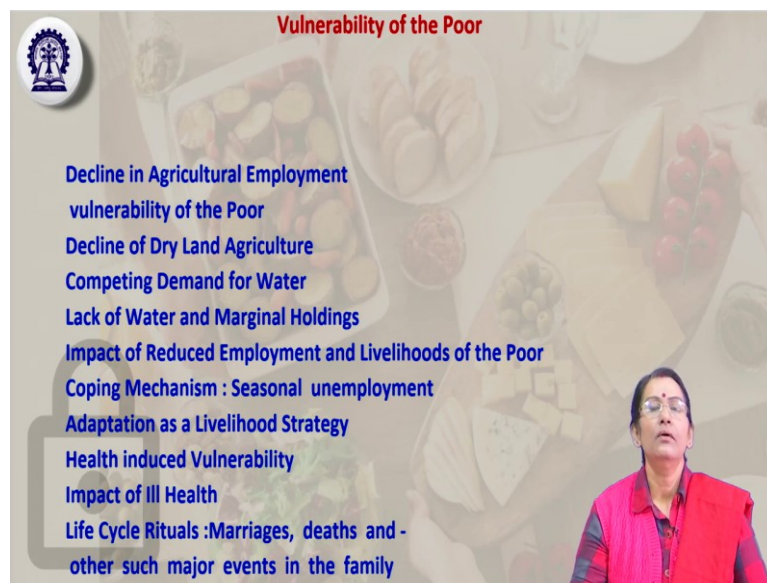


Education for Sustainable Development
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Lecture - 25
ESD for Food Security (contd.)

Welcome back viewers. Let us come back to this class on ESD for the Food Security. Till now, whatever we have discussed that poverty issues we have discussed, now we will move forward to the other issues, ok.

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So, there are the we have already decided discussed about the causes of poverty, different types of poverty, different conditions of poverty. Now, then now we will discuss about the vulnerable vulnerability of the poor. Why the poors are so vulnerable towards the poverty? What are the reasons, what are the background context that we will discuss right now.

So, decline in the agricultural employment. Earlier we have already discussed that how the people were there landlessness; that means, they are only depending on the land that mean agriculture farm that to the they do not own also. The lands they just they are being hired by the other landlords for the agriculture purpose and the moment it stopped.

So, that is the decline in the agricultural employment. May nowadays more and more you know landlords are you know selling their land products, land lands for the more for other purposes like the development of some kind of pumps, farms and other infrastructure instead of giving

it for the agricultural purpose. So, in that situation there is a growth, there is a high decline in the agricultural employment.

So, labor the agricultural labors those who are solely dependent on the agricultural jobs, works, so they get unemployed. So, that is one of the reason for the poor people. So, that is where that is one of the factor of their vulnerability. Then, vulnerability of the poor, so for that reason, then decline of the dry and dry and dry land agriculture, so again now nowadays also due to some natural calamities, disaster etcetera.

There the land the dry land which are suitable for the agriculture that is also gradually decreasing, declining. So, competing the demand of for water. Again, water is again another important issue in you know if there are any that means, source of water, supply for the paddy field, for the agricultural land, for watering the plants etcetera that is the major factor.

If, that means there is no direct access to or other likely suitable access to water, resources, nearby river or canal or reservoir something like that. So, that is another difficulty for carrying forward this agricultural work. So, lack of water in the marginal holdings. Whatever worker, whatever water they are possessing that is very marginal for somehow to manage the things, that you know sufficient water is not available. So, that is another factor of not being able to perform carry on this agricultural works.

So, impact of reduce unemployment; reduce employment and the livelihood for the poorest. Now, in the due to different you know factors like you know urbanizations and the automatic; that means, computerized and automated, machines and you know digital platforms etcetera.

So, the type of jobs or the type of employments are also gradually reducing only the skilled man power, technical manpower, they are only getting the thing. So, that is the so that is where the employment the job opportunities are also reducing that has the direct impact on the livelihood of the poor.

