United Nation Sustainable Development Goals
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Module 1
Scenario of Current Model of Growth and Development

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So, from works of UN. Now we are moving on to the support sustainable development and climate action.

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The United Nations launched its sustainable development agenda in 2015, reflecting the growing understanding by member states that a development model that is sustainable for this

and future generation offers the best path forward for reducing poverty and improving the lives of people everywhere. At the same time, climate change began making a profound impact on the consciousness of humanity with the polar ice caps melting, global sea level rising and cataclysmic weather events increasing in ferocity, no country in the world is safe from the effects of climate change.

Well, all of this effort, which has come is because we are witnessing a phenomena which usually we know it as climate change. So, this is a crisis, which is borderless, which has the potential to effect each and every country, each and every community perhaps in some way or the other, the degrees might differ, but the risk what it poses, the danger it poses is not zero for anyone, this is where this collective, effort is needed.

Some of the events which may have happened in like a first, which may actually start like registering its impact at the first level, those are in a given over here and it is now a common sight what we are witnessing from around like a places of like a such like examples polar ice melting, global sea levels rising, cataclysmic weather, events increasing like there is a fluctuation in the, like a how it used to be a kind of like a regular in like a cycle. Now, there are in like a trough and lows, being absorbed in that, like a regular cycle of weather patterns, this is bringing, a lot of danger to the human society.

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Building a more sustainable global economy will help reduce the greenhouse gas emissions that cause climate change. It is therefore, critically important that the international community meet the UN's Sustainable Development Goals, and also the targets for reducing

emissions set in the Paris Climate Agreement of 2015. Sustainable development and climate action are linked and both are vital to the present and future well-being of humanity.

This is where it becomes an integral. These are interlinked. These are interdependent. We are interdependent like a such like phenomenas. That is where we cannot actually escape like this.

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So, let us see briefly the MDGs. The Sustainable development agenda MDGs, close to 40 percent of the population of the developing world was living in extreme poverty only two decades ago. Since then, the world has halved extreme poverty. Of course, not everybody has been able to come above like that level. But a significant number of people are now above that line, which is definitely a positive point. With the UN's Millennium Development Goals MDGs, greatly contributing to this progress.

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Sustainable Development Agenda 2030 agenda, the 2030 agenda, recognizing the success of the MDGs and the need to complete the job of eradicating poverty, the UN adopted the ambitious 2030 Agenda for Sustainable Development, which includes ending poverty, Zero Hunger, good health and well-being, quality education, gender equality, clean water and sanitation, affordable and clean energy, decent work and economy growth, industry, innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, Life below Water, life on land, peace, justice and strong institutions and partnerships for the goals.

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The Paris Agreement why these goals were being formulated and approved, the United Nations supported the climate change negotiations, which led to the Paris agreement on climate change in 2015. The central aim of this Paris Agreement is to strengthen the global response to the threat of climate change by keeping the global temperature rise well below 2 degrees Celsius above Pre industrial levels or even below 1.5 degrees Celsius. So, you can see it mentions pre industrial levels.

Because if you study there is a direct and undeniable suggestion that industrialization has contributed a lot to this whole climate change crisis. So, what were the society's like standards, what were they in like a situation of like, in like a gases, and their percentage in the atmosphere, and how the health of the soil or air and the water was typically, before, like this, came into the beam. Keeping those actually ratings as the base case, and then further improving.

Because it is not that humanity has come on this planet, for the first time, we have survived this planet for unknown years, since, the time of our first like existence, which came into being until, like, this industrialization began during all of those years, maybe running in thousands, and like a perhaps lakhs and millions, we have survived, along with the other species of flora and fauna on this planet. But why suddenly this crisis? So, the direct culprit, is right here.

So, there is a major like an improvement major change needed into this, And that is why we are referring pre industrial levels. So, the central aim of the Paris Agreement, let me underline it for you, is to strengthen the global response to the threat of climate change by keeping the global temperature rise well below 2 degrees Celsius above pre industrial levels, or even below 1.5 degrees Celsius.

