

Education for Sustainable Development
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Lecture - 17
ESD for Technical and Vocational Education / Training (Contd.)

Hello everyone. Welcome back to this course on ESD. So, in the last class we were discussing about the Technical and Vocational skills Training and the green jobs green curriculum green campus everything. So, continue with this now we will discuss about little bit more about the jobs and the 21st century jobs and how to prepare ourselves for the 21st century jobs.

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The image is a composite graphic. At the top left is the IIT Kharagpur logo. To its right is the title "21st Century competencies for Global and Decent job" in blue. Below the title are two bullet points: "Sustainability to be embedded into educational content." and "This would help encourage a change in the way people understand their social, technological, ecological and political environments." Below the text is a graphic with the text "DECENT JOBS FOR YOUTH" and "Take our Survey" next to a woman's portrait. To the right of this is a photo of students in a workshop setting.

So, the nowadays the 21st century competencies are require for the global and decent jobs. So, along with the TVET there are also there are also some 21st century jobs, job competencies that is for example, that is along with sustainability competencies it is about communication skill, collaboration skill, then problem solving skills, then project management skills all kinds of skills are there. Of course, this all these skills are all already embedded within the technical and vocational education training framework it is already embedded there along with the sustainability.

So, how to prepare ourselves for the 21st century jobs decent jobs? So, here we can say that our sustainability to be embedded in the educational content that we have already discussed and how green TVET green technical and vocational has been embedded in the whole

institution approach; that means, embedded in the not only in the content, but in the pedagogy, in the campus, in the curriculum, in the policy in everywhere.

So, that is the whole institution approach how TVET can be adopted and embedded. So, this would help this would help the actually to encourage the people to understand the social, technological, ecological and political environments. So, from which so, they can find out that what are that priorities or how to what are their priorities how to prepare for the different types of jobs, how to go for green skills and competencies, how to embed these green skills competencies with the sustainability competencies and to prepare ourselves for the global 21st century global jobs.

Now, in this global context the jobs are not restricted to any particular geographical area or the any particular country or continent. So, its that is it is overseas almost all the things are overseas. And with this online platform so, it has immense applications like it has to be; it has to be; that means, global in the true sense in the sense that there is no geographical boundary, there is no ethical bias, there is no; there is no communication barrier, there is no technical technological barriers.

So, across all the domains across all the domains we have to come out of this thing and we have to prepare ourselves ready for this 21st century jobs, decent jobs, global jobs with all the types of competencies along with the job competency, we have to have the generic skills competency then we have to have this virtual competency their sustainability competency.

So; that means, we have to begin with the fresh thinking style phrase paradigm that mean how to get ready for this virtual jobs, for these green jobs, for this 21st century global jobs. So, this is the thing.

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Sustainable Entrepreneurship

Sustainable entrepreneurship is often used as an umbrella term, and may include (combinations of) **social entrepreneurship** (e.g., not-for-profit entrepreneurship), **eco-preneurship** (e.g., customer focused eco-products) or **intra-preneurship** (e.g., sustainable innovations)

Similarly now we can go for another domain, that is a sustainable entrepreneurship with the 21st century in innovations emphasis on the innovations, innovations and applications for the social benefits, social impact and sustainability development goals. So, sustainable entrepreneurship now. So, many startup companies have been promoted have been started have been started since last few years. So, and these startup companies are primarily being promoted to boost SMA, SME that is small scale entrepreneurship and more over to the service sector.

So, that is first how the entrepreneurship can also be the sustainable. So, sustainable entrepreneurship is often used as a is a broad term as a broad term, which may include all kinds of combinations of social entrepreneurship in an NGO work eco preneurship, that is the customer focused on the eco products. Entrepreneurship that is the sustainable innovations.

So, then customer satisfaction then the gray and the green skills and competencies, then the zero carbon foot print, then green marketing, then customer satisfaction all kinds of things that comes under this sustainable entrepreneurship; that means, it includes it includes it covers almost all the domains including the social entrepreneurship, including the eco friendly entrepreneurship, including the entrepreneurship that is the most sustainable innovation related things.

