

Education for Sustainable Development
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Lecture - 26
ESD for Food Security (Contd.)

Hello viewers, welcome back to this course on ESD for the Food Security. So, in the last class we were discussing about the food insecurity and the causes of the shortage of the food, then wastage and what are the three pillars of food security all these things that we are discussing.

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Poor infrastructure

Poor infrastructure causes hunger by making it difficult sometimes **impossible to transport** food to areas of a country where there are **shortages**.

People have died of hunger in one region of a country while there was plenty of food in another region. The **roads were so poor** it was **not possible to reach** all who needed the food to survive.

Irrigation systems provide water for countries with **unreliable or low rainfall**. Irrigation can double crop yields, but it is **expensive** to put these systems in place. Water can be taken either from **underground aquifers or directly from rivers**. Both have **environmental consequences**.

So, to move ahead with this topic now, we will be discussing about other things like poor infrastructure what is a. So, actually we are discussing about the reasons of the poverty and the food insecurity. So, that we have already discussed so many factors. Now another factor is the poor infrastructure. So, poor infrastructure how it causes the hunger how is the hunger or the poverty. Because of factors like poor transport, shortage of the food, wastage of the food.

So, poor infrastructure actually causes the hunger by making it difficult sometimes impossible to transport, maybe that in the in one reason the food is sufficiently available, but due to the poor transport system lack of communication etcetera these are not being transport, these are not being able to taken over to another place to for the peoples consumptions.

So, that is one thing and the so that is on one of the major thing is that poor infrastructure. Here comes the transport the transport facility also comes under that, the second thing is called that sometimes the roads or roads are so poor that it is not possible to reach from one region to another region.

And even if it is these are being transport the so many foods are being wasted. Because wastage because of the you know because of the all kinds of barriers or all kinds of time consuming factors etcetera.

So, that also deteriorates the quality of the food. Then again third is the in the infrastructure that comes our irrigation system. Irrigation system that is the if there is no continuous or permanent source of water supply in the nearby field nearby paddy field. So, that is an another kind of setback.

Because if the farmers depends on the unreliable source of water like the rainfall or the unreliable sources of water. Instead of having some regular irrigation facilities that can that also affects the crop that are that affects the not only harvesting. But the that makes the system whole system very expensive because you know procuring the water from other sources and purchasing it with high electricity, charges etcetera it becomes very expensive for the farmers to maintain it.

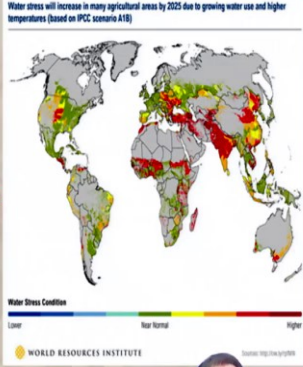
Therefore water facility irrigation facility so in that situation it has it is a major infrastructure that has to be taken either from the underground, underground wells and aquifers etcetera or from the directly rivers. So, that should be permanent um permanent arrangement of the irrigation facilities by connecting it to the either to the deep down wells aquifers or the reversed.

So, but again both these things are also having the environmental consequences also. So, these are the important poor infrastructure like the shortage transport of the foods. As you have earlier seen that in the flow chart food processing flow chart that is from the during this process how after from this food processing then it has it are these are being deliver to the markets. So, transport then the transport facilities both road roads and the other kinds of the road facility as well as the rail facilities.

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Poor infrastructure contd...


- Crops need water to grow. **Irrigation infrastructure is unaffordable to most farmers** in developing countries. A **lack of water and sanitation infrastructure** are leading causes of hunger and malnutrition.
- Women and girls in developing countries spend hours each day fetching water because of a **lack of infrastructure, pulling women away from other productive activities and girls out of school.**



Water stress will increase in many agricultural areas by 2025 due to growing water use and higher temperatures (based on IPCC scenario A1B)

Water Stress Condition
Lower Near Normal Higher

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Then irrigation system, these are the very important factors of the infrastructure of a food products. Then another thing is that you can say irrigation infrastructure sometimes unaffordable for most of the farmers. Because of you know because of the lack of water and sanitation infrastructure etcetera.

