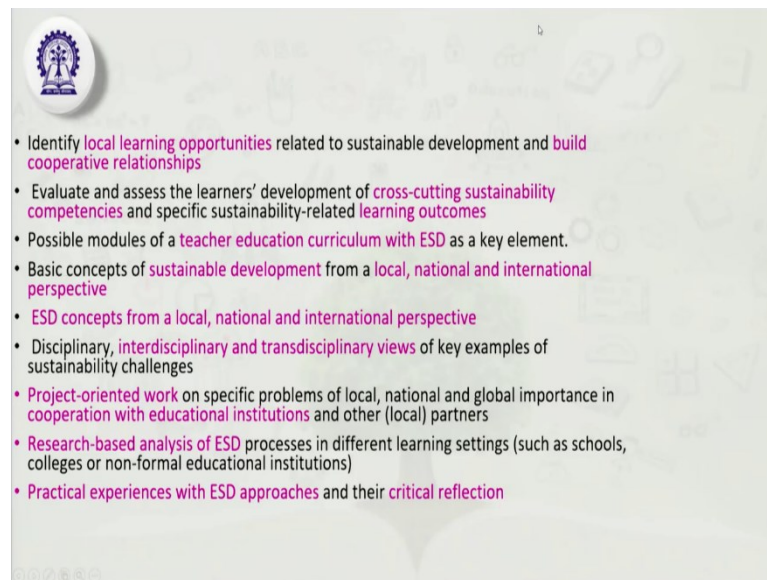


**Education for Sustainable Development**  
**Prof. Atasi Mohanty**  
**Department of Humanities and Social Sciences**  
**Indian Institute of Technology, Kharagpur**

**Lecture - 38**  
**Sustainable Education (Contd.)**

Welcome back viewers welcome back to NPTEL course on ESD. So, in the last class we are talking about Transformative Pedagogy or Pedagogical Framework. How we can develop a transformative pedagogy and pedagogy for the teacher training, as well as the curricular activities.

(Refer Slide Time: 00:29)



So, to continue with that; now we can say; so how to identify the local learning opportunities related to sustainable development goal and build the cooperative relationship. So, when we are talking about the community activities; community welfare, community wellbeing or sustainable community; so, we have to identify the local learning opportunities.

Maybe, in terms of you know the artistic handicrafts or maybe agriculture, maybe you know horticulture maybe other kinds of you know you know floriculture or the horticulture or poultry farms. Or, what are the actually local learning opportunities are there which can be related to sustainable development; with regard to greenery, with regard to waste

management, with regard to eco friendly; you know eco friendly business, eco friendly you know eco friendly industries.

So, these things can be explored first; local of learning opportunities in terms of activities; of peoples activities that can be explored and on the basis of that we can develop a cooperative relationship. Like for example, the women they maybe they are interested, they are engaged in different kinds of handicrafts, pottery making or you can say cloth making or the toys making or an any kind of the you know local foods preparations like pickles and all kinds of other dry fruits, dry products and dry product food products.

So, these kind of things we have to identify; these are the opportunities which can be directly related to sustainable development. And through these, we can develop a community; a cooperative society for to develop the corporate; not only cooperative society for their employment and income generation, but for the relationship building also.

So, here again another thing is that to evaluate and assist the learners development, a cross cutting sustainability competence and specific sustainability related learning outcomes or we can fix up. So, like at the end of the day; end of the program and activities, we have set the targets. Certain targets are there, yes at the end of the day now the you know stakeholders students, learners; all the.

That means, those who are involved, they ultimately; we can map, we can quantify we can qualify that yes these are the learning outcomes that we have achieved at the end of this program; end of this activity. So, this is specific sustainability related learning outcomes we have to focus on work on these things. Then, then possible modules for the teachers education and curriculum with ESD; it can be designed.

So, taking into account this local activities then etcetera or you can say home made products and homemade or the eco friendly teaching aids; as like an teacher education curriculum can be developed with ESD as a component, as a key element. So, teacher education curriculum, teacher training curriculum with the ESD as a key stakeholder; key measure key tool, so where we are focusing more on; you know more on eco friendly, organic things and zero carbon or carbon neutral products.

Maybe minimum wastage, minimum carbon footprint; so, these kind of things can be in the curriculum can be developed, so with the ESD as a component. Now, with this online platform also; we can say that we have adopted, we have adopted eco friendly kind of teaching instruction; instead of wasting the; you know carbon, instead of wasting the pages hard copies of the ESD materials etcetera and minimising the carbon footprint.