So, this was the premise of Paris Agreement. In order to reach these goals, financing, new technology and an enhanced capacity building framework will be put in place, the agreement also provides for enhanced transparency of action and support through a transparency framework. So, of course, we need these goals. And of course, the funding new technology, because these industrialization actually brought some technologies and human communities, when societies started producing, like a certain goods and like things.

And in the later years, or later, decades, it was observed, like, there are a lot of flaws, a lot of lacunae and, like issues in those technologies. So, we need to rectify those technologies, for

rectifying those technologies and coming up with the new technologies, it further requires investments in R&D. And for that, we need funding, enhance capacity frame building framework, capacity building at each and every level, capacity building for these countries, these 193 member countries, not all of them are having the same GDP are the same capacity.

So, how these things can we shared with all of them, how they can implement within their countries, to different states, not perhaps not all of the states are doing at the same level, how they can come together and play together, do this, adopt, these action plans together in those states also perhaps not every district may be performing, at the same level, how, again, they be brought together at the same level, so, this has a, like a collective and cohesive, like a effort.

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These are the two key summits, you may call them as they were like a landmark Summit, we saw, like them previously in the previous slides, they mentioned SDGs like a summit 2019 and climate action summit 2019. They were the landmark, like a summit, which actually brought a lot of change.

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Here, I have listed the key entities working to support sustainable development and climate action. I will read one by one, maybe you can keep a screenshot for your reference. The first UN High Level political forum was on sustainable development. Second, Intergovernmental Panel on Climate Change. Generally, we know it as IPCC UN Framework Convention on Climate Change, UNF Triple C, the you UN Environment Programme UNEP.

United Nations Development Programme UNDP you may have seen in the rural India those hand pumps long back, a few decades back, and the countrywide effort those hand pumps were installed under like this program to provide safe and portable wholesome water to the communities where the water levels have typically gone down.

United Nations Children's Fund UNICEF, the UN Refugee Agency, UNHCR, United Nations Relief and Works Agency for Palestine Refugees in the Near East. UN Department of Economic and Social Affairs, UN regional economy Commission's, Economic Commission for Latin America and the Caribbean, Economic Commission for Africa, United Economic Commission for Europe, Economic Commission for Asia and the Pacific. The ESCAP Trust Fund for tsunami disaster and climate preparedness, the economic and social commission for Western Asia.

UN Office for disaster risk reduction, UNDRR UN Office for partnerships, World Meteorological Organization, International Monetary Fund, World Bank, UN Global Compact, United Nations Population Fund, UN Habitat, World Food Programme, Food and

Agricultural Organization of the United Nations FAO, International Fund for Agricultural Development, International Labor Organization.

International Maritime Organization, International Telecommunication Union, United Nations Educational Scientific and Cultural Organization UNICEF, United Nations industrial development organization, World Tourism Organization, Universal Postal Union, World Health Organization, World Intellectual Property Organization, United Nations Interregional Crime and Justice Research Institute, UN Office on Drugs and Crime. So, these are the key entities which are working to support SDGs and climate action.

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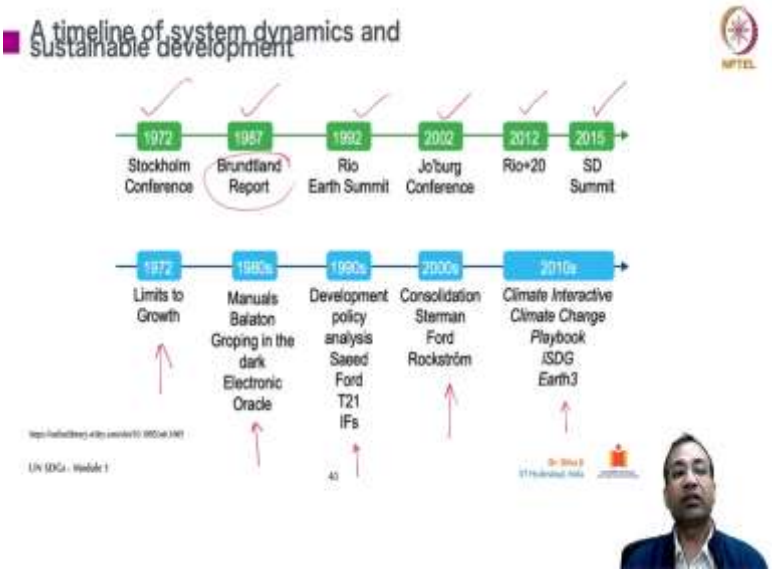

Now, we are entering into the third chapter scenario of current model of growth and development. This slide suggests a timeline of system dynamics and Sustainable

Development how it has grown over the years. So, beginning 1972 you can see over here the Stockholm conference and then 1987 we saw this Brundtland report then Rio Summit in 1992. 2002 Johannesburg conference, Rio plus 20, 2012. 2015 SD Summit.