Whatever water they water they procure they buy, the purpose, they purchase from other sources it becomes expensive for them. And the lack of infrastructure like some sometimes what happens the in the village areas rural areas the mostly the women and the children and the men they are actually fetching the water from the by pulling, the pulling from the wells and pulling from taking from the long distance long distance you can say ponds or the canals or the rivers.

That consumes a lot of time that consumes a lot of time wastage of time of women and girls and etcetera. So, they cannot utilize those time in the productive other productive activities. So and that also causes some of children, small children to especially the girls to stay away from the school and not get educated. So, that is also the wastage of time and the resources and the energy.

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Job Instability

- ✓Hunger rates rise when the **national or local economy is in a slump**. People **lose jobs and cannot find work**. Once the economy improves some people continue to struggle to find work.
- ✓In **single-parent families**, the parent may **not be able to take a job or work** enough hours because of no childcare options.
- ✓In the United States and other high-income countries, hunger is mainly caused by poverty that results from a **lack of jobs** or because jobs pay too little.

Figure 4. Hardships and COVID-19-related job or income loss

Hardship in the last 3 months	No/Income Loss (%)	No Loss (%)
Problems paying rent or mortgage	15%	5%
Problems paying other bills	20%	8%
Put off medical care	13%	3%
Put off filling a prescription	10%	4%
Food insecurity	29%	16%

Source: COVID-19 Survey, Wave 1, April 22–May 12, 2020. Social Policy Institute. BROOKINGS

So, then again job instability job instability that is for the rural people for the only for people having the agricultural skill or limited skill and the labourer labour class people. They are having very limited scope or job opportunity.

So, because of the you know hunger rates rise when the national and the local economy is in a slump. During this Covid-19 also as we can we have seen so many people there were the small time the small time you know vendor small time shop keeper, small time labours labours or the farmers etcetera.

They lose their job they and they lose their job and they could not find the proper work also. So, therefore, so it also brought down the economic economy into a very slump phase. So, that is the that is also another cause at the because of the some national or the local reasons purpose or the climatic change or the natural disaster or any kind of environmental issues.

If they do not get some the they do not get the regular jobs that also affects. Especially for example, in the regular otherwise in rainy season rainy season also it is very difficult for them to get the proper job, that also causes the lack of foods.

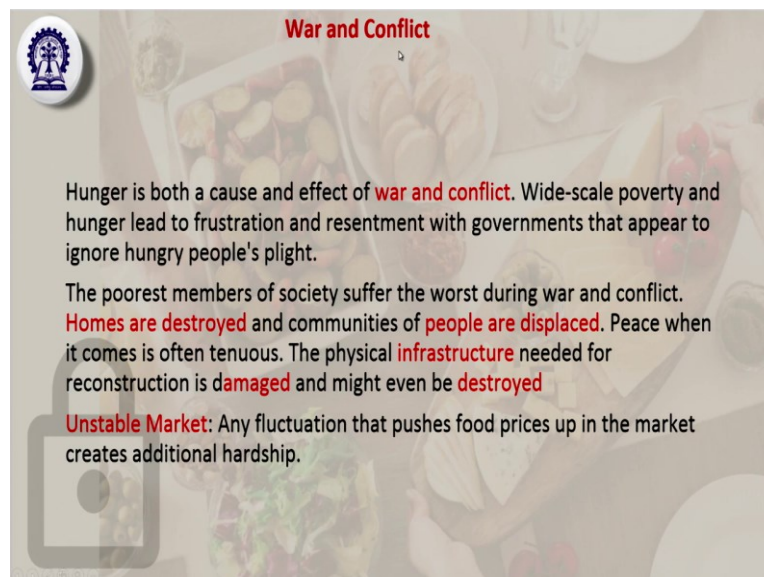
So, similar sometimes what happens the single parent families are also there single parent families. So, they do not get enough time to engage them in different kinds of the jobs, because simultaneously they have to take care of their home, children. So, they that is the question of not only the work life imbalance, but also there is the opportunity then the shortage of opportunity and the scope to work more or to get the more opportune job opportunity.