But yes; however, the other side effects are to be; are to be you know checked and balanced; that means, compensated as well. So, teacher education curriculum is the basic as the; ESD as a basic key component, that can also be developed; second, then sustainable development from the local, national international perspective.

Whatever we are doing; we wish we can begin with the local learning opportunities, local needs local resources, but slowly and gradually we can yeah increase it, enhance it and improve it towards the national, international perspectives and the requirements.

So, then again ESD can be concepts from the local, national, international perspective to be analyzed. So, ESD what is at the local level what are the requirements? What are the implications? What are the action plans and strategies? At the national level what should be the ESD concepts and strategies and the international level also. So, similarly the disciplinary and in transdisciplinary views can also be given in terms of different examples and challenges.

Similar, different kind of project oriented work can be designed; can be designed and can be um sponsored for you know for addressing the specific problems. Specific problem may be related to; specific local problems maybe water shortage or maybe or the national problem of you know minimum carbon footprint or pollution or the global importance of climate change. So, this project oriented to the specific problems of local, national; the global importance.

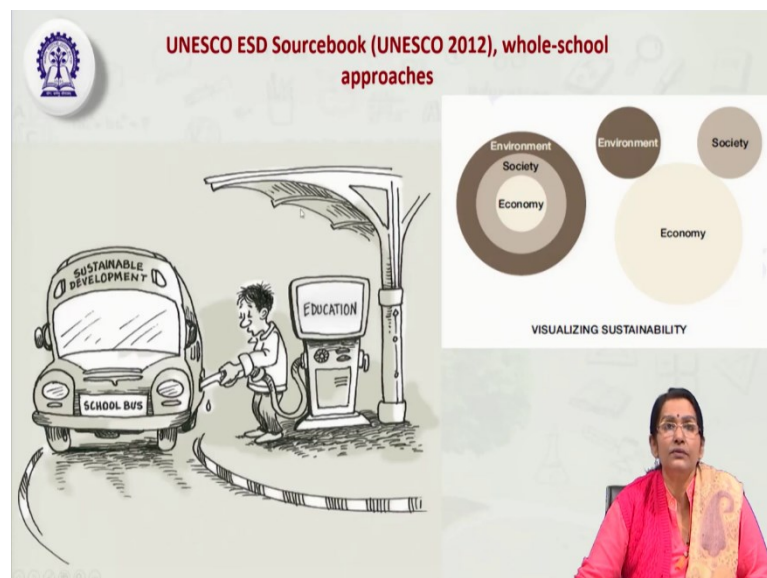
So, in coordination with in cooperation with different you know NGOs, different educational institutions and other local partners can also be initiated, can also be planned and administered. So, the projects maybe that is in the; what are the, in the local community what are the local resources available and what are the setbacks, what are the challenges and how to mitigate those challenges in a sustainable way?

So, we can also start with the action projects, action research projects or the some sponsored projects at the panchayath level, at the block level or at the state level. But, similarly we can also start the projects; big projects, ESD based sustainable development projects at national and the global and the keeping in mind; the global importance.

Like climate change also, we can also start the projects; national requirements of the you know self sufficiency on the eco; developing the start ups on developing the eco friendly, agricultural products and the manufacturing things; Make in India schemes etcetera. What are; what we can do at our own, not only to earn our livelihood, but also in a very sustainable way to not only cater to the needs of the people, but also environmental protections and the economic growth.

So, research based analysis of ESD process, research based analysis of ESD process of different learning say learning settings such as the schools, colleges, formal, non-formal educations that can also be that can also be done. So, practical experience with ESD approach; you know with a critical reflection, with transformative learning, with sustainable practices, with the ESD based competencies; so these things can also be learned, updated and enhanced; in terms of learning, actions and the practices.

(Refer Slide Time: 07:34)



So, as we can see; here this is an example of you know environment which you can say starting from the society to environment, economy. And this is the you know sustainability

how we can visualize it that we which includes all the three; economy then society and the environment; all these three three are components are well integrated.