Here it spoke about limits to growth, here it spoke about manuals Balaton Groping in the dark Electronic Oracle. 1990s Here it spoke about Development policy analysis. Saeed ford T 21, IFs etc. IN 2000s. We saw about Consolidation Sterman Ford Rockstorm. In 2010s in this decade we saw Climate Interactive Climate Change playbook iSDG Earth3 etc. So, these are the some landmark in timelines.

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The upper row shows the progression of conferences summits and reports that have defined and given direction to the concept of sustainable development. The lower row shows key developments in the application of system dynamics to sustainable development, through the decades of progress system dynamics has influenced the concept of sustainable development, which in turn has influenced system dynamics, research and applications.

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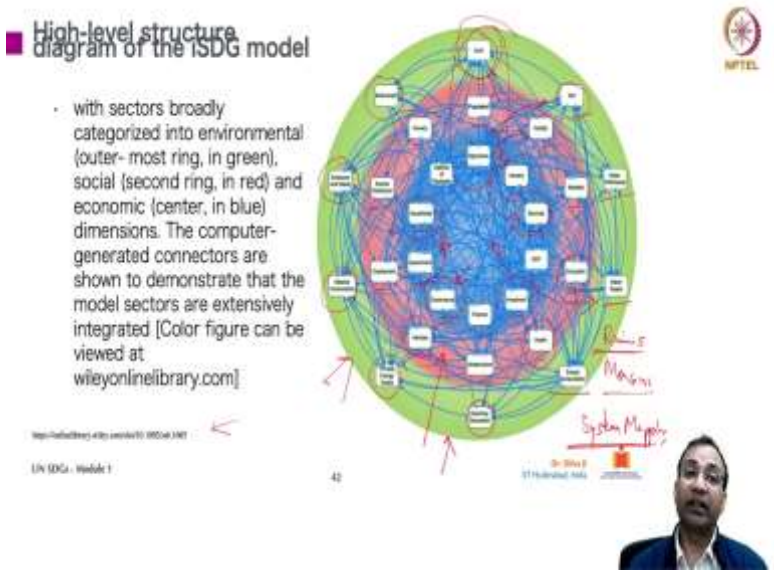

Here in this slide, you can see (())(14:26) from this place, high level structure diagram of the iSDG model. How it works with sectors broadly categorized into environmental outermost ring, the green one, social the second ring in red here and economic the central in this blue zone. The computer generated connectors are shown to demonstrate that the model sectors are extensively integrated.

Because if you see these key words which are given over here none of these can stay or function or work in isolation, they are definitely interconnected and they are working in sync. In design, we do one exercise we call it system design or system mapping. This is exactly what like entails to the slide nothing stands in isolation nothing functions in isolations things are interrelated things are interconnected things are interdependent also one has the potential to affect the second entity or the third entity, they even when they are directly connected of course, and even when they are not directly connected in that situation also.

So, you may see from the environment perspective at the top we see the land, biodiversity, emissions and waste, manual material consumption, primary energy supply, electricity generation, energy consumption, water supply, water withdrawal and soil. In the economic zone we see employment, vehicles, infrastructure, health, education, mortality, fertility, population, poverty, distributed income, etc.