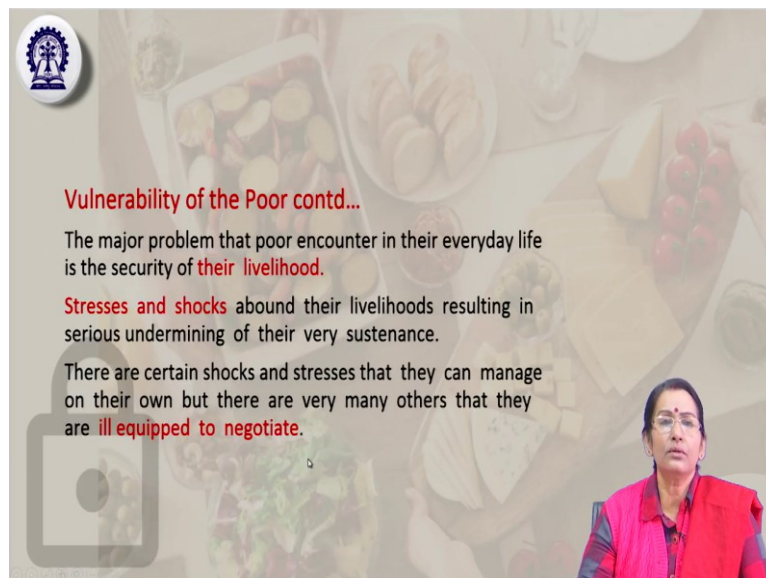
So, coping mechanism that seasonal unemployment, like for example, the rainy season. In rainy season the usually the labors they do not get work because, all the construction works, civil works are stopped in the during the rainy season. Only the only agriculture related some works are there, that is for the plantation of this you know nursery seeds etcetera. But otherwise, other kinds of jobs are completely shut down during this rainy season, heavy rainy season.

So, that is also the, that is also the cause of the seasonal unemployment. So, so and depending on the cultural factors as well as the geographical and climatic context or climatic factors also, some seasonal unemployment also takes place in every region, every state. So, health induced vulnerability is like for example, we due to the malnourishment, due to the poverty, severe poverty, lack of nutrition nutritional supplements etcetera and the health induced vulnerabilism.

That means, weakness; that means the a low immunity and all kinds of the regular; that means, weaknesses carries are being carried on. So, that is also another cause of the poor people they are not being able to do the hard work. So, impact of the ill health also. So, life cycle rituals like the you know so many things like the marriages, marriage ceremonies, rituals, pujas, death and all kinds of other such events major events in their life also that also causes the, that also causes the disruptions in the regular employment.

So, in the villages they are very much habituated to you know they are very much fond of all these kind cultural activities, seasonal cultural activities and the rituals. So, that also affects their employment or work prospects also.

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Vulnerability of the Poor contd...

The major problem that poor encounter in their everyday life is the security of **their livelihood**.

Stresses and shocks abound their livelihoods resulting in serious undermining of their very sustenance.

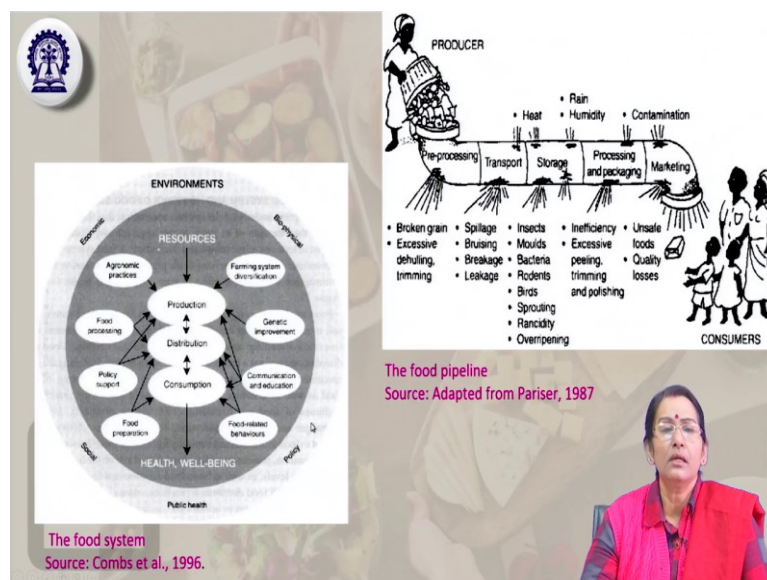
There are certain shocks and stresses that they can manage on their own but there are very many others that they are **ill equipped to negotiate**.

So, again the same to continue the same thing, so these are some of the major problems that the poor encounter in their day to day life. And the stress and the shocks abound also because of the stress continuous, stress of the you know lack of living, lively stocks, living stocks or the livelihoods and undermining. So, that kind of undermining their prospects, job prospects.