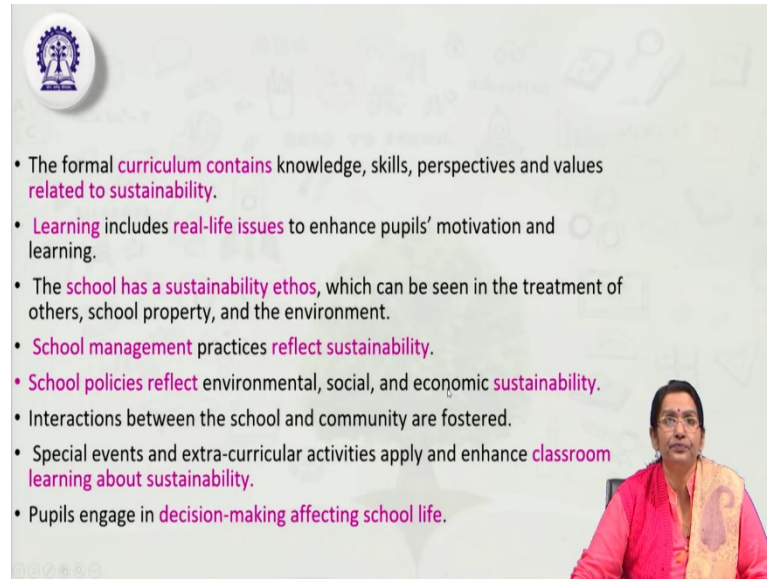
So, how can we visualize economic growth is should be there, society should be also sustainable and cohesive and the environment would be protected; so environment ultimate. So, this is in; this way we can visualize sustainability, so here we can say just an example of how this school was; that means, the education also; that means, the students can also get the training hands on training of putting the fuel to the vehicles.

So, without wasting; that means, not dropping without wasting and minimum; again minimum carbon pout trained and you know in sustainable way, how everything can be done in a very sustainable way; so, without exploiting the resources and conserving it for the future generation. So, this is just an example; similarly in the community activities students and the learners can also be engaged.

Engaged in plantation, in gardening; in you know kitchen preparing the kitchen garden in agricultural activities in and in kind of you know organic; developing, some organic methods of methods of plantation, food production or health care or you can say health care and you know dissemination of information and to the local people and enhancing the awareness to different kind of workshops intervention programs.

So, all the; that means, here no; it is not just the responsibility of the NGO workers or the block level workers, but it is the collective responsibility. So, students can also be engaged, teachers can be engaged, local people can be engaged. So, it is a collective responsibility of moving towards the sustainability by adopting a transformative pedagogy and ESD as the key component.

(Refer Slide Time: 09:31)



- The formal curriculum contains knowledge, skills, perspectives and values related to sustainability.
- Learning includes real-life issues to enhance pupils' motivation and learning.
- The school has a sustainability ethos, which can be seen in the treatment of others, school property, and the environment.
- School management practices reflect sustainability.
- School policies reflect environmental, social, and economic sustainability.
- Interactions between the school and community are fostered.
- Special events and extra-curricular activities apply and enhance classroom learning about sustainability.
- Pupils engage in decision-making affecting school life.

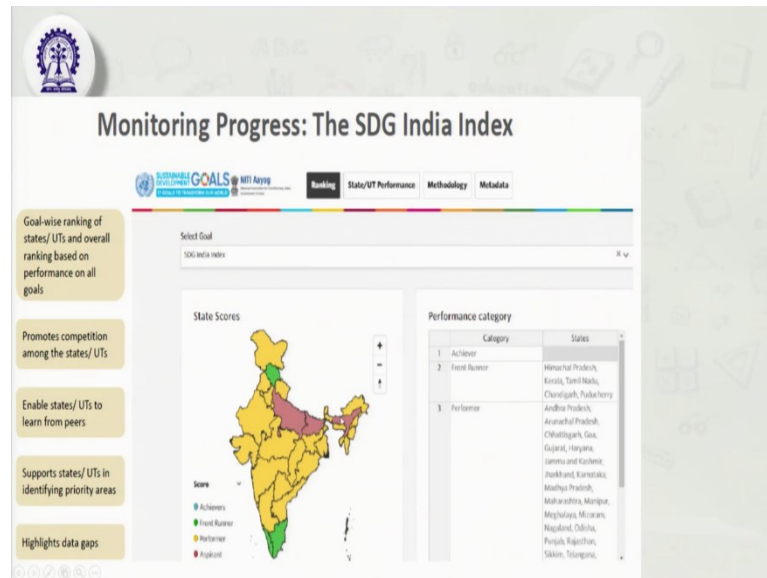
So, here you can say the formal curriculum content knowledge, skills, perspectives etcetera; it should be related to sustainability. Learning includes the taking into account the real life issues examples for pursuing; persuading the people or for enhancing the peoples motivation. Like, how they can behave sustainably, they can act sustainably, they can help the society in a sustainable way. So, can hands on activity some practices; some community services that can, they can be they can be motivated for all kinds of things.

