable for desert conditions. It does not consider the high level of solar radiation and the high temperature conditions. This leads to a significant reduction in the performance of PV modules under real operating conditions.	<b>Challenges and Current Impact</b> The current IEC standard is not suitable for desert conditions. It does not consider the high level of solar radiation and the high temperature conditions. This leads to a significant reduction in the performance of PV modules under real operating conditions.

At the bottom of the slide, there is a video inset showing a man speaking. The slide also includes the SDG13 logo, the IPTL logo, and the text 'SDG 13: Climate Action'.

So, strategy, developing an extended version of IEC this code 61215 is crucial to adopt to the test of different climate related conditions and to provide a model that allows us to simulate the loss of power and the correlation factors between accelerated laboratory test and actual operational condition.

So, what are the results and impacts? The current IEC standards have been conducive to the greater adaptation of solar PV in Chile, this has reached a 5 percent share of generation in the national energy mix. So, that is the ratio we are talking about you know, from the solar farms and it has contributed a reduction of 2.2 million tonnes of Co2 in 2017. So, with this case study, why it is essential, this can become case study for many such projects across the world and this definitely carries potential for replication.



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The slide content includes:

- Case study title:** Beyond Carbon Accounting: Development and Application of a Framework to Assess Companies' Low-Carbon Transition
- Geography:** A map showing the English Channel between the United Kingdom and France.
- Authors:** Dr. Arjun Singh, Dr. Anshu Singh, Dr. Anshu Singh, Dr. Anshu Singh
- Affiliations:** University of Derby, University of Derby, University of Derby, University of Derby
- SDG 13: Climate Action**
- HPTCL**

Another case study, this is from United Kingdom and France this United Kingdom and France, there is this English Channel in between. So, beyond carbon accounting, development and application of a framework to assess company's low carbon transition. So, the case study starts from the assumption that identifying and measuring the extent to which companies are effectively enacting a low carbon transition is challenging.

For example, many commitments are announced by the companies yet it is rather are difficult to understand how meaningful they are. Along the same lines, there is a lack of data to track these climate action commitments as well as an overall shortage of verification on the compliance combined two factors lead to a credibility issue on corporate climate actions.

So, you see there are issues in implementation who knows what all is committed by different agencies is really getting executed and what is its effectiveness. So, going for and stock you know, taking is an essential thing to check the effectiveness otherwise, all the efforts, you will never know, whether they are getting fruit or not.

So, this case study aims at showing how the framework and methodology developed under the assessing low carbon transition project itself build upon standards and contribute to developing a series of indicators, building an innovative concept. These include among others carbon budgets, science-based targets as well as embedded carbon or asset level data. The ultimate goal is delivering a rating system that benchmarks companies against a well below 2 degrees trajectory.



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### SDG13

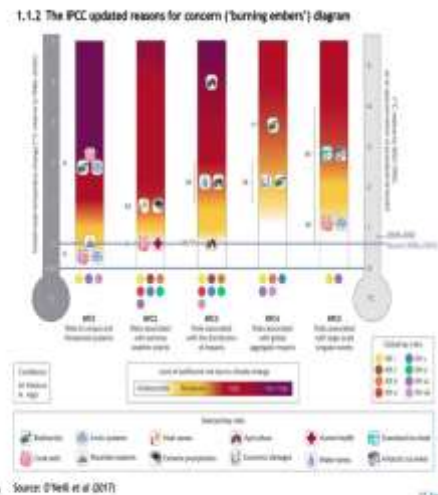
**Design:** The ACT framework and methodologies are themselves a standard, which in turn builds on standards like ISO 14001, ISO 26000 and other standards. The framework and methodologies are developed following the emergent standard ISO 26000, which provides a framework for identifying, assessing and managing greenhouse gas emissions and other environmental impacts. The framework and methodologies are developed following the emergent standard ISO 26000, which provides a framework for identifying, assessing and managing greenhouse gas emissions and other environmental impacts. The framework and methodologies are developed following the emergent standard ISO 26000, which provides a framework for identifying, assessing and managing greenhouse gas emissions and other environmental impacts.

**Challenges and lessons learned:** The ACT framework and methodologies are themselves a standard, which in turn builds on standards like ISO 14001, ISO 26000 and other standards. The framework and methodologies are developed following the emergent standard ISO 26000, which provides a framework for identifying, assessing and managing greenhouse gas emissions and other environmental impacts. The framework and methodologies are developed following the emergent standard ISO 26000, which provides a framework for identifying, assessing and managing greenhouse gas emissions and other environmental impacts.



SDG 13: Climate Action

### SDG13



SDG 13: Climate Action

So, the strategy the ACT framework and methodologies are themselves are standard, which in turn builds on standards, first and foremost ACT framework and methodologies were developed following the emergent standard ISO so, and so, greenhouse gas management and related activities. Framework and principle for methodologies on climate actions which provide a framework for identify, assess and revise methodologies as well as for the development and management.

So, the results and impact. So, what makes this case study clear is that it does not rely on a single standard, but on a family of standards in order to drive the type of change required for the low carbon transition to succeed. So, you see it. Well of course, there is potential for application.