So, similarly and I mean the affluent countries and the developed countries like United States and other things they are actually hunger takes place because of the lack of jobs. Because primarily they import the food grains food materials from the other countries.

And in their countries developed countries their hung hunger or poverty takes place because of because the most of the people when they lack the jobs. So, because of lack the jobs or maybe that whatever jobs they are doing it is the it pay very too it pay too little.

So, because of that only in countries like the developed countries United States and other areas are the actually hunger takes place. Because they primarily they do not do their agriculture themselves, but the rather they procure it through import. So, it is their job instability also takes place. So, the job instability is also another reason of food scarcity.

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War and Conflict

Hunger is both a cause and effect of **war and conflict**. Wide-scale poverty and hunger lead to frustration and resentment with governments that appear to ignore hungry people's plight.

The poorest members of society suffer the worst during war and conflict. **Homes are destroyed** and communities of **people are displaced**. Peace when it comes is often tenuous. The physical **infrastructure** needed for reconstruction is **damaged** and might even be **destroyed**

Unstable Market: Any fluctuation that pushes food prices up in the market creates additional hardship.

Again one more factor is the war and conflict. War and conflict that is between countries and as well as the intra, intra country and inter country. Maybe because of these two countries that will like suppose in two adjacent two nearby neighbourhood countries or within the country also because of these economic crisis, political instability etcetera are wide scale poverty hunger that leads to the frustration resentment with the governments maybe governments you know government schemes different schemes.

So, their war can conflict or conflict like situation chaos you know instability all these things are all takes place. Nowadays we can say terrorism is also another factor terrorism not only the

political rights, political riots, but also terrorism is another factor. So, these also actually due to this war and conflict so many homes are being destroyed. Natural calamities also being the victim of natural calamities of war and disasters etcetera people are being displaced.

So, displacement is another factor, then infra then physical infrastructure also need to be reconstructed in this kind of situation that has been destroyed and damaged due to this war conflict, terrorism or any kind of natural disaster.

So, then again so another thing another reason that the prices also food prices also fluctuates from time to time because of the unstable market. Because market is being influenced by not only the economic factors, but the social, social factors, then the environmental factors and the when the some of the industrial factors.

So, the market prices fluctuates from time to times and how to take control of this fluctuations that has to be taken care of by our economic policy. And you know by our central government, central bank and government policies. So, which creates actually primarily hardships additional hardship for the citizens.

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The slide features a circular logo in the top left corner and a woman in a red jacket in the bottom right corner. The background is a collage of food items like bread, fruits, and vegetables.

- Farmers in Developed Countries can afford **pesticides**, whereas most farmers in low income developing countries (LIDCs) cannot afford them.
- **Disease** closely **related to issues of poverty and food insecurity** are problems of disease due to malnutrition, scarcity of water for drinking, poor sanitation, pollution, and inadequate shelter; those are often compounded by the spread of infectious diseases such as malaria, cholera, tuberculosis and HIV/AIDS.
- Large differences occur in the responses of human societies to diseases, reflecting **vast inequalities in health care** spending and in funding for pharmaceutical and medical research

So, again so another thing is that affordability for the pesticides. So, people from the developed countries they can afford to the latest technology, latest manure, fertilizer, pesticides etcetera. Whereas, the people from the low income countries or the developing countries. So, they have the limited source, they the limited access to this kind of you know highly technology high,

high technology or the highly high quality pesticide to protect to preserve to their food grains etcetera.

So, again more of so disease also disease closely related to the due to the poverty. And the food insecurity the people rural people or the people disadvantage people they become the victim of different kinds of diseases.

Because of the poor poverty poor because of the poor nutrition and poverty and food insecurity that kind of you can say that is the because of the scarcity of the clean water drinking water safe drinking water or poor sanitation or pollution or in adequate shelter etcetera.