So, again so they it become it creates a kind of shock and the stressful situation for them. So, they are also they cannot find out because of the poor or the low education, liability, literacy or poor skill as poor skills and competency, low skills and the competencies. They are also not being able to you know negotiate with other you know other potential, potential landlords or the and small potential entrepreneurs or wholesales person it is self they.

They are not; they are not being able to negotiate with them regarding the continuous job prospects. So, that is as a reason or reason of this poor livelihood, poor poverty etcetera, the due to stress and the shocks. So, they are ill equipped to negotiates; that means, they cannot negotiate with other resourceful or powerful people regarding their jobs, their works, their wages or any kind of you know loans etcetera.

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So, this is the you can say this is the these are the pictures of like this is the idea, what is the food system? That is the food system like for example, here we can see first thing is that food production. The resources, and from the environmental resources then we food production, then how the food grains are being distributed, distributed among the stakeholders like starting from the wholesale market to distributor to vendors etcetera.

The distribution system of these agricultural products, then there after comes the consumption. Sure in this system, this is the; that means, this is the kind of flow. So, again production and distribution are also interrelated, distribution and consumption are related then, that relates to

health and well being; here again price also one effect is that one implication is the biophysical like the farming system etcetera.

Then, the genetic improvement, then the communication and education people, then again food related behaviours, all these are biophysical behaviours or activities. Here it these are being again influenced by the policy (Refer Time: 07:58) policy agricultural policy, food policy etcetera. And the it has the direct impact on the public health and here you can say the social system is also there within the environment from the environment the resources coming, but again under this domain that is economic and social implications are there.

Economic is that you know what is the agronomic picture, practices and policy things are there and privileges are available, resources are available, then the then food processing. What are the facilities, machineries, infrastructure, instrument for the foods approved food processing. Then the again policy support, policy support in the social aspect that is from the distribution to consumption again, the policy support and the food pre prepare.

What is that? Pre, this is a food preparation, food preparation. Food preparation, policy support and food processing these are the and these three things are directly related to all the three stages; that is production, distribution and consumption. So, here again we can say the farming system, farming mean diversify. How the farm farming system, the agricultural things are being diversified?

Then the genetic improvement, genetic improvement from one season to another season, what are the development and the improvement? Then the yes, communication regarding the you know communication from like the after the production, then direct communication with the you know distributors, with the you know wholesale market distributors and other agencies that is for the supply, for the supply and marketing and sale of the products even in the urban areas etcetera. So, these are the things.

So, this is the whole cycle of the food system from the resources to the health and well being and through all this how this production, distribution and consumption all these things are related to economic, social, biophysical and the policy matters, ok. So, here this is the flowchart of we can say, this is the flowchart of like food pipeline food pipeline that is from the producer to consumer this is the flowchart.

That is why I can say that from the producer it is coming to the pre processing stage; pre processing stage again, the broken grain, then excessive dehauling, trimming, all kinds of things takes place. Then there after the transport stage, transport stage again transport and storage; transport and storage these are being again these are being going through the heat chambers. Heat chambers to the optimum, heat optimum, heat and heat you know heat applications etcetera.

For the you know transport that is the spillage, breaker, breakage and the leakage, all kinds of things due to the due to transfer during the stage of the transport and the storage also. Different kind of things like the, these are the inside due to the damage because of the insects, bacteria, then birds and overripening all kinds of the then some of this in the storage also some food products are also being damaged. Then, there after the processing and packaging, processing and packaging.

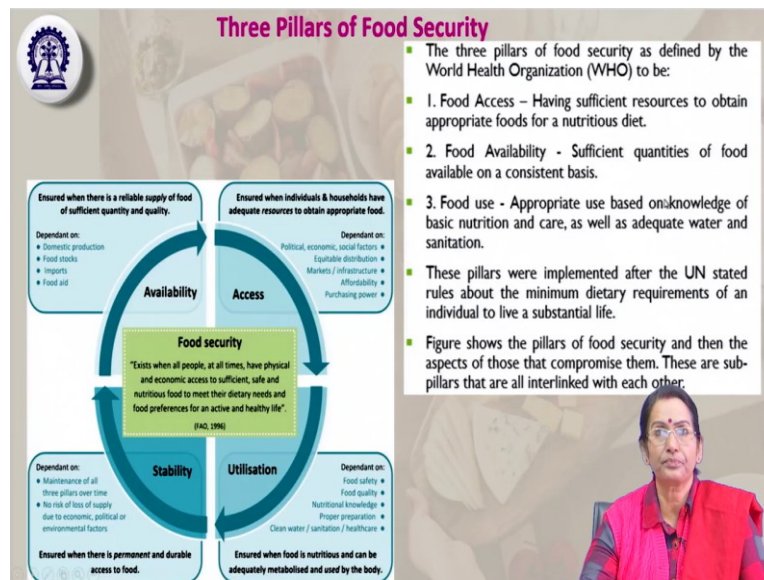
So, during this time again rain and humidity it has it is impact also rain and humidity as an another factor. So, here processing and in packaging stays also in efficiency, how these the why the how the packets are the food products are the being packaged you know package inefficiency then, and during this packaging inefficiency, excessive, peeling, trimming and polishing etcetera.