Then, the school as sustain; has a sustainability ethos everywhere in terms of; in terms of the you know templates, in terms of advertisement, in terms of slogans, in terms of you know; you know in terms of you know speech during the prayer session; morning prayer session. So, all this school properties; environment infrastructure everywhere; that means, it must reveal, it must express that thus school has adopted the sustainability as its etho and the values.

School management practices also it must reflect sustainability without wastage, minimum wastage, how to take care of the environment, cleanliness; all kinds of thing. So, school policies also reflect the environmental, social and economic sustainability. So, in terms of content, in terms of practice, in terms of curriculum, in terms of pedagogy, in terms of administration, in terms of; in terms of interactions between school community also to be fostered.

So, in terms of classroom learning about sustainability, in terms of decision making that affects affecting the school life, in terms of individual lifestyle consumption style, in terms of behavioural sustainability; every aspect from A to Z; so it can be incorporated it can be. That means, every now and then; this is the slogan, this is the theme, this is the moral, this is the value of the school as a system and then again community, as a whole.

(Refer Slide Time: 11:26)



So, how to this is the monitoring the progress; monitoring progress that this SDG India's SDG index I can say. So, as you can see the state wise ok; the state wise, the green areas; these are the green area are the; they are the front runners ok. These are the front runners; who are the front runners? Like, we can say the in South we can say south is the front runner; Kerala and this I think this is; Tamilnadu and Kerala.

And here, I can say this area I think it is the; I think is the, which state it is? It is that North in the Punjab; Punjab, Haryana and Himachal Pradesh areas kind of thing; so, this is; these are the front runners. Then, the performers are; all these are the performers, that is still doing it; performers ok. So, Jammu Kashmir; to [FL] Western; what is Western India, Eastern middle; these are the are the performers ok.

And the there is; there are no achievers, not yet achieved completely fully; no achievers are there and these are the aspirer that they are the aspirants, they are the aspirants. That means, they are trying to that is the north well; that is the Bihar and UP and Uttarakhand, you can say; they are the aspirants and even in the; in this Northeast also, this Mizoram all

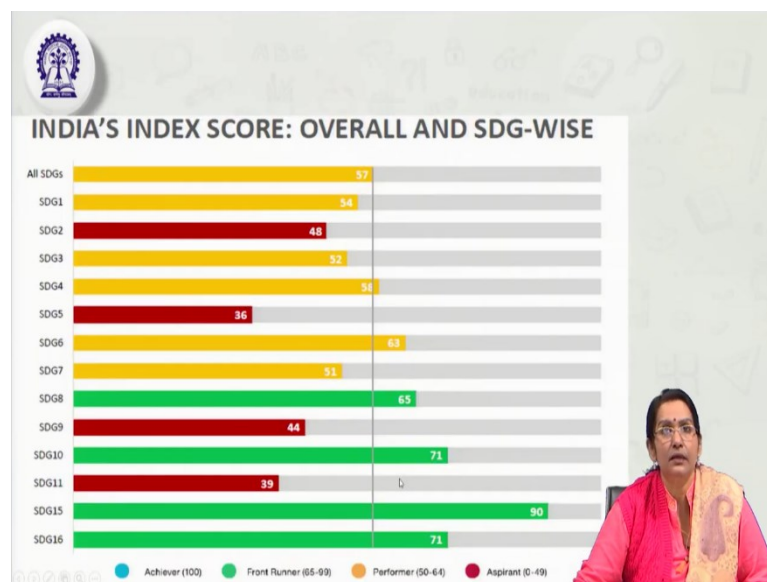
kinds of things and these the. So, these are the aspirants, these are the performers and the these are the front runners ok; front runners.

But there are still there are no you know successors; no achiever not yet, no achievers. So, goal wise ranking of states and union territories overall ranking based on the performance of all the goals ok. So, achievers; no achievers are there, front runners are Himachal Pradesh, Tamilnadu, Kerala, Chandigarh, Pondicherry etcetera. And performers are all other states and others are states and you can say still aspirants are this; you know this UP, Bihar; this kind of states and in the in North East; this kind of states.

So, promote the competition among the state. Now, there is a smart city competitions ok; among the star, smart city competition; this is also again in an another is initiative to move towards the sustainability.

So, supporting the states and union territories in identifying their priorities areas; whether their priority areas the food, agriculture or the health or education: so accordingly they can move on. So, highlighting the data gaps; highlighting the data gaps; so this is a kind of framework, monitory frame; monitoring framework has been developed to map the is SDG progress in Indian context. So, as you can see this is our current status.