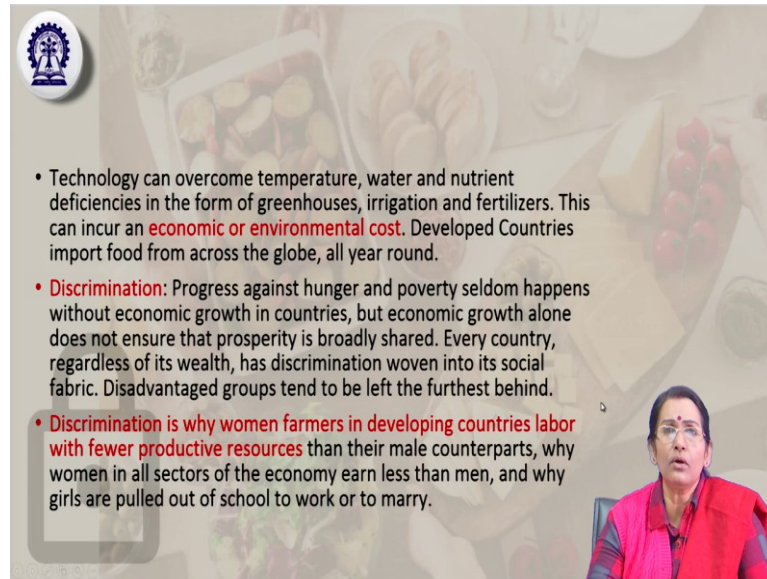
So, they fall the victim off not only the malnutrition, malnourishment, but also other kind of the immunity deficiency and the other kinds of diseases like the cholera and TB malaria etcetera etcetera. Nowadays in presently you know the not only the Covid. But also earlier to that this HIV, aids all these are the from time to time they also become this victim of this kind of diseases because of the because of the poor immunity system and the poor food um; that means, food security and the poverty.

So, therefore, that is it therefore, in the society actually we can see; we can see witness vast inequalities. So, vast inequalities and even in especially in the hospitals also we can find out the poor people. The poor people are the you know the they are the actual crowd they are the major you know stakeholders in the hospitals. Because they because of that poor because of the their poor quality of health, because of the food insecurity or because of the poor quality of the not unsafe drinking water environmental facilities.

So, for that kind of things actually the poor people are very often they get infected. They were get affected with this kind of small diseases regular diseases and they cannot and the and they cannot afford neither they cannot can afford to expensive medicine.

They can take care of their own health also and they can spend the money the for the medical thing, but also they are not being able to do the regular work to earn their livelihood. So, the rural people the disadvantaged people the deprived people are actually the victim of the health complications from time to time.

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- Technology can overcome temperature, water and nutrient deficiencies in the form of greenhouses, irrigation and fertilizers. This can incur an **economic or environmental cost**. Developed Countries import food from across the globe, all year round.
- **Discrimination**: Progress against hunger and poverty seldom happens without economic growth in countries, but economic growth alone does not ensure that prosperity is broadly shared. Every country, regardless of its wealth, has discrimination woven into its social fabric. Disadvantaged groups tend to be left the furthest behind.
- **Discrimination is why women farmers in developing countries labor with fewer productive resources** than their male counterparts, why women in all sectors of the economy earn less than men, and why girls are pulled out of school to work or to marry.

So, another thing is that this technology available there technology is available, there technology can control the temperament temperature, water, nutrition everything etcetera. But again at the same time there are there can be the economic and environmental cost related to it. So, developed countries can afford to import the food import the latest technology, or import the a latest you know fertilizer, pesticides etcetera.

But what happened to the to throughout the year, but the developing countries farmers, developing countries people they cannot afford to purchase; afford to procure it all kinds of throughout the year so ok. So, again there are also the discrimination also takes place discrimination like the without economy; that means, the. So, definitely in the poverty the pro then food insecurity actually it relates to the economic growth of the country.

So, without falling GDP that is gross domestic product etcetera. So, not only it affects our agriculture, our business, our industry also, but it also affects the human life it also affects the human life. So, discrimination has woven into the social fabric gradually you can say we can say why this in African countries African countries.