So, how to promote the sustainable entrepreneurship as you can see from the picture it includes almost everything. Starting from the AI to the product to the technology to the energy to the; energy to the climate change to the infrastructure everything. So, how to promote this

sustainable entrepreneurship with the green skills, green jobs and technological green TVET training programs?

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The slide features a circular logo in the top left corner. The main content is a bulleted list:

- **How to educate for sustainable entrepreneurship?**
- According to UNESCO, Education for Sustainable Development (ESD) empowers people to change the way they think and work towards a sustainable future.
- ESD requires dynamic and participatory learning methods. It is crucial that educators get learners empowered and motivated through to know and develop competencies such as:
 - Critical and integrative thinking and practice, Envisioning change and future scenarios, Achieving transformation and making decisions together,
 - Sustainable entrepreneurs conceive social or environmental problems primarily as new business opportunities and with their entrepreneurial activities, they contribute to social, ecological and economic developments in our society.
- https://www.mdpi.com/journal/sustainability/special_issues/Entrepreneurship_Education

A small inset video in the bottom left corner shows a woman with glasses speaking.

So, then we can go for how to educate for the how to educate our people for the sustainable entrepreneurships. So, according to UNESCO education for sustainable development, that is ESD empowers people to change the way they think and the work towards a sustainable future.

So, ESD is primary job is to disseminate information and create the generate the awareness among the people all categories of stakeholders, that is how to empower them the thinking style, thinking pattern a new way of you know thinking about the future about the sustainable future.

So, how to change that mind set, how to change that thought process, how to change that conceptual framework that is the primary job of ESD, then how to again here now how to educate people regarding sustainable entrepreneurship. So, therefore, ESD requires a dynamic and participatory learning method. Dynamic and participated learning method means the educators they get the learners empowered and motivated through to the no house to the no house of no house, no wise, no where all kinds of the reasoning all kinds of the logistics behind everything study to develop the competencies.

That is why we are promoting all these higher order thinking process like critical and integrative thinking and practice then problems solving skills then all kinds of things. So,

critical and integrative thinking and practice that is the envisioning the change and the future scenarios achieving transformation and making the decisions together.

So, here we are not only promoting the sustainability competencies through higher order thinking skills like changing the mindset, being inquisitive, being curious, being critical, being innovative. And how to blend how to integrate the different kinds of ideas and knowledge into the practice in the practice and envisioning the future these are some of the new approach these are the approach. Here the focus is more on to bring the transformation to bring the transformation not only in our performance not only in our knowledge and practices, but also in the society.

So, here the force focus is on more on transformative education, whatever skill training whatever skills and competency we are giving it must have that quality of transforming, transforming from one situation to another situation. That is when we are visualizing the future the sustainable future or future world then this kind this transformative education pattern transformative pedagogy should be their along with the green competencies, green skills etcetera.

So, we have to boost the thing not only the mindset and thinking style, but also we have to enhance the higher order thinking process like the critical thinking, critical thinking, creative thinking then analytical thinking then creative then; that means, innovative approach then practice, then you know reflective thinking all kinds of thing pedagogical thinking approach should be should be included in the transformative education format in the curriculum frameworks.

So, that it is not only green having the green approach eco friendly approach, but at the same time it also focuses on bringing complete transformation in our in its in our curriculum in our output in our performance. So, that it can have a big impact on the social environmental development, socio economic development as well as the environmental development. So, therefore, sustainable entrepreneurship they conceive the social and environmental problems primarily as a new business opportunities.

So, when we talk about the recent challenges or immediate, that is the current challenges that we are facing right now. Like you know pollution then climate change then energy scarcity in the energy then energy sector then you know this kind of natural disaster pandemic like kind of disasters. And also you know I also the you know skilled man part and it is very difficult to

get the skill manpower; that means, developing the competencies among the human resources then financial resources then all kinds of thing.

So, here identifying any of the social problem that we are facing suppose energy crisis, suppose it is climate change, suppose its the problem of waste management. So, we can take up the entrepreneurs can take up any of the social problem as an opportunity as a news new business opportunity.