(Refer Slide Time: 14:07)



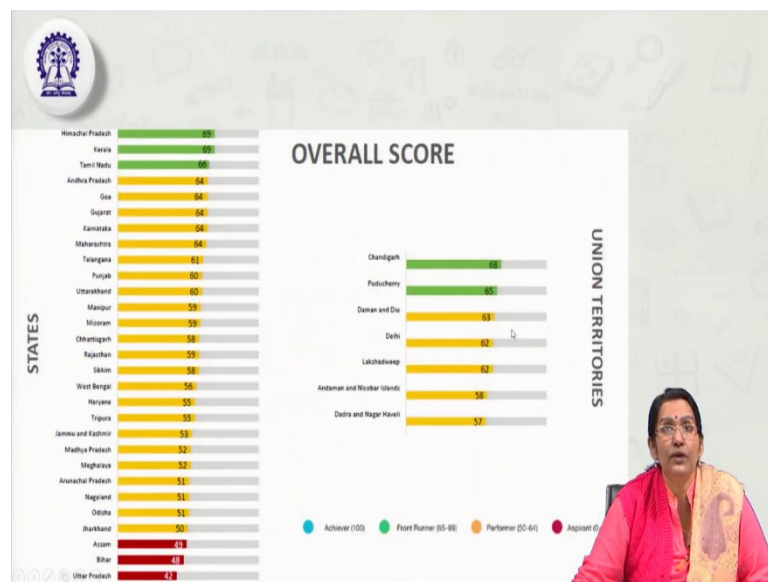
So, India's index score; overall and SDG wise; overall and SDG wise scores, like again all SDGs are; all SDGs are the performers. Like the; this yellow sections they are the



performers for in all SDGs and in SDG1 also, they are and SDG2; that is 0 hunger; that is SDG2 are the aspirants. And SDG3; what is the status of India in overall SDGs, all the SDGs and in SDG wise; 1 to 16 SDG and 17 SDG is the global partnership ok.

So, 1, 2, 3, 4, 5; the green areas, the green areas actually the front runners; SDG8, green areas are the front runners. And a blue; there is no 100 percent achievers are there; no 100 percent achievers are there, performers are there and aspirants are there ok. So, now we have only; you could do only in SDG8, 10 and SDG8, 10 and 15 and 16; we have been successful to a little bit. And yellow areas that is other SDGs; we are just performing, but not yet 100 percent, achievement has been has been done; actually has been taken place.

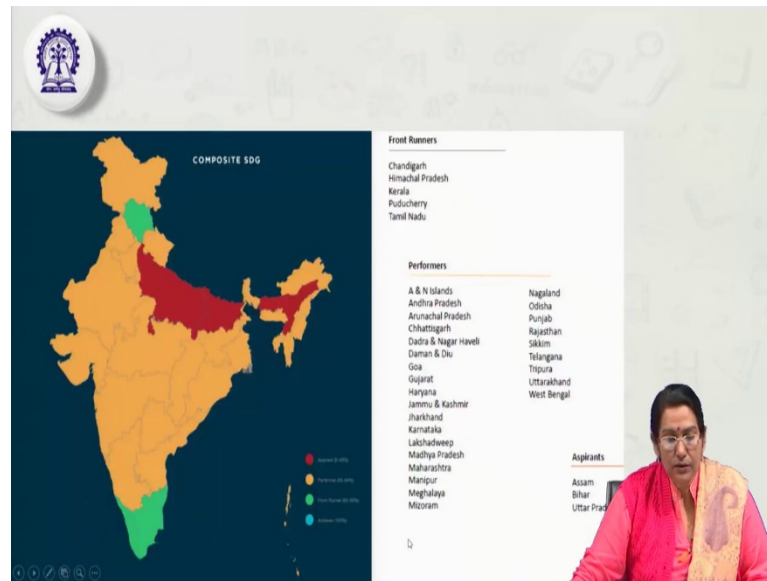
(Refer Slide Time: 15:26)



But now slowly we are moving towards; you know overall score, this overall score state wise I can say; the state wise Chandigarh and Pondicherry; Chandigarh and Puducherry in these two union territories are well ahead.