And then inside that we see balance of payments in the economic zone these were as the social zone, households, government, governance, finance, investment, GDP, services, industry, agriculture etc. these are definitely interconnected if you see like a one zone over

here agriculture is directly connected to population what produce we want what quantity of produce we want and what is the land available for that. Again this is connected to the soil the right soil conditions are very essential for a proper agricultural growth, fertility of it if it is not fertile, no use

And the industry what is the demand of the industry and how industry is going to shape the agriculture what are the services being offered of course, in the if I come to the like a water supply agriculture is directly dependent on the water of course in many of the countries including our own a larger chunk of our agricultural still depends on the rains, that is why every year Indian meteorological department actually keeps the check on the monsoons, what is the progress of those monsoons and how soon they are going to arrive at your place and the earth is going to like a quench thirst.

And each and every these entities these nodes you see over here are interconnected in some way. So, this actually research paper actually, establishes this fact, that is why this is important for us to understand, like things are interconnected and this is where you cannot work in isolation if you belong to this governance if you belong to directly the government agencies, if you belong to the householder if you belong to any of these industries, a soil or if you are a landowner or if you are working for the health, if you are an investment banker.

If you are working in education or if you are providing some sort of services or if you own a vehicle any of these as you see, you can relate yourself then you can definitely see the kind of data interconnected this which exists like in that area.

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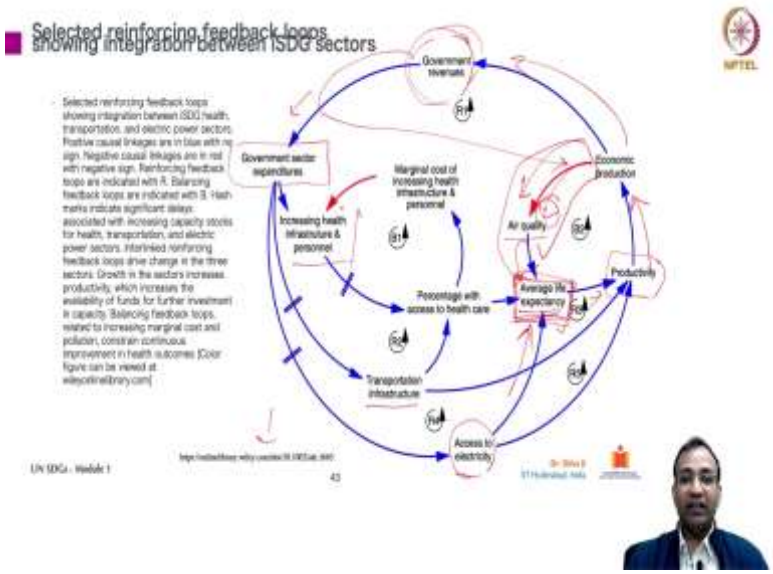

Further, to boost this relationship, I have borrowed like this, like a slide from the source selected, reinforcing feedback loops showing integration between ISDG sectors, so, you can see how they directly, touch each other like government revenues, it comes from the economic production, the year in which economic production, the GDP actually goes down, the government's revenues also go down, and now it is up to the government, to work and work for like inducing, like growth in the economic production.

So, how it does also you can see in it like a reflectance so, that it comes back to its kitty to its (())(19:47) So, government sector like expenditure, again, like how much expenditure it has, and then expenditures on the health infrastructure and personnel, then transportation, access to electricity, electricity plays a huge role in the economic activities of any sort even for the agriculture. It has like a potential to touch every life expectancy also you may be surprised because it directly support the health services and health services actually are going to benefit like this expectancy.

These economic like production activities, they have certain like impacts those impacts actually can be a variety of types one of them mentioned here is about your like air quality, it can affect like a water quality, it can affect like a soil quality, it can affect like a noise, it can affect your like a view and the general (())(20:45) things, those entities those things also have an impact on the average life expectancy. So, on the one circle, you can see, it is working to improve the expectancy on the other like a loop you can see over here, it is having some impact also which is on the negative side.

So, we have to like a creative that balance and improve of course, on this site critically improving like this site, so, that the overall resultant is not going in the negative. This leads to the productivity in multiple like sectors, multiple dimensions, multiple like a like a parameters and those productivities coming from all of those aspects aid to the economic production. So, it is a kind of an interconnected like a cycle you can see over here very easy to understand.