Or these are thing the things it should be optimum this these things also affect the foods during this processing stage. And there is also the risk of contamination; there is also risk of the contamination. After going through after the production, then after going through these four stages pre processing, transport, storage, then processing and packaging thereafter it goes to the marketing.

So, at that stage of the marketing again some foods are mean vary; that means, some percentage of foods are ready for the marketing that is fresh and are safe whereas, other percent of portion are unsafe foods, quality losses and the contaminated all lives and so. So, how to retain the maximum product products that is contamination free or you know or the how to ensure the quality, how to make it safe, that is again another challenge, so thereafter it goes to the consumption stage.

So, start production to distribution to consumption this is the flowchart and how the process. During this process; the lengthy will this process will be the food will be damaged and the contamination will be there is a risk of contaminations or quality loss will be there.

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So, this is the model of the food processing then, we will go to. So, there are the then the what three pillars of the food security. There are the primarily three pillars of the food security that is the stages that we have discussed that is production, then distribution and consumption. Similar pillars are, first thing is as per the WHO, 1st is the food access. Food access means, having sufficient resources to obtain the appropriate food for the nutritional nutritious diet.

Like suppose in the market if sufficient foods are available, sufficient varieties of foods and vegetables are available then, the customer must now will have the stakeholders, will have the food access of proper access to identify, to discriminate to find out to make a choice of what to buy what not to buy. Or how to stick to the appropriate quality and nutritious diets that they have the choose they have the options of the choice choices and the selection.

But, that is why for that reason the food must be available then food access would be sufficient, food must be available in plenty amount. Then the food availability, food availability sufficient quantities of the food available on the on a consistent basis, it is not just seasonal, it is not just festival oriented what every time all the time you know round the year the sufficient quantities of the quality foods are already available from different sources.

So then, the customer can have a choice. Then the food use, appropriate use based on the knowledge of the basic nutrition then, the consumers how they are buying the food products and how they are consuming and using it. With the you know and storing it, preserving at home

and using it without wasting the food. So, that is the that means, as well as the adequate water and sanitation here.

Food is also associated with proper water and sanitation and how the consumers they are using it after purchase, after buying the products how they are preserving it, storing it in the in their household and using it. So, that is the food use. So, these three pillars are implemented by the United Nations also and WHO. So, it shows that how this these this is these are the three pillars of the food security.

How can we ensure the safety and security of the food, that depends on these three pillars the conditions. Food accessibility, food availability and food use how the consumers are using it. So, that is how we can say. So, here we can see this the cycle of the food security that is the food security. So, that exists when all the people and at all times have the physical and economic access to different sufficient amount of quality foods that is the. So, here there are four things.

Access, availability, then utilisation and then stability another domain is the stability. So, that is the sufficient safe and nutritious food to meet their daily dietary needs and the food preferences for an active and healthy life. They have the sufficient choices, they have the sufficient access and available availability of the food to make a choice for the as per their food habits, as per their health requirements.

So, that is the. So, here availability, access, utilisation and stability these are the four important domains and under the access we can say, access dependent on the food access to procure the food it depends on the political, economic, social factors also. Like, now equitable distribution policy, then the market markets or infrastructure affordability, then you know purchasing power of the public all these things.

So, how to ensure that when the individuals and the households they have the adequate resources to obtain the appropriate food. Resources in terms of income, in terms of employment, in terms of financial capacity, in terms of you know to some extent also the good amount of; that means, education to identify to differentiate and to take a decision right decision what to buy, what not to buy and how to use the food properly access.

Availability as you can say, availability there is abundant it is there is an reliable supply of the food and sufficient quantity and quality also. There is a regular supply of food stocks from

different sources and it is also sufficient and the in terms of good and in terms of quality. So, that depends on the domestic production whether the farmers they are were producing it on their own food stocks, cold storages available in that area.