Then, there after Daman and Diu, Delhi, Lakshadweep, Andaman Nicobar island, Dadra Nagar Haveli; they are the performers ok. And the state wise Himachal Pradesh, Kerala and Tamilnadu; they are the front runners Himachal Pradesh, Kerala, Tamilnadu; they are the frontrunners and there after all the all the things. And the poorest back the least; that means, the aspirants only that is the Assam, Bihar and Uttar Pradesh; they are yet to start their activities towards; they are just the aspirant aspirants, but others are the you know performers, they are just doing it performing it ok.

(Refer Slide Time: 16:14)



So, and this is like the composite SDG; composite SDG that is taking together. Front runners are Chandigarh, Himachal Pradesh, Kerala, Puducherry and Tamilnadu; they are the front runners and others are the performers; others are the performance and aspirants are; that means, aspirants are Assam, Bihar and Uttar Pradesh; as we can see, we can summarize all the things.

(Refer Slide Time: 16:38)



So, then again meeting the challenges; here what are the other challenges that we have to face and resolve it? First thing is the generating data on all the SDGs indicators from the

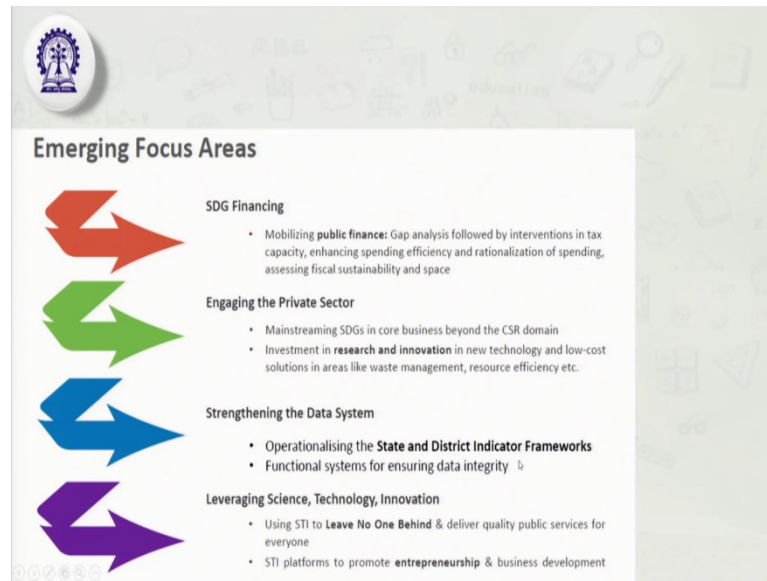
local national level. These are the challenges, how to meet; the generate the create the data on SDG; all the SDGs, its SDG indicators both at the national level, the local level; convergence and efficiency of financing the SDGs across the various actors and the institutions.

So, in order to achieve the SDGs in different sector; how to converse and enhance the efficiency in financing, in sponsoring, in mobilising all the major stakeholders across the institutions and across the actors; that means, the players? So, this is the again second level; first is identifying the areas, indicators and the local level is; second converging how to converge and enhance the efficiency, financing, sponsoring the things and this kind of things.

Then, third is the capacity building; enabling the people, empowering the people through training; training, development skills etcetera. So, capacity development of the multiple stakeholders; on the range of gaps ok; there are different players, different actors, different stakeholders; so how to develop their capacity; so, multiple capacity developments to fill up those gaps.

Then, identifying the regional focus and areas and developing the action strategies. Thereafter, focusing after this identification, then convergence efficiency in financing, then capacity development capacity building of multi state stakeholder, then moving towards the actual action plan that identifying the regional focus areas and developing the action strategies to work upon it, to start the action plan.

(Refer Slide Time: 18:22)



So, now here we can see that these are the emerging focus areas; as you can see these are the emerging focus areas; the first is the SDG financing ok. SDG financing is most important that is because mobilising the public finance. So, gap analysis, the intervention the tax capacity of that state, enhancing the spending efficiency, rationalizing the spending, assessing the fiscals, assessing the fiscal sustainability in space; all these things and how SDGs targets in the goals to be financed.

So, SDG financing is again topmost priority; emerging how the money will be spent in different sustainable development activities, plans, programs etcetera. Second is that engaging the private sector; how there can the private sector can be engaged, can be made the equal partner in this sustainable development goal. It is not just only the public sector organisations or the government's responsibility, but how the private sector can equally engage them.

That is mainstreaming the SDGs in core business; beyond the CSR; see beyond CSR, how we have to put for through this SDG programs. That means, you have to run the business; core business, but in a sustainable way; so, sustainability in the core business; beyond CSR.