So, that is why nowadays so many startups have come up in the service sector like how to make it, how to make the particular process or activity or the practice are very smooth, very eco friendly, very user friendly and very and with the technology and with the of course, with the technology. So, how it can be; it can be delivered with minimum time minimum effort and in a very cost effective way.

So, that is that all the startup entrepreneurs they must focus on the social problems and the current social problems primarily as a new business opportunities and with their entrepreneurial activity and they can contribute the social ecological economic developments for other society.

So, it is also relevant for all education curriculums for the research activities also. Because whatever research we are doing right now be its science be its social science, be it humanities whatever it must have a direction towards the society it must have a direction towards the its towards having the positive impact in our environment in our economic system in our social sector, that must be the focus of any kind of entrepreneurship any kind of research any kind of human activity or educational activity that where we are engaging ourselves.

So, here. So, in the that is in the sustainability MDPI journal is a it is a very in very prominent journal, very popular journal, very famous journal MDPI journal in the sustainability there all these issues; all these issues it is a regular journal there you can find all these issues entrepreneurship sustainability competencies green jobs there you can find out. So, you can go through this YouTube link website later on.

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- Whether the outcome is an **eco-innovation, sustainable start-up or project, entrepreneurial thinking** and acting starts first of all **with motivated individuals and their ideas,**
- In order to be able to identify, evaluate and enact sustainable business opportunities, **sustainable entrepreneurs are in need of-**
- **Specific knowledge—e.g.** knowledge of the natural environment for instance **attitudes—e.g., the active involvement in sustainable actions** to improve the sustainability of products, processes or services—
- And **skills—e.g., to interact and to be responsive to stakeholder demands.** It is likely that these **knowledge, attitudes and skills stem from competencies for sustainable entrepreneurship.**

So, next. So, then here another thing is that whether the outcome is an eco innovation sustainable startup or the project, entrepreneurial thinking and acting starts with the motivated individuals in their ideas.

So, here not just the outcome not just the end product that is related to eco innovation or sustainable startup or entrepreneurial thinking, but also from the start from the beginning itself the individuals must be motivated with their inner with their intrinsic motivation, with their passion, with their focus, with their dedication with for having an innovative idea that is that focuses more on that focuses more on the social reform social transformation economic reforms.

So, for this reason so, in order to identify evaluate in this kind of sustainable business opportunities the sustainable entrepreneurs they must also focus they must also go through certain processes, they must acquire certain ideas, certain knowledge process they have to do some homework in this knowledge domain in the resource domain.

For example so, they need they are need of specific knowledge for example, they want to do something on waste management or may be some lean manufacturing. So, they have to have this gain the knowledge about the detail detailed things the manufacturing, the process, the logistics, the finance the everything design all kinds of thing they have to have gained the knowledge.

So, specific knowledge about knowledge of the natural environment for instance like the active involvement of sustainable actions to improve the sustainability products, process and services and in which location they are going to start last classes also we have discussed about in the context is important then we have to ask identify the need assessment, need assessment of the local people their strengths their weaknesses the resources available.

So, for any kind of startup business also entrepreneurship also the entrepreneur he has to acquire knowledge gain knowledge. So, speak knowledge about not only the environment, but the what would be the product, what would be its process, what would be its services.

How it is going to have any impact on the society and what are the skills again more over what are the skills required to interact with interact and to interact and to be responsive stakeholder demands to fulfill what are the skills required the knowledge, the attitude, the skills which are which stem from the competencies of sustainable entrepreneurship.

So, in sustainable entrepreneurship it has n number of skills and competencies to begin with to begin with to conceive an idea. And plan a properly plan properly and collect the information about its; that means, its dimensions, domains and what are the required knowledge what is the update technology available for that and then where you are going to put it apply it.

So, then the location the resources available then moreover the people residing their requirements, their skills and competencies how to leverage was kind of resources and manpower, how then again further how to train the man power. So, its a kind of huge task. So, we have to chalk it out; that means, design it now we have to plan it accordingly very very that means in depth with all kinds of even if the person does not have this expertise he has to consult with other experts and do a real homework that is the you can blue print of the whole thing he wants to do.