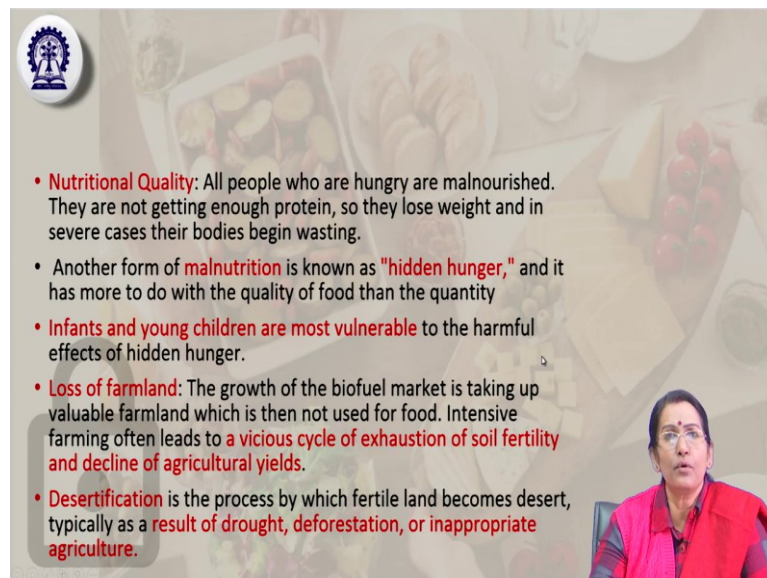
So, people are so many people are deprived in the disadvantageous because of the not only because of the poor food security. But water and climatic change and you know poor economy, poor education etcetera. So, they become the disadvantaged group.


So, here in the so automatically this discrimination comes up in the embeds in the social fabric. So, discrimination is there why women farmers in developing countries they do not get the they not do not get the equal wages like other male, male farmers why they are not.

So, much of productivity in comparison to the male counterparts and why women in all sectors of the economy why they are less than the men and why the girls are being pulled out from the school. These are some of the reasons of the social discrimination. That is why equality; that means, equality not only gender equality, but equal opportunity, equal opportunity and access to all resources that is also one of the primary goal of the sustainable development in goals of the UNESCO.

So, that is also equality, equal access, equal affordability, equal facility, equal. That means, gender equality all kinds of equality is very much important even for the food security also.

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- **Nutritional Quality:** All people who are hungry are malnourished. They are not getting enough protein, so they lose weight and in severe cases their bodies begin wasting.
- Another form of **malnutrition** is known as "**hidden hunger**," and it has more to do with the quality of food than the quantity
- **Infants and young children are most vulnerable** to the harmful effects of hidden hunger.
- **Loss of farmland:** The growth of the biofuel market is taking up valuable farmland which is then not used for food. Intensive farming often leads to a **vicious cycle of exhaustion of soil fertility and decline of agricultural yields.**
- **Desertification** is the process by which fertile land becomes desert, typically as a **result of drought, deforestation, or inappropriate agriculture.**

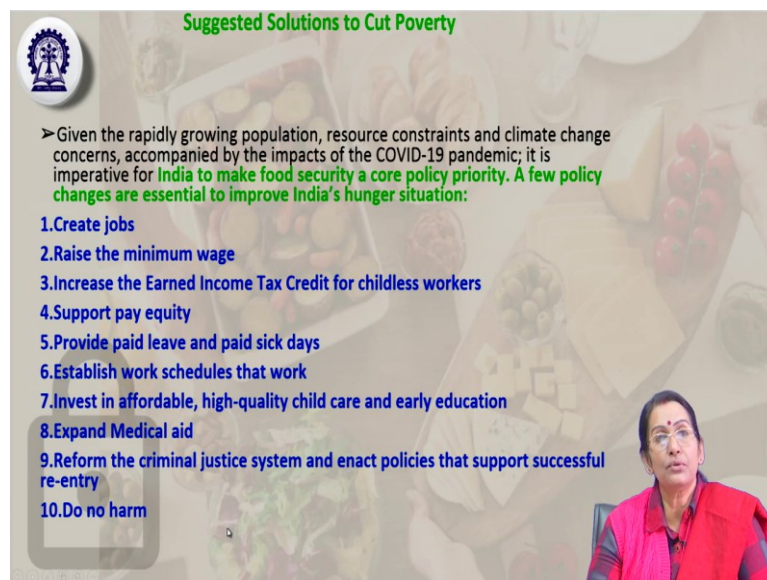
So, nutritional quality qualities are to be ensured. Then another form of we have already discussed how the malnutrition also takes place as a takes place as a hidden hunger, hidden hunger. Because of the poor quality of the food you know not only low quantity, but also poor quality of the food.

