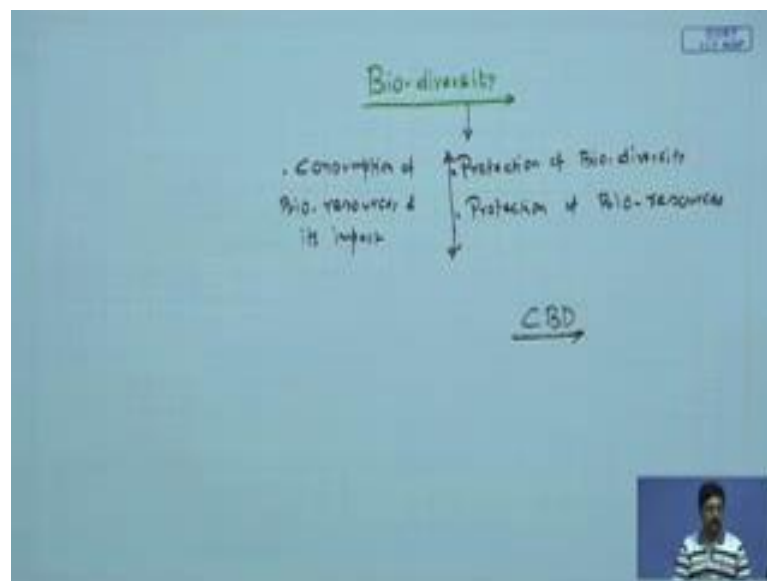


Introduction on Intellectual Property to Engineers and Technologists
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Lecture – 37
Bio-diversity

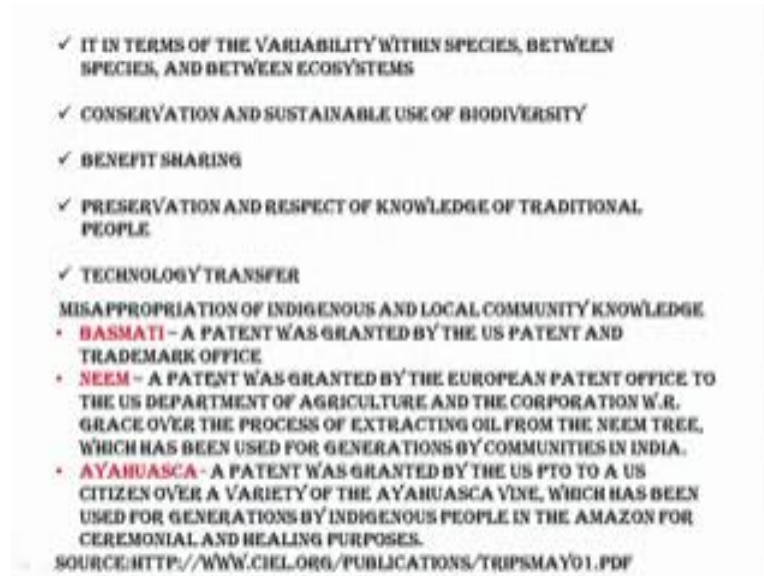
So, now we will discuss about another important area although it is not directly related to IP; but, is also somehow relevant with reference to the IP. Mostly relevant this area is you know this is a very growing area because protection of biodiversity is somehow we are telling the protection of biodiversity.

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Protection of biodiversity, not say IP biodiversity or protection of bio-resources; or, another part consumption of bio-resource and impact of bio-resources, and its impact. So, this part definitely you understood that, this is the concern in present day context. So, what is bio-diversity and how it has some relations with the IP? What are the different issues with reference to the bio-diversity? What is CBD and conservation of bio diversity? Then, if some country is a member of CBD, that is, what are the different areas CBD has mentioned and what are the issues still remains unresolved with reference to that?

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Now, if I ask, what do you mean by bio-diversity? Just like say take the definitions that, it in terms of the variability within species, between species and between ecosystems, just like say consider bio-diversity of Andaman or say particular island of Andaman. So, variability within species, between species and between ecosystems, there is variability within species, between species and between ecosystems. So, that leads to the bio-diversity. Variability within species, between species and between ecosystem, lead to the bio-diversity, so if I ask why bio-diversity is essential, whether for protection or for sustaining of the ecosystems or sustaining of those species or sustainability of a particular species or sustainability of ecosystem? I think the answer lies within that. So variability is required or variability is not required; definitely required for the sustaining of the species, sustaining of the ecosystem [FL].