That is the in starting from the knowledge, attitude, skills and competencies to the resources available, to the mobilization of resources and the need assessment and moreover with the passion and intrinsic motivation.

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- The field of **entrepreneurship education (EE)**, as well as the field of **education for sustainable development (ESD)** and many adjacent fields—like **Business Ethics and Human Resource Management/Development**—have their own ideas about what learner factors, learning environment characteristics and learning activities contribute to desired educational outcomes
- **Modern learning/working environments**—e.g., **hybrid environments**, **living lab** type of learning environments—that enable the development sustainable entrepreneurship
- **Sustainable entrepreneurship education** from the perspective of **learning in the professions**, e.g., in relation to **corporate social responsibility, employee-driven innovation or workplace learning**.
- The **inherent tension** in sustainable entrepreneurship education between the **economic 'profit-first' logic** and the **'others-first/societal' logic**

Teaching **Eco-friendly Entrepreneurship to Local Communities**

Therefore, the field of entrepreneurship educational also like ESD, it is also related to like ESD this business entrepreneurship education also is very much related to business ethics, human resource management all kinds of managerial competencies tasks are also related very much related to entrepreneurship education.

So, definitely the entrepreneurs they have to learn some of the basic things of the ethics, values, human resource management as well as legal implications also legal implications then corporate laws also like the CSR and other kinds of thing. So, corporate laws rules regulation to develop their own idea about the factors learning environment and learning activities that which can contribute to the educational outcomes. So, in the like in management also suppose you have taken up the entrepreneurship as a specialization.

So, your entrepreneurship education this curriculum and content it should include all aspects especially for example, when we are studying this rural management, rural management suppose you are going to start a business and an industry and entrepreneurs program in the rural sector. So, how its should be and in the rural sector how the; that means, the peoples because they are you have to deal with the local residents. So, you have to learn about how to handle this; that means, logistic to the human resource management skill to the business ethics, legal implications everything ok.

So, now the modern working environments are a kind of hybrid environment like that is a combination of the virtual thing as well as with the help of technology as well as some partly

physical environment. So, the in hybrid environment again how to live the lab type of learning environment that enable the development of sustainable entrepreneurs, like when we are going to teach educate the people regarding the practical things practical the lab components are there then in the hybrid environment how to teach how to educate people regarding this kind of entrepreneurship education.

So, sustainable entrepreneurs of education from the perspective of learning in the professionals for example, corporate social responsibility employed-driven innovations on the work place learning or the virtual work place virtual business e-marketing all kinds of things we have to educate the people in such a way that they will be familiar with, they will be familiar with convenient with both the virtual online physical as online physical as well as the hybrid environment.

So, here the. So, here actually the main problem in the sustainable entrepreneurship education is that whether we are doing it for profit or not non for profit not for profit. So, that is the basic ethics; that means, whether you are starting a business even if it is a social entrepreneurship.

So, whether you are doing it for your own benefit or for the social benefits, that is the inherent tension and that is that we have to sort it out that we have to solve it what is the moral, what is the value, what is the goal basic goal behind it. What are your visions and missions yes of course, you cannot run a business with a loss with a loss, but yes with the minimum profit like the cost effectiveness then how can we bring that transformation reform in the society.

So, the inherent tension is there in sustainable entrepreneurship education that is becoming between the economic profit first logic or others first society logic societal benefit first logic. Like in most of the business houses nowadays even though their primary goal is the profit, but profit economic profit etcetera.

But at the same time they are also looking for the community for the community well being community benefits social economic socio economic benefit in terms of CSR not only CSR activity, but also from through the charity activities also CSR is their they have to invest certain amount in the social development, economic development etcetera.

But besides CSR also some of the companies are big companies are also investing in the in the charity funds that is to deal with some kind of; that means, to deal with some kind of emergency situations like pandemic or any kind of disaster etcetera.

So, that kind of mindset can also help us in developing a right kind of social entrepreneurship or the sustainable entrepreneurship platform. So, then comes. So, therefore, teaching eco friendly entrepreneurship to local communities.