Then, investment in research and innovation; continuous investment in research, innovation, new technology, low cost solutions; like you know low cost solutions like waste management, resource efficiency, energy sector. Similarly, nowadays are more of

focusing on the clean and renewable energy with the minimum cost like from getting the energy from the; energy from the solar resource, solar energy, hydro energy and you know electric energy, wind energy.

So, how can we get extract the energy and make ourself self sufficient in energy with the minimum cost; on the cost effectively. So, that is another; waste management that is the biggest challenge; waste management and the; and the water treatment that is also thing. Sustainable agriculture and then again taking the precautions against the; you know climatic change and the disaster disasters disaster related risks; disasters and different kinds of accidents.

So, these are the kind of the; in these sectors, these are the challenges and in research, innovation and technology also; how private sector can be engaged. Then, again the strengthening the data system; strengthening the data system in the sense that both operationalizing at the state level, district level, working on the different indicator framework; on functional system, then ensuring the data integrity, data you know safety, security.

So, we have to strengthen our data system also too; that means data with; so data only we can calculate, we can evaluate, we can analyse; we can analyse our progress and impact. So, strengthening our data in system and infrastructure, then leveraging the science technology and innovation. And of course, to take the advantage of leave no one behind like and deliver the quality public services; that means, leave no one.

That means, like for example, learning together and no one should be left behind; that should be our policy. Learning together and achieving together and no one should be left behind; so, to deliver the quality public services to everyone and to everyone to at every corner of the country; so that is the, so science, technology and innovation. So, using the science technology and innovation for equality, equal distribution of resources, for achieving the quality life, for quality public service you know and nobody should be left behind; that is one thing.

And another is that science, technology, innovation platform also to promote the entrepreneurship and business development. So, nowadays that is why; that means, how can we make ourself self sufficient in Make in India schemes that is our manufacturing

hub, our start-ups not just in the core sector core? That means, industrial sector, our mechanical technical sector, but also in the service sector.

So, how the science, technology innovation; can be promoted, can be used to promote entrepreneurship, small business, developments, then small entrepreneurship, small and medium industries and self employment opportunities, sustainable agriculture. Then food security, then water treatment, then you know to take care of our health system; sustainable health system, quality of life, nutrition, vaccines all kinds of things.

So this leveraging science and technology up to the maximum benefit, so these are our emerging area. So, first is the finance, second is how to PPP; public, private partnership; how engaging the private sector. Then, our data system that is strengthening the data operation system, data entry, data safety, security all kinds of thing, then leveraging science, technology and innovation; for entrepreneurship for collective development well being, welfare of the community and prosperity and healthy life and the quality life ok.

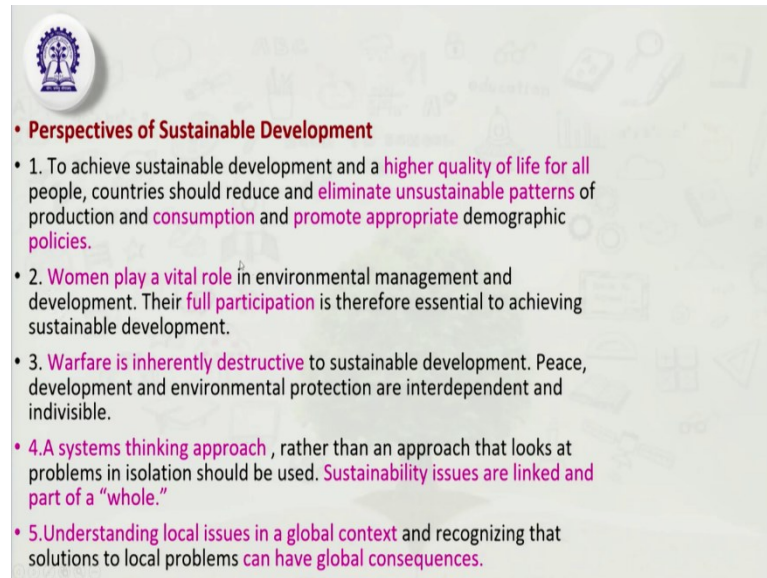
(Refer Slide Time: 23:30)



So, now; so this is a these are some of the clippings as you can see UNESCO's focus. So, these are some of the you know websites, web links and YouTube links are there, where you can go through this; how education is a component, mandatory component, how ESD can be incorporated, implemented through from the very very beginning from the grass root level.

And education is a mandatory component; how through education collaboration, cooperation can be developed and how global media information literacy can also play a very important role. So, these are some of the YouTube links that you can go through for further clarification.