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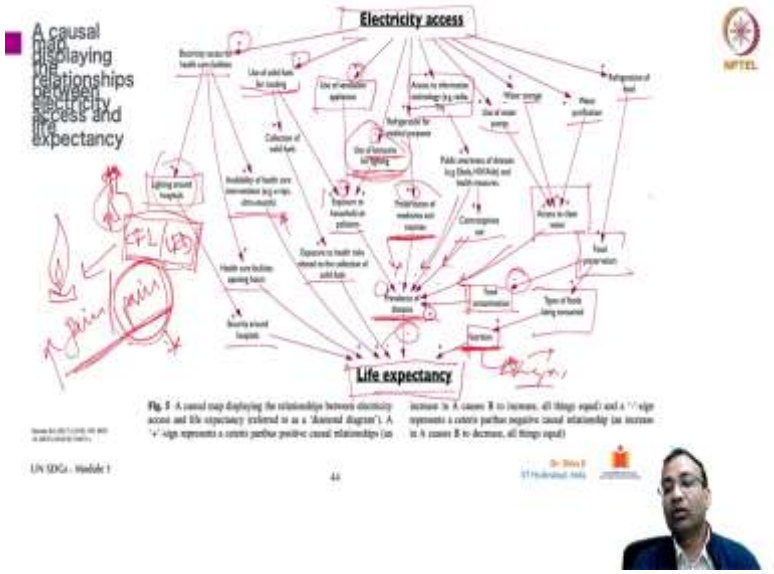

Further, the another example for like that life expectancy thing and electricity, how, and in what ways this has like a caring impact on the life expectancy. So, right from here, electricity access, you can see the different notes given on this slide electricity access for healthcare facilities, this is a positive impact use of solid fuels for cooking.

Of course, this has negative impact, because a lot of like (())(22:17) particulate matter and other gases which are going to come and get emitted in a habitable zone, which we impact the human health, use of ventilation appliances of course, is going to bring in like a positive change, access to information technology such as radio and TV programs through which you can disseminate, disseminate, like a knowledge and information about him like a such things to the faraway places urban rural semi urban areas and every community.

Use of water pumps, water storages, water purification, refrigeration of food etc. One negative thing we see over here use of kerosene for lighting, well in the earlier like a society our PDS public distribution system used to like a gift this kerosene as a fuel in the rural areas. But we know in the scientific studies, kerosene is one of the like a very highly polluting like a fuels.

So, how we can minimize it, because the gain what you are getting out of, that entity for example, kerosene, if you are able to light your home so, the gain and the pain. So, it is a kind of a tradeoff. So, if the tradeoff is if the trade is going into like a heavy more towards pain sights know how you can reduce it, bring it down and increase the gain side. So, definitely we can replace like a kerosene you may have absorbed in the villages rural areas. Now, like,

there is a discouragement to like this, for the uses, and electricity is being given to the each and every remote location using either CFLs or LEDs in the recent years, getting rid of like this kerosene based like things altogether.

So, definitely this used to be a negative one, but with the incorporation of CFLs and LEDs and such, like electricity supply to the like last household last family and there is a positive change we can bring, so, this trade off always remember how this can be improved is the actually like a target.

Let us see some of the points, lighting around hospitals, of course, this is going to lead in the positive like the effect availability of healthcare interventions such as X ray's ultrasound to the remote locations, because they need not actually travel to the cities to facilitate in like a such basic, facilities and health sector, exposure to household air pollution. There are in like a some pluses and some minuses also over here, Preservation of medicines and vaccines, this is amazing like a plus point, which helps carrying and stock often like such things.

And huge number of population can be served. Contraceptives use, Access to clean water of course, there are huge pluses, Food preservation, Types of food being consumed. So, the food contamination if it goes for contamination if something happens, because of maybe some (())(25:27) or maybe bad water quality or something, something that is a big minus, but if you are working for supplements nutrition etc. I take like a smaller level like Aanganwadi schemes and those things you may be aware of.

They are being implemented for so, many years now, for improving the health of the lactating mothers and newborn like a kid's newborn like the children so, that they are also the equal like a place holder like members of our society and their health in the early like years is very critical for the rest of their lives So, they must not fall prey to those like a diseases or lifelong like a conditions because of the lack of proper nutrition and then exposure to health risk related to collection of solid fuels, healthcare facilities, opening hours, security around hospitals, it increases once there like a light of course.