So, side by side whenever we are in we are starting the business sustainable entrepreneurship or model in the particular localities, simultaneously what also it becomes our responsibility to educate and train the people who are available, who are there in the local staying in the local community that is local people regarding the different kinds of skills, regarding the relevance of entrepreneurship regarding; that means, regarding how it is going to change their lifestyle, how it is going to change their economic condition financial condition the whole system in the society.

So, they have to engage in the main stream and they have to involve they have to engage and they have to train also from time to time. So, that the local people can take up the ownership, ownership that yes they are then they think that it is for them. So, it is for them hence they will invest their time, effort and skills in the companies. So, in the companies. So, it will. So, how to start the business how to start the business with taking into account or taking all the local people together.

So, that. So, there is they will think that they will think that yes it is our it is for our benefit, it is for our comfort, it is for our education it is for our health facilities and etcetera. So, they will be engaged. So, engaging the local people by training them, by motivating them, by educating them that is also another biggest challenge for the entrepreneurship.

But with I think with the good intention with good value system with positive attitude positive thinking style. So, an entrepreneur can do it. And if all of us we think in that way definitely our society is going to be changed drastically.

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- The goal is to **shape new entrepreneurs** based on local specialty and competitiveness in order **to improve the economy of the community**, while **preserving local culture and traditions and the neighboring environment**.
- The method creates **real-life learning conditions**. The entry point is entrepreneurship through **various vocational skills**, such as handicrafts (making wooden puppets and sculptures), fresh-water fish farming, growing of organic vegetables, bamboo weaving, compost making and wood carving – using mostly recycled substances as raw materials.
- The programme employs **cooperative-competitive strategies**, **stimulating learners' team spirit** while at the same time **encouraging them** to familiarize themselves with **healthy competitiveness** with the other groups.

So, here the goal is to shape the new entrepreneurs based on the local specific and competitiveness in order to improve the economy of the community. So, here we have to educate them that yes whatever we are doing we are trying to uplift their economic condition, we are trying to enhance their quality of life, we are trying to give them some vocal training, vocational skills, training and we have to; we have to; we have to create the real situation or real atmosphere like that. So, with more communication with more awareness camps with more workshops etcetera.

So, that you can say that they will see that local people will find it that yes it all these activities are there to improve the economy of the community. So, while. So, the method creates a real life learning condition. So, here you can say real time situations, real time situation we can when we talk about the, suppose in research also when we conduct some kind of action research to get the immediate impact.

Similarly in entrepreneurship also we have to create the real life learning conditions, where the entrepreneurs has to give the focus on various vocational skills may be that in the village community you know we can develop some kind of some local handicrafts, local handicrafts some kind of folk arts former then some puppetry, some sculptures, may be that some fresh water, fish farming, may be some organic vegetables, may be bamboo weaving, may be wood carving.

So, all kinds of things which are more mostly recycled substances of the raw materials; that means, the rural people they can also be trained to do kind do some kind of this kind of local vocational skills to not only to earn their livelihood, but also to restore to revive the skills; revive the skills of our indigenous skills of indigenous people local people.

So, ministry also is also trying to you know trying to capture; trying to capture this kind of things and in our traditional knowledge system we are trying to restore it in terms of reviving our old skills art artistry all kinds of some all kind of handicrafts etcetera too. So, that not only it gives a kind of opportunity for the people to you know meet their standard of leaving to earn their livelihood and to, but also to think innovatively; that means, it can also have an international market to sell out or the products.

So, therefore, the program employs a cooperative competitive strategies; that means, there will be the cooperative groups different groups they will work together small groups work together, but yes between the groups there may be some kind of competitive mindset that is to stimulate the learners team spirits.

We are working in a group, but even at the same time we are also competing with another group. So, for primarily to stimulate the learners or the participants team spirit their motivation and at the same time encouraging them for a healthy encouraging them to familiarize with a healthy competition not with the not actual rivalry, but at the healthy competition.

So, this kind of entrepreneurship training; that means, along with the core domain knowledge this kind of training can be given to the social entrepreneurs or the those who want to venture in to the any kind of sustainable entrepreneurship model.