So, now, we require definitely the species including that say plant based resources, animal based resources. So, now, all those things is creating a particular ecosystem; just like say you consider food chain in a particular ecosystem. So, if you some way refers within that chain, some thing is disturbed; that leads to the disturbance of the ecosystem; and, that will affect the bio-diversity of that region just like say of that region. So, if biodiversity is affected in larger consequences, it will affect the total ecosystems of that region maybe [FL]. So, we have told that conservation and sustainable use of bio-diversity. So, within the purview of CBD, we required that, just like I told you, consumption of bio-resources within that let us say this is also a species within the

purview of bio-diversity may lead to some impact; may keep some may impact some way the ecosystem and subsequently. And so, protection of bio-resources is required in reference to protect the bio diversity. So, that way we require conservation and sustainable use of bio-resource. What do you mean by sustainable use? Definitely within that bio-diversity, we have let us say considered a particular bio-diversity having different species.

So, now, the species is beneficial with reference to something; just like say again I am making with reference to the plant variety. Let us say the plant variety is an important component of that a particular variety, particular bio-diversity. So, now, you are somehow using that plant variety for sustainable development of the country. Sustainable means somehow just like a to make a balance with reference to particular things; just like say some type of sustainable development of a country; just like say sustainable development of with reference to the environment; just like how can you make a balance between the growth of industry and its impact on environment. Similarly, sustainable use; that way you use such a way that use will ultimately not hamper the bio diversity. But, use is required for maybe greater goal let us say food security.

So, considering that CBD perspective; so, that convention because let us say a multinational is somehow producing a just like destroying a bio-diversity by for generation of better greater or large number of bio resources. So, then what will happen? That bio-resources will be they will exploit the bio-resources and that will lead to the depletion of the bio-resources; that lead to the disturbance of the ecosystem; that lead to that ultimately will impact the bio-diversity. That bio diversity impact will ultimately lead to the impact of environment and other parts. Ultimately, the humans or will human beings will be also impacted because of the impact of bio-diversity. So, this conservation and sustainable use of biodiversity is essential. So, we require conserving the bio-diversity and also if we use, using it in the sustainable use bio diversity.

So, now, when you are telling the use, somehow the issues are coming up on components. Let us say particular bio-diversity belongs to a particular community. Why I am telling the particular community? That bio-resource they are nurturing over the year. So, that bio-resource is their traditional resources just like say given example let us say particular community in a tribal community in a let us say Western Orissa, they are having the knowledge of a particular species and its attributes of that species. And, that

species is an element of a bio-diversity of that area. Now, that species they know the species can be used; they may know or they do not; ignorant about that, but particular MNC they know that species can be used for generating some medicines or some chemical. So, then they will ultimately try to exploit that species or use that species, not in sustainable way; and, that will lead to the destruction of bio-diversities. But, if you want to use even sustainable way; then also, they may have to extract the knowledge about that species from that community.

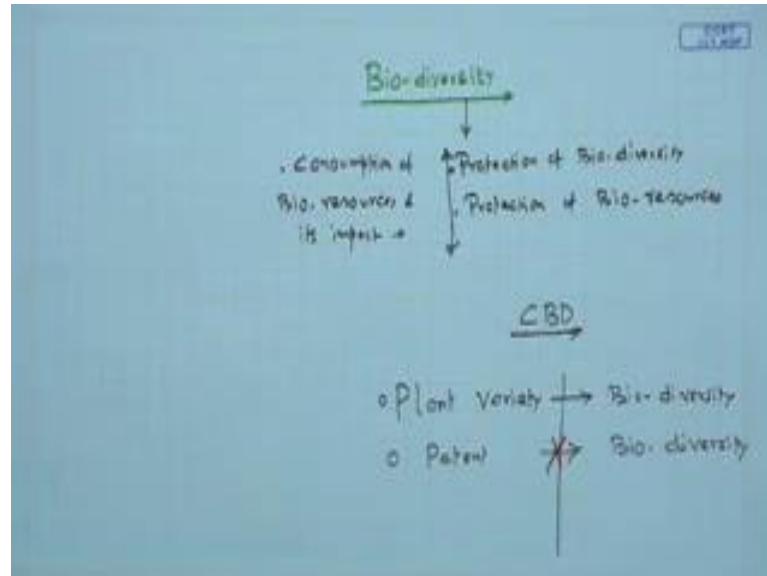
So, there lies the role of benefit sharing with reference to the bio-diversities. So, what is that? Just like say whether the MNCs or other entity when they will get the knowledge about that bio-resources from that community; whether they will get what type of return they will provide to that communities. So, that is called benefit means let us say they will use that resources for greater goal and greater benefit, and that benefit how they will shared with that community? Is there any mechanism for benefit sharing? That is the area of research what will be the appropriate benefit sharing mechanism with reference to the sustainable use of bio-diversities. So, these are the area of where let us say you understood that require further research.