In what percentage of food stuff are being imported, that is import imported import policy etcetera. Then food aid, what are the aids they are getting from the different sources government and NGOs sources or world WHO or other international agencies sources. So, that is that the food availability on what ground like, this pandemic time.

You know for example, from time to time you can see that rations are being distributed among the poor people from time to you know as usually every usually every month bi monthly or monthly kind of thing. So, that is the because of the shortage the because of the food insecurity shortage of the foods the food.

So, their separate mechanism have been used have been started to distribute the minimum quantity or minimum amount of the food, minimum amount of the food and the food quantity of the food quality food to all the poor's in the village and the rural areas.

Then, comes the stability. Stability is that it depends on the how do we maintain. So, maintenance of all the three pillars, if all the three pillars are properly maintained then the stability is there. So, stability so there is no risk of loss of supply or the economic things or political effects etcetera then that is stability. But utilisation again, utilisation depends on, utilisation depends on that is the that is food safety, food quality, nutritional knowledge, proper preparation, then clean water, sanitation, health care. So, you after utilisation comes the stability.

After utilisation we can say the cycle is like that, once it is available then becomes accessible, once it is accessible then comes our utilisation how do we utilise it. if we purposefully, meaningfully and sustainably use it use this you d use it. So, then the something can be then again preserved, something can be preserved and the restored. So, after utilisation like during this use utilisation your use period food safety, food quality if it can be controlled.

The with must will if you have that sufficient knowledge for preserving the food products, proper preparation is there in terms of infrastructure, there is cold the sufficient cold storage, then go downs etcetera and sufficient. Then when there is a proper you know proper ensuring

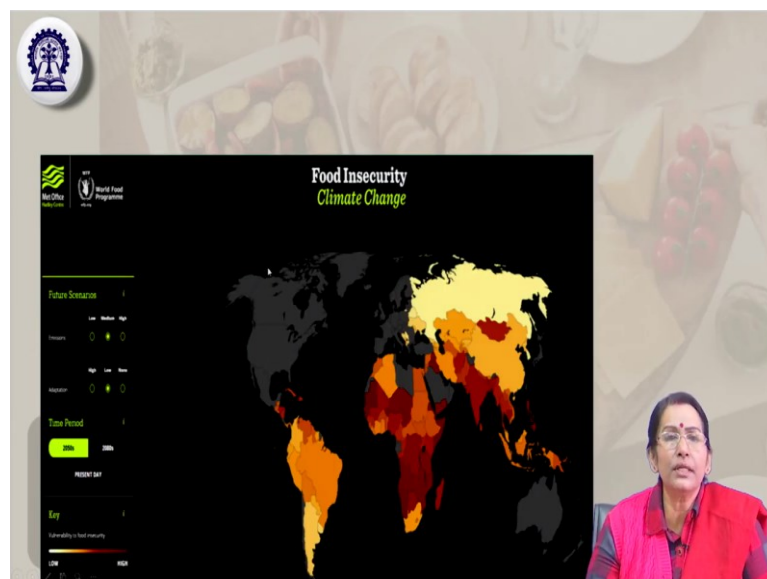
the food is ensuring that the food is nutritious and can be adequately metabolised with the you know clean water, then healthcare facilities.

That is a sometimes the preservatives may give by for preserving a preserving the food products for the long term. Then, using by using different mechanisms of you know techniques of preservation to preserve the food in terms of making sauce, making juice, making you know all kinds of the pickles etcetera and dry fruit is dry fruit is and the dry all kinds of things.

So, this is the after utilisation how to preserve it. Then, comes our stability that is called to ensure that whatever it is there it is permanent, durable, access to the food; that means, it has been preserved in safe in safely and wisely now it can be procured and it can be used for the long term for the rest of the year. So, this is the whole cycle of the food mechanism, food security mechanism.

And these are the three pillars, like from that is like production, distribution and consumption. Here food access during the consumption food access, food availability, food utilisation and thereafter the food how to save the foods foam food grains that is the stability.

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Then, this is the this is the food insecurity the vulnerability of different countries in this climatic change scenario. This is the picture like you can say that how some countries are vulnerable to food insecurity because of this you know because of the climatic change maybe excessive cold. So, in the as you can see this northern and in the North America and Canada these kind of cold

countries usually they import the foods from other countries, import the foods from other countries because of the climatic reason.