(Refer Slide Time: 24:07)



**Perspectives of Sustainable Development**

- 1. To achieve sustainable development and a **higher quality of life for all** people, countries should reduce and **eliminate unsustainable patterns** of production and **consumption** and **promote appropriate** demographic policies.
- 2. **Women play a vital role** in environmental management and development. Their **full participation** is therefore essential to achieving sustainable development.
- 3. **Warfare is inherently destructive** to sustainable development. Peace, development and environmental protection are interdependent and indivisible.
- 4. A **systems thinking approach**, rather than an approach that looks at problems in isolation should be used. **Sustainability issues are linked and part of a "whole."**
- 5. **Understanding local issues in a global context** and recognizing that solutions to local problems **can have global consequences**.

So, now we will come to the perspectives of sustainable development; perspectives of sustainable development. What are the different perspectives of sustain development; as, you can see high, definitely higher quality of life for all. So, higher quality of life all; then we should also eliminate unsustainable patterns; sustainable patterns of behaviour, production, consumption like we have to unlearn, we have to unlearn the unsustainable pattern of behaviour, consumption style and to promote the appropriate demographic policies.

To promote the eco friendly demographic policies, to better off; to improve our quality of life not just for ourselves, but for all people in the countries across the globe. Second, women play very important role; very vital role in environmental management, in taking care of the house not only the house household course, but also they must fully participate.

Their full participation is also very much essential in the community activities, in the in the rural in the partnership activities like stakeholder; multi stakeholder partnership activities. So, therefore, women should play very vital role; hence they need to be educated

made aware and giving the attention and care and good food, nutrition, health all kinds of thing.

They should be promoted not only not just in terms of education, health, nutrition, but also in terms of their activity, confidence, moral you know moral; morality, there a sense of responsibility. So, they should be promoted in terms of their you know identity; in their the, in terms of their self confidence and active participation; as if they are the major stakeholder, they are the valuable manpower in our society; so, for their full participation in this process of sustainable development.

So, then again warfare is inherently warfare is inherently destructive; hence we should get rid of any kind of warfare. Because definitely all kinds of chaos terrorist attack chaos; all kinds of you know clashes, all these things are actually cost our not only cost our property and things, but also our life and environmental resources also. Therefore, we have to how sustainable development should lead towards the peace development, environmental protection how these are interdependent.

So, some organization some you know some communities, some organizations, some people they should also work communities. So, that is a nowadays we are having this you know different institutions of peace making institutions like Mahatma Gandhi Institute of Peace and Youth Welfare; this is also a body of alliance with the UNESCO.

So, these kind of organizations; these kind of statutory bodies societies; they exclusively work on how to maintain peace, how to promote the peace education, how to you know those through this kind of. You know nowadays through this kind of yoga, meditation, mindfulness, then spiritual upliftment, different kinds of therapy, different kinds of counselling. These kind of things how to you know; how to uplift, how to improve the mental health of the people so, that we can progress; proceed towards a towards making a more peaceful and just society.

So, then systems thinking a; system thinking a; that means, we should not we should not focus on the minor goal of the; a the individual goal or the, we should look at the holistic development. So, we not we just we should not focus on one issue or two issue, but rather or isolated problem, but rather on the holistic development; whole system development; system improvement.



So, that is a holistic approach that is called the system thinking, instead of looking at the individual problem but now we are focusing on to the holistic; that means, all round development; the overall development of the system. So, here the sustainability issues are linked to; linked not only just the individual part, but also whole, whole approach. The whole school approach for the sustainable; for developing sustainable community and society, we are also adopting whole school approach.

That means, whole school approach means focusing on the; focusing on the all aspects of sustainability starting from the A to Z; so that is the systems thinking approach. So, we are; here we are not just focusing on to strengthening our teacher training, our curriculum or content, but also focus would be on the in the community development; how to make our community, our neighbourhood school, our neighbourhood community a sustainable community?

Similarly, understanding the local issues in the global context; yes of course, we are global; global citizens, we have to take care of the our planet earth, but at the same how to; that means, how to collaborate, how to correlate and how to understand the local issues in the global context and its after effects, its impact and recognizing that solutions which are not only solve the local problems, but can have also the global consequences impact.

So, these kind of sustainable practices and solutions; we have to find out so that; so the not it not only helps us in mitigating our local challenges, local issues and problems, but also it can be extended up to the applications at the national level, at the regional level, at the state level, at the country level and at the global context also. So, now, I am completing concluding here only; so, in the next class we will think; we will discuss about the other things.

Thank you.