Then, preservation and respect of knowledge of traditional people that I told you; that within respect of within bio diversity, a particular community have been also inhabiting over the years and community is nurturing with those bio-diversity. And, within that bio-diversity, the bio-resources and other resources are also there. So, now how they have so, that way we consider they have traditional knowledge with reference to those things. So, now, how that so that traditional knowledge will be preserved and respected. So, that is also the area within the purview of this topic bio-diversity. So, subsequent area; I will refer this thing again in respect of IP commercialization.

So, this area is also important. Let us say traditional people they have some knowledge; that knowledge you may consider in the purview of technology means they know how to extract particular chemical from a particular trees or they know how to extract particular chemical from an insect. So, definitely, there lies the attributes of technology. So, then, how that knowledge or technology will be transferred from that community to the MNCs? So, these are another area of within the purview of that. So, now, what we are getting that, bio-diversity is an important area, now, whether the IP will impact the bio-

diversity or not? Just like say I consider one part the plant variety; whether plant variety protections have any impact on bio-diversity?

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Question lies mean plant variety and bio-diversity. Similarly, let us say patent and bio-diversity. So, just like say whether IP means IP has an impact on bio-diversity? So, there we are thinking about these let us say these two forms: patent and plant varieties. So, considering that way, that IP is just like if I put a hypothesis, IP is some way disturbing bio-diversities; you may let us say multinational is exploiting some forms of bio-resources for their greater goal. Then, definitely that has an impact on bio-diversities. So, that way that bio-diversity definitely will be impacted by means of let us say patent. So, that way that bio-diversity and IP how can you make a balance between that? There lies these are different things; sustainable use of bio-diversities and this benefit sharing, and the respect of knowledge of traditional people [FL].

So, misappropriation of indigenous and local community knowledge in the form of bio-resources or its attributes; then ultimately the community will not get appropriate return. So, there are series of incidents are there. I will just cite one by one; where, that community or the say traditional knowledge may be in a particular bio-diversity, has an impact; and, how that has been attempt has been made to misappropriate that or misappropriate. You may consider the bio-diversities specifically. Just like say you know the incident of basmati. A company called RiceTec in USA; they tried to file a patent on

high yielding varieties of rice or miming at Rasmati kinds of thing, not basmati specifically. So, then just plant, because high yielding varieties of plant patent high yielding varieties of plant.

So, now, basmati is you know that, is also a part of our bio-diversity. You may consider in a particular region, it grows; it is our age old practice of cultivating and growing basmati. So, now, if a particular multinational get patents out of protected user patent, then our say bio-resource will be the property of a multinational company. So, considering that, say ultimately, that Indian community with taking the leads from an NGO they somehow tried to protect that from the tried to protect it from the hands of multinational. They somehow filed for re-examination and partly they have restricted the rights of over the basmati from a multinational company. So, some of the claims have been omitted from that patent specifications of that multinational company called RiceTecs. So, see that, there is an attempt where those particular varieties of plant that have been growing in an area in India; that way someway an attempt has been made to misappropriate that plant.

Then similarly, a Neem, Haldi, all are the things that are also a part of; we may consider bio-diversity or bio-resources in India. Attempt has been made to take patent protection of some of the attributes of those things. Just like say a patent was granted by the European patent office to the agricultural corporation over a process of extraction of extracting oil from neem tree, which has been used for generation by communities in India; see understood. So, neem oil you know that is a part of bio-resource or bio-based product in a traditional community in India. People have been using the neem oil for defined purposes just like say pain relief or other purposes. So, neem and its extraction of oil attempt have been made to get it patented.

