## United Nations Sustainable Development Goals: 17 Goals to Transform Our World Professor Shiva Ji

## Design for Sustainability Lab, Department of Design Indian Institute of Technology, Hyderabad Module 15

SDG7: Affordable and Clean Energy

Hello everyone. So, I welcome you all to module 15 that is on SDG 7 affordable and clean energy under the course of UN SDGs.

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So, let us see some facts, there are 789 million people around the world who lack to access to electricity, so 789 million close to we can call it 8 million perhaps world over out of 8 billion. So, 10 percent, 10 percent of human population roughly does not have access to electricity to

see the picture. Well, our society today is so much dependent on electricity for a moment you can take a pause and look around yourself in your room, the gadgets, you own, the literary materials you read, the cloths you wear the, other household utensils, appliances and things you have, the building you are living in, they all are consumers of electricity, they have been in their manufacturing period and most of them are using electricity even while in the uses in their operations phase also.

For buildings also if you see they are electrified there is your electrical connection for lighting, fan and air conditioning, other stuff and all of these things manmade things what we are seeing today, they have consume electricity in at least all of their stages unless it is something which is totally manmade sourced from nature without any machinable tool or motorized tool or something that.

So, that is very hard to imagine anything, we have of that sort except maybe some maybe wooden material or maybe something of made up of craft, or maybe hand woven maybe, some garment some fabric piece of fabric or something that, except those kinds of things now, most of the items that we are surrounded with, they have consumed electricity or they are consuming electricity during their running during their operations phase.

So, that is the extent of electricity through which electricity has entered in our lives, just imagine how the life was, before the period of electricity. So, people used to burn, their own lamps, diyas and stuff for lighting, oil based or maybe mineral based or maybe natural oil-based vegetable oil based solutions for cooking also there used to be, dependent on fire and wood and variety of other stuff.

And for manufacturing also there was no particular rule, manufacturing but man made, handmade kind of stuff pieces of furniture, (())(03:24) other things. But now we have so much dependent, now it is almost impossible to go back to live in a life which has no electricity or form of electrified, energy, systems?

So, that is a dependency we are talking about anyone in this age there are still in 10 percent often people, who does not have electricity no connection to their homes. That means this this percentage of people they are still managing somehow, if you see this picture again, look closely, what do you see in this house? There is no proper flooring and the wall is it looks it is not a proper wall it is just looks partition of maybe some bamboo stirrups or something that.

There I see one column over here maybe have some wooden log or some sacks something is kept that is not visible. What is some other person is sitting over here there is a chicken and, and there is this firewood and the lady is, preparing some meal, some dish and it looks like, aluminium vessel and a one plastic bottle I see with the plastic cap or is it a glass bottle with the metal cap blue colour cap. No, no, it is not clear looks a glass, a bottle.

As a more wooden sticks and things are lying on the ground and there is nothing else maybe a piece of calendar here on this partition. And that is it. Well, she is wearing your very normal, regular it looks like, cotton kind of clothes. So, if you compare to your own, setting your own, a home, how different, this is, in terms of, the resources what she has? Her house is made up of what she is repairing? And how she is preparing, and other stuff.

There is no furniture in it is visible in this picture probably maybe I do not know, about this chamber inside there may be something but at least in this four court, there is nothing no finishing is a very rough, coarse flooring and finishing with other things. So, this is, that picture, which comes, via this is a documents and these reports are documented by United Nations and its agencies.

So, this is the picture and this is the, family's households, we are talking about. So, overall goal is to help this, group of people and to ensure access to affordable reliable, sustainable and modern energy for everyone, because well, if not whole of the India, but many parts of India now have surplus, electricity supply and there are no typical general power cuts, and majority of the advanced countries 24-hour uninterrupted power supply is there that is guaranteed supply is there no interruption.

And yeah, that has enabled, every sector that has helped, every sector, whether it is education, health, infrastructure, water supply, or energy manufacturing, industries construction, any of these if you see they are all dependent on electricity. Well, why is it needed, this kind of a supply to this set of people is a well-established energy system supports all sectors, from businesses to medicine, to education, to agriculture, infrastructure, communication and high technology.

Well, during pandemic also, we saw one very typical kind of situation, when the vaccines from developed countries or developing countries went to these kind of... So, or maybe under developed countries, there was one big challenge some of the vaccines they were supposed to be, refrigerated, below 0 temperatures in and minus several notches, below 0.

And that makes it kind of practically, very difficult thing to do, because there is no electricity supply, where they can keep it, under freezing conditions in the hospitals or other healthcare facilities or even transportation also for example, refrigerated vans and all those kinds of things are not there, then how to deliver, such medicines lifesaving, vaccines, to such places.

There is another, logistical nightmare even if you have, supply is coming from elsewhere, you cannot actually, distribute to such challenging regions. So, this is the, kind of a catastrophic, result, because of, lack of electricity. So, well, these are major, sectors business and medicine, education, agriculture, infrastructure, etc.

But there are many other, middle range sectors or everyday necessities. I just mentioned one, where you need, such thing supply of electricity, electricity, governed in gadgets and stuff, access to electricity in poorer countries has begun to accelerate, energy efficiency continues to improve and renewable energy is making impressive gains.

Nevertheless, more focused attention is needed to improve access to clean and safe cooking fuels and technologies for 2.8 billion people. So, this set of people, they require, these in abundance so that they can improve their everyday life. Why should I care about this goal? Of course, for many decades, fossil fuels such as coal, oil, gases have been major sources of electricity production.

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But burning carbon fuels, produces large amounts of greenhouse gases which caused climate change and have harmful impacts on people's well-being and the environment this affects everyone, not just a few. Moreover, global electricity use is rising rapidly in a nutshell without a stable electricity supply country will not be able to power their economies.

So, definitely if you want to drive your economy, your country's economy, the path goes via electricity, uninterrupted guaranteed supply of electricity, otherwise it is going to be in the shambles. You cannot guarantee, successful a stories, industries in case if you do not have guarantee of power supply.

So, how many people are living without electricity? Nearly 8 out of 10 people now have access to electricity but reaching the unserved 789 million around the world, 514 million people in Sub Saharan Africa alone that access will require increased, effort for themselves. So, there are various groups, of people from around the world who are in a challenging situation and in a dire need of electricity.