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Food Shortages and Waste

Which regions waste the most food?
Per capita food losses and waste, kg/year

Production to retailing | Consumer

Region	Production to retailing (kg/year)	Consumer (kg/year)	Total (kg/year)
Europe	~180	~100	~280
North America and Oceania	~150	~100	~250
Industrialised Asia	~120	~100	~220
Sub-Saharan Africa	~100	~50	~150
North Africa, West and Central Asia	~100	~50	~150
South and Southeast Asia	~80	~50	~130
Latin America	~100	~50	~150

Source: The Food and Agriculture Organization of the United Nations (FAO)

- Food shortages in developing countries are common. The people most affected are smallholder farmers and their families who depend on their own surplus to survive between harvests.
- The period leading up to a harvest is known as the "hungry season." Food from the previous harvest runs out and families cut back on meals. This period of time may last for months depending on the size of the previous harvest.
- Around the world families with very low incomes run out of money at the end of the month. Families cut back on how much they eat and then eventually skip meals altogether on some days.
- Another reason for food shortages is up to 40 percent of food grown in some countries is spoilage. Smallholder farmers do not have adequate storage facilities to protect their supplies against pests and weather.

So, there comes the food shortage and another thing is that food insecurity as a reason of the food insecurity is food shortages and wastage, food shortages and wastage. So, these are the which is the graphical picture, graphical data of you know which country wastage the waste the food, what amount of food? Europe this is the thing and North America.

So, these are the graphical things of you know which country which region wastes the most of the food, this is the graphic one. So, and food shortage again you know food shortage, why is food shortage takes place? Because, food shortage usually in developing countries these are very common. Why the people are not so informed not so informed or educated to learn about the new techniques and strategies of preservation.

And moreover, it also affect the small time farmers, small holder farmers whose families depend on their own surplus and surplus grains and survive between the harvest. But they do not know the exact mechanism of or they do not have the resources to preserve the all grains food grains. So, then again periodic again from periodic also sometimes these thing is happens because of the periodic. Like from one harvest to another harvest one harvest to another harvest the if they are there is a scarcity of food, then that is called the hungry season.

Hungry season that happens not because of the any climatic change or anything, but could as because the families family completely depends on that their own harvesting products. And throughout the year they cannot manage it, it actually it they consume it and it gets exhausted by after some months and the rest of the months unless and until the next season of harvesting takes place.

So, they become they that means, they are malnourished they are you know they are deprived of this kind of food items minimum, meaning somehow they are minima minimum kind of foods are they are getting or by doing some labor work, some other kind of thing, wage based works that they somehow manage. So, this period from one harvest to another harvest that is called the hungry season.

Because, of this harvesting that means time gap, so they are deprived of this thing. So, and another thing is that very low income of families world families with very low income also by that means, low income families, that means, below poverty pillars people who are in below poverty line. So, towards the end of the month actually they that their that means, they spend all the money all the they this they fall short of this money towards the end of the month. And they and they had meet they exhausted they spend all the money towards; that means, within the first two weeks or three weeks of the months.

So, that is why they usually towards the last towards the last part of the months they usually skip the meals, they eventually and eventually they you know they somehow manage the strive, they strive to get two meals together or they become dependent on some other you know other people around like the people of like the landlords or where they are working etcetera.

So, they eventually cannot meet their meals towards the end of the month as because they totally completely exhausted their money by the second or third week of the month. So, that is the that happens to the families who were who are very poor low income families. Then another reason for the food shortage is again the wastage, wastage of money.

So, around it is around found out around 40 percent of the food grown in the countries are being or 40 percent of the waste shortage takes place because of the spoliators because of the wastage. So, small holders farmers also they do not have the adequate storage facility, like they establishing a cold storage, preservation or the deep freeze deep freezer kind of deep freezing the things and all kinds of these.

They do not have the facility and the resources to store the and preserve the food grains etcetera and there is and again these things are the and without because of the lack of proper preservation and you know preservatives etcetera and the storage. So, they get wasted and the wasted. So, the food wastage like, for usually in the rainy season you know rainy season the vegetables and foods get spoiled and like for example, onions and things so many things.

Because, they become they got wasted wastage especially the green vegetables and the agricultural and the agricultural products because of the lack of proper storage facility and the proper resources I have been. Even the farmers individual farmers also in their household; they cannot manage to they cannot only in the natural processes they whatever they preserve. But in their from their own land whatever they produce either they sell it or consume it, but they do not have any mechanism to preserve it for the future use.

So, these are some of the factors of the food shortage so, food shortage and the wastage. Now, I am closing it here, thank you very much. Next class we will continue with this thing.

Thank you.