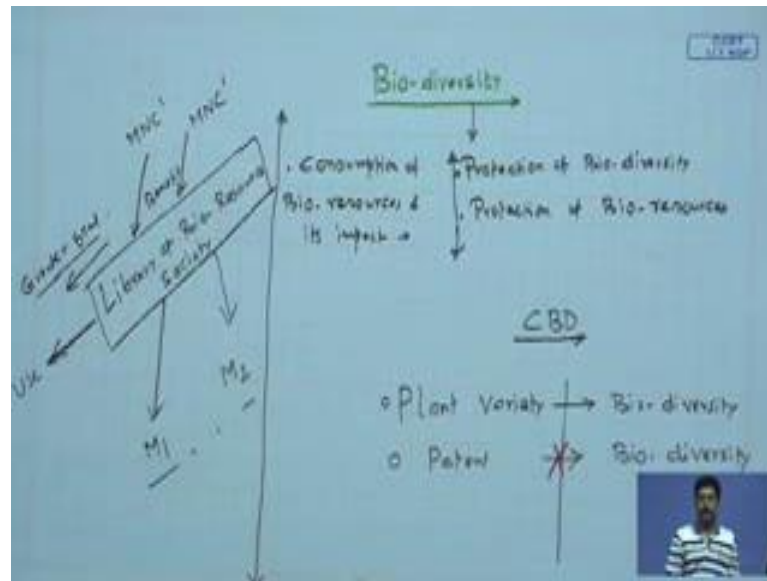
So, bio-resource based patent that definitely will impact the use of that bio-resources. And, that impact will ultimately lead that, ultimately will not lead to the non-sustainable use I will put non-sustainable use of bio-diversity or bio-resources, so that way. Then similarly, haldi just like you know that wound healing properties of haldi; that have been an attempt have been made to get patents to create some medicines out of haldi in European patent office. So, if that haldi is get patented, then ultimately our traditional community, who has knowledge of that bio-resource and its potential use with reference to the medicine with reference to medical treatment; then, they will not get what you are

telling this part benefit sharing. So, MNC will get benefit out of that. So, somehow that is the Indian communities with the help of some NGO, able to revoke the patents on haldi.

Similarly, that Ayahuasca the patent was granted by the US PTO to a US citizen over a variety of the Ayahuasca vine, which has been used for generation by indigenous people in Amazon for ceremonial and healing purposes. This is for USA, not say; these are the Indian communities that they are also see that; not only that is Indian community is hampered, the community nearest community of Amazon is also getting hampered, because of the use of bio-resources from a particular bio-diversity by means of patents on the hands of MNCs. So, that way the bio-diversity, bio-resource; see understood bio-resource can bio resource and its non-sustainable use, because why I am telling non-sustainable use? The MNC is trying to get patent; definitely, they will use it, not in a sustainable way; then, they will not give benefit sharing; they will (Refer Time: 23:03) no benefit sharing formula with reference to that. So, that will lead to the impact; both biodiversity will be impact and also will impact so, traditional knowledge or knowledge of the traditional communities.

So, if I now say that what is the impact, what is the importance of this area; I will say the importance of this area is what is why bio-diversity is important; but, and its interrelationship with reference to the IPR. So, whether IPR is somehow hampering the biodiversity or not; now, what are the different other means? Just like say we have to use for sustainable use of bio-diversities. How can you create a mechanism for benefit sharing of the community, who is also that, their livelihood also dependent; somehow this is important? Livelihood is also dependent on those bio-diversities. So, that way that, IPR say somebody say IPR. This hypothesis I told IPR is impacting the biodiversity and impacting the livelihood of the traditional community; then, what are the measures you will take to protect the interest of that community and with reference to the bio-diversities [FL]. So, that there lies the role of benefit sharing and conservation and sustainable use of bio-diversities specifically.

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So, now, how can I summarize this portion? Biodiversity what is biodiversity you have understood? This is a technical totally technical. How it is related to IP? Take the series of cases. What are the areas of concern with reference to bio-diversity, technology transfer, benefit sharing, conservation and sustainable use of biodiversity? How can you create a appropriate model for sustainable use of bio-diversities; research sometime you may create a model for sustainable use of bio-diversities just like say a library is for bio-resources in a particular area. Now, create a mechanism that, how bio-resource library of let us say (Refer Time: 25:53) library of bio-resource. So, now, that library; or, will the people MNC may, let us say MNC may access that bio-resources library of the bio-resources. And, they will ultimately use that. And, the library here you are correcting create a society.

Society will ultimately monitor the use that, whether use is sustainable ways or not that, monitor the (Refer Time: 26:41) Then, this society will get some benefit from this MNCs for the use of resources; and, this benefit will go to all the members. So, you may create this type of mechanism. And, that way this bio-resource also will be used for greater goal means bio-resource based product also people will get. Now, you know that, present day understood the Patanjali used and so, that part how the Patanjali and bio-diversity; similarly, ayurveda and bio-diversities. So, that is the area of research now ayurveda and bio-diversities. So, how so, that way you may create say commercialization framework of bio-diversities, bio-resources. How can you create a commercialization framework for

bio-resources or commercialization framework that caretaking that; that will take the conservation sustainable use of biodiversity is an important? And, how will you create a benefit sharing mechanism out of that.

So, this topic is really for research purposes. And, I will suggest you read series of research paper available on different internet resources including Elsevier's. And, see how you can create a mechanism for benefit sharing and mechanism for sustainable use of bio-diversities. Read CBD convention of biodiversities all those articles that is coming in the purview of this module specifically although, I have not gone in detail about that. So, let us close it here.