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So, this is the model we can say the sustainable entrepreneurship model as you can see the whole this is a learning cycle starting from the like for example, here we are starting from the prior knowledge and the focus attention towards the sustainability. It starts with the it starts with; it starts with observing the situation, observing the situation starting like for example, we are being very resilient about what is going on what is happening in the society.

And how to identify; how to identify the right problem that is it may be out of there may be 10 problems, but from out of this 10 problem how which problem to pin point what has its relevance, it is what are the draw backs, what is in the impact how serious this problem is then first thing is that we have to identify first the problem social problem. Then the prior knowledge and the focused attention towards the sustainability in the sense how to resolve that how to resolve that how this problem can be mitigated challenge can be mitigated.

So, we have to have some prime prior knowledge focused attention towards the sustainability that is sustainable mitigation of this thing. Then opportunity recognition which aims to solve a sustainability related market failure; that means, suppose it is a entrepreneurship then opportunity to recognize which aims to solve the sustainability related market failure; that means, where are the gaps where are the short falls where are the short comings where actually it has failed.

Then motivation to solve the sustainability related market failure it is an example of this market sustainable entrepreneurship business. Now alongly along with this we can also think of a

social entrepreneurship problem. So, motivation to solve the sustainability related to market failure or may be you know profit or may be loss or the market loss or the may be the losing the customers whatever may be the thing then address either environmental or social core objective to of the startup.

So, here when we are planning from the very beginning and we have to focus on either social or environmental core objective, we have to take the either social impact or the environmental impact as the core objective of the startup then they are there by gradually we are also moving towards the its periphery like other impacts.

So, the business turns over a profit secure business of the future and longevity; that means, yes of course, whenever you are starting a business went to business definitely it must have a minimum profit to sustain and survive, but again how to secure it for the future how to that means, think about this longevity in the sense that it will continue.

How to make it sustainable, how to benefit the stakeholders all categories of stakeholders and cater to their needs all these planning should also be added if you we want to make it a long term project then address both the environmental and the social objective. Yes even though it is the economical it is the business profit nonprofit financial things are involved may be that it also helps people in creating the jobs giving them the employments etcetera.

Even though you take care of the economic aspect, but at the same time you have to address the environmental and social objectives that is the minimum depletion of the environmental resources and having the positive impact on the society. Then blending a balance between profit planet and people. So, here out of this entrepreneurship at the end definitely we have to analyze this cost effectiveness.

And the even though the profit and prosperity is there prosperity we will be should be more in terms of quality in enhancing the quality of life of the people then social impact its social impact in terms of you know in terms of more awareness, more health facilities, more education platforms.

Then more you know techno savvy amenities and the more energy more energy; that means, the energy efficient things and minimum carbon emission minimum carbon foot print all these things. So, how to maintain a balance between this profit and; that means, the prosperity profit and prosperity the planet that is the environmental ecosystem to keeping it intact and

sustainable. And the people is improving the quality of life of the people, lifestyle of the people, quality of the quality of life of these stakeholders.

So, here the thing is that from the. So, the whole idea of this ESD or sustainable entrepreneurship or green skill is the same says that, it has to be created in our thought process in our consciousness, in our mindset, in our that means, in our feeling, in our effective domain, in our you can say in our emotions in our thoughts, in our actions.

So, first of all how to first thing is that how to realize it, how to internalize it, how to conceptualize. So, once it is done then we can begin with we can mobilize all the human resources. First thing why is the concept of sustainability the concept of ESD the concept of social sustainables on entrepreneurship the consent of eco-friendly and greens everything has to created in the peoples mind fast in the thought process in that paradigm of thinking in the thinking style.

Then from there they can feel it this it is the origins it is the origin their feeling then come down to the feeling emotion because that motivates the people towards the action. So, when we can think positively and feel positively then definitely we are going to behave or act upon accordingly.

So, then thereafter the action towards the green jobs green scales automatically comes in then only we can feel that. Yes, actually it has been materialized at actually it has been realized in the real life context. So, thank you very much. So, in the next class we will discuss about something else related to ESD.

Thank you.