Then again most vulnerable category of the people are the young children infants and the young children and lactating mothers like the mothers, the young mothers lactating mothers.

Similarly loss of farmland also it creates a kind of vicious cycle of the exhaustion of the soil, low fertility, decline of the agricultural productivity in the because of the know because of the you know poor you know in the cyclic way. Because of the because of the lack of because of lack of fertilizer lack of you know quality, procure quality, quality manures and etcetera.

So, automatic gradually the lands the lands farmlands gets plan farmland, lands the it get it gets less fertile or it is fertility lost gradually in the process. So, and then desertification also takes place because of the deforestation, because of the inappropriate agricultural process, drought, famine, etcetera. So, desertification also takes place from time to time. So, these are also other factors of poverty and the food insecurity.

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Suggested Solutions to Cut Poverty

➤ Given the rapidly growing population, resource constraints and climate change concerns, accompanied by the impacts of the COVID-19 pandemic; it is imperative for India to make food security a core policy priority. A few policy changes are essential to improve India's hunger situation:

1. Create jobs
2. Raise the minimum wage
3. Increase the Earned Income Tax Credit for childless workers
4. Support pay equity
5. Provide paid leave and paid sick days
6. Establish work schedules that work
7. Invest in affordable, high-quality child care and early education
8. Expand Medical aid
9. Reform the criminal justice system and enact policies that support successful re-entry
10. Do no harm

So, now, how to reduce this poverty, there are some suggested solutions are there it is. So, India to make the food security a core policy priority the few policy changes are also essential to improve the India's hunger situation. So, these are some of the you know some of these are the suggestions of some of the researchers and the policy makers. So, how can we eradicate, how can we remove the hunger and the ensure the food security by following certain principles and solutions.

First thing is that yes job creation, creating the different kinds of jobs, low skilled, semi skill, high skilled jobs and you know India being the agricultural based economy. So, definitely more agriculture is almost across the across the world, agriculture is the primary major source of jobs.

So, besides agriculture even there are other sectors like IT sector, health sector, education sector and skilled, skill based sectors are there. So, creating how creating jobs many more and more jobs. How to create many jobs for employment for different categories of the people, not for the only highly technical or the professional, but also from low category from the grass root level workers to the highly professional things.

So, job creation again it is the biggest challenge for India, job creation. So, that is why now these are different kinds of schemes Rozgar Jawahar, Rozgar Yojanas and the start ups things and small time entrepreneurship a programs and SME's. These are being promoted and how to create how to create more and more number of jobs in the market.

So, again raising the minimum wage and the wage revision also wage revision also very much important. The revision of the wage because you know with inflation, with the price rise also definitely the wages, the daily labour charge wages should also be hiked. So, increased the earned and earn income tax credit for the childless worker. Childless worker the for the now we are also having this DA's daily allowances gradually rising with the price rise also market price rise.

Supported the pay equity equality main there is there should not be any difference and discrimination between male and female workers, but pay equity provide the paid leave again. Even if somebody is getting the medical health leave or any kind of sabbatical leave etcetera that should be the paid leave also should be available.

And establish the work schedule that work like in order to for maintaining the work life balance for maintaining a harmonious development, the working hours how it should be distributed.

So, that is why both; that means, mostly even in the government sector also these are being introduced. But also most of the private or MNCs private organization they have given that kind of work flexibility, more health facilities.