Some negative points you can see prevalent of diseases so, this actually leads to the like a negative output, this leads to negative output negative output and things like that, there are some positive output also collectively, this what we need to work is to stop or control the prevalence of diseases. And finally, work to improve the life expectancy.

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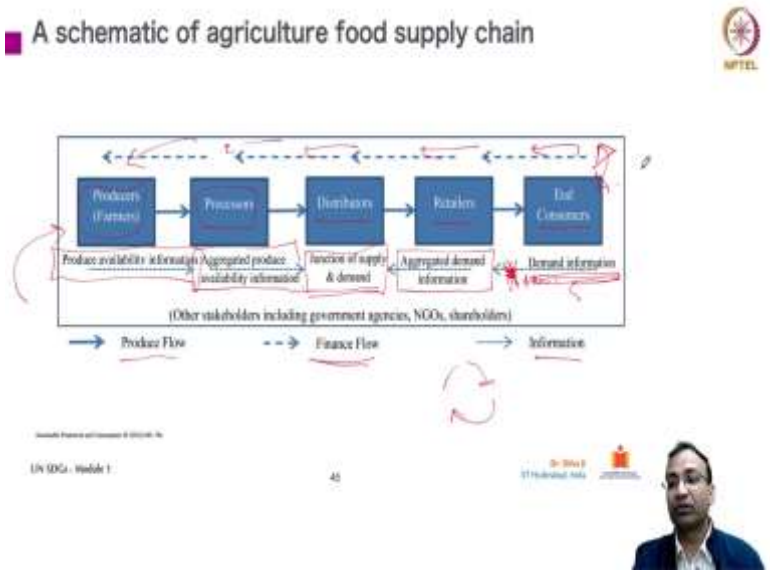

There is another example from agriculture like a sector this scheme of agriculture food supply chain, so, you can see reduces the farmers from here it goes to the processes, distributors, retailers, and end consumers like you and me then, again, there is no like a loop back which is giving information about demand information, how much of like a demand for a particular like a commodity is there this information comes from the right the end consumers like you and me.

Then it goes to the aggregated like a demand information, then it goes to the junction of supply and demand, what is the actual demand in a particular market then aggregated produce availability information, from the producer levels, then again the produce availability information from the entities which are producing like farmers, So, this works if you see in the sink, if there is a brake if this information somehow is not being able to be generated or collected, how do how many truck load of pulses and rice and wheat like other stuff are needed in any given market.

In the absence of such information are these a crisis kind of situation comes up and there is a short supply of no like a such commodity and the price actually rise and some people they actually become unable to procure those things, So, we need to avoid in like a such crisis kind of situations. So, this actually cycle which works actually both ways needs to be strengthened and needs to be put up in the proper place. So, you can see over here produced flow, finance flow and information.

So, the information is coming from here at the bottom level and of course, the finances the ones you purchase, the end consumer he or she pays for all that goods and the services and that payment actually keeps going of course, to the last entity of producers. So, this is how this cycle works.

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Now, we will see overall performances like a climate change performance index, you can search it on your own, you can see you can check for the latest data, this I have data gathered for the year, the running year 2022. And this is what I found, you can see the overall results for like this year, so, very low performance, you can see this red, North America, Russia, China, Australia, Japan, and some of these Gulf countries and then low impacting ones coming from South America, South Africa, and some of these European, Eastern European countries and Vietnam etc. And then medium ones we see Mexico these southern European, Italy, etc. and in our own backyard high ones, we see India being one of the major economies, but having high performance index.

So, one of the, like a praiseworthy like situations and Northen countries here and England, and a few more from here and a very high if there is any very high performing country, Chile is here in the high one I am unable to spot any very high performing country in this maybe you can check, but there is a problem in this presentation, majority of the African countries and many of these like the Asian countries, some here and on here and here.

There is no data, no rating for these. And these countries also like if you see like here, Bangladesh, Pakistan, Afghanistan these many countries, and most of these African

countries, they contribute to the big population, huge consumption and even resource supply like from here a huge resource is actually are distributed from Africa to across the world. So, this data is very essential to get the whole picture.