And you know recreation facilities education facilities these they are being provided from time to time to their employer to their employees just to get them make them more productive, more committed, more happy and more and more sustainable in the sense the sustainable and in the in their work style sustainable, in the productivity etcetera

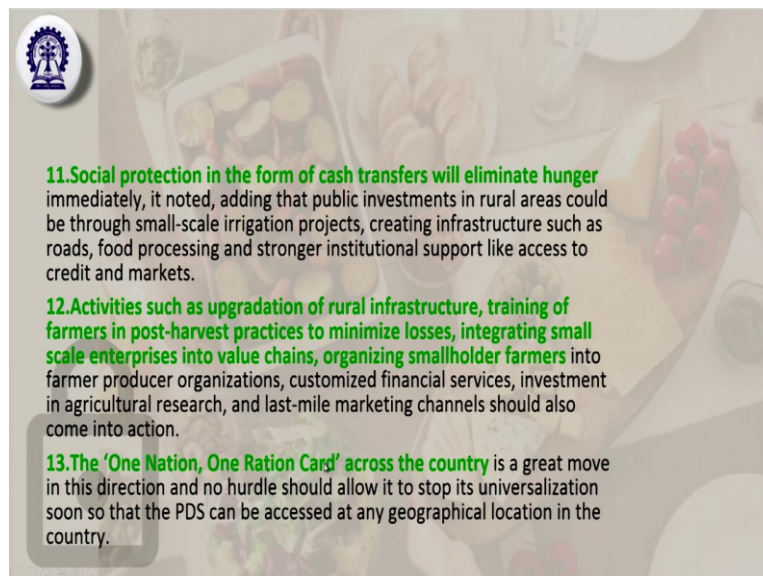
So, invest in the affordable high quality child care and early education. So, education at every level is very important. Along with that the affordable high quality child care is there is occur you know child care nursery, creche and affordable is. So, therefore, education health education and health we need to afford need to spend more invest more.

Expand the medical aid, medical facilities, medical health, the health cards making the compulsory health card for crèches, every child every citizen. Every individual under different age groups also that is health card then vaccines introducing the vaccines and the in ICDS; ICDS programs in the rural areas in the anganwadis. That is not only distributing the nutritious food, nutrition supplements, but also health checkup regular health check up.

So, expand this medical aid and medical aid and the facilities. Then again yes the reform in the criminal justice system and to enact the policy that support the successful re entry. And we must we must adopt a policy of do no harm to the society to the people etcetera. That means how to again how to establish a peaceful and just society again. So, here ESD comes in here how to make our make a very peaceful and just society.

That means, society will be built up in a peaceful and harmonious and sustainable way when all the stakeholders all the individual contributors, individual stakeholder, economic system, social fabric. All these things put together and go well in a very cohesive manner.

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11. Social protection in the form of cash transfers will eliminate hunger immediately, it noted, adding that public investments in rural areas could be through small-scale irrigation projects, creating infrastructure such as roads, food processing and stronger institutional support like access to credit and markets.

12. Activities such as upgradation of rural infrastructure, training of farmers in post-harvest practices to minimize losses, integrating small scale enterprises into value chains, organizing smallholder farmers into farmer producer organizations, customized financial services, investment in agricultural research, and last-mile marketing channels should also come into action.

13. The 'One Nation, One Ration Card' across the country is a great move in this direction and no hurdle should allow it to stop its universalization soon so that the PDS can be accessed at any geographical location in the country.

So, social protection in the form of cash transfer. Now these you know villagers and rural people they are having the bank accounts zero balance bank accounts. So, this is all again another initiative to eliminate hunger. Because you know that is a kind of social protection from the government side and activities such as that upgradation of the rural infrastructure, training to the farmers and the post harvest practices to minimize the law losses.

And the you know in every it is until now it is your our you know [FL] [FL] program [FL] program in Akashvani is a very popular is very popular. Not only make the farmers aware of the climatic change also, but also give them the knowledge about the basic things of how to basic things regarding the plants, harvesting, manure, and fertilizer. All kinds of things knowledge and information are being given to them and the updating them from time to time.

So, this is a kind of you know supply chain or value chains you can say it is a kind of value chain to scale up, to scale up the productivity to you know to organize the small farmers small in into different cooperatives into to cooperative. So, that they can sell out their products.

Now, this in retail sector that is big immense retail sector, there big MNCs Multi National Companies you know like reliance fresh and other companies. They are venturing into this that they are actually they are also taking the things from the local level farmers. Farmers giving them their due prices, and selling it with our preservation facilities they are selling it with the urban area.

So, that is also there is a there also coordinating, the coordinating with the big you know business houses. They are also liasioning making the liasioning and hiring this farmers and giving them the. So, that the food wastage will be minimized because the farmers when they sell out the complete food products and the grains etcetera to the big MNCs etcetera.

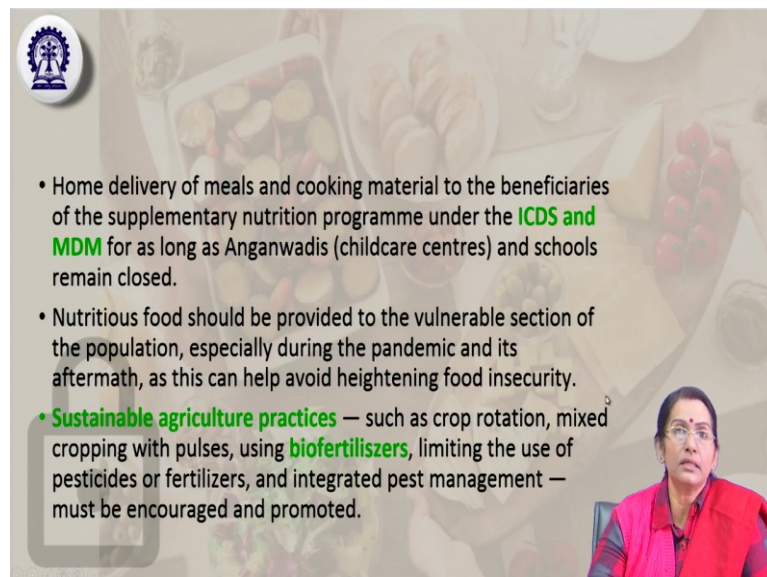
That means they also get the complete money out of that. So, there is no risk of wastage of foods and again at the same time they can invest this money in the next crop next as an crops. And the with the this businessman they not only procure the quality food from that, but they also prom through their mechanism and technology etcetera.

They preserve it and sell it out throughout the year. So, this mechanism also it is again it is a value chain that has to be sustain and supported said One Nation, One Ration Card across the country one nation one ration card across the country that is to make it uniform that is

universalization of these policies and all kinds of things irrespective of the geographical differences and discrimination etcetera.

So, how can we make an uniform policy through one nation, one ration card one like in our country that is the Aadhaar card. And the Aadhaar card has become the in a key passport to all kinds of the facilities government facilities and the public facility. So, that is one nation one ration card one ration card across the country that is also that would be a great move towards the universalization or uniform making our policies uniform for our own reason; that means, for our own country.

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- Home delivery of meals and cooking material to the beneficiaries of the supplementary nutrition programme under the **ICDS and MDM** for as long as Anganwadis (childcare centres) and schools remain closed.
- Nutritious food should be provided to the vulnerable section of the population, especially during the pandemic and its aftermath, as this can help avoid heightening food insecurity.
- **Sustainable agriculture practices** — such as crop rotation, mixed cropping with pulses, using **biofertilizers**, limiting the use of pesticides or fertilizers, and integrated pest management — must be encouraged and promoted.

Thereafter comes our you know ICDS schemes and MDM schemes are also working. So, sustainable agricultural practices like such as the crop rotation mixed cropping and the pulses, biofertilizers limiting use of the pesticides, fertilizers, integrated pest management.

All these things must be encouraged promoted and educated. And so the proper training and outreach program from training and outreach programs will be organized from time to time to update, to update to educate our farmers to update our you know stakeholders.

Stakeholders who are directly or indirectly related to farming, agriculture food storage, all kinds of from time to time for the proper management of the proper management of the food products. So, that the minimum wastage minimum wastage will take place. And the so we can go for a sustainable and secured food, system food, food security, sustainable food security

system. Now I am completing it right now here. Then next class we will continue it next onwards.

Thank you.