Environmental Impact Assessment
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Lecture – 019
EIA – Law, Policy and Institutional Arrangements for EIA Systems (Part-VII) Noise

Welcome to the course Environmental Impact Assessments. In this session, we will cover noise in our larger ambient where we are looking at the law, policy, and institutional arrangements for the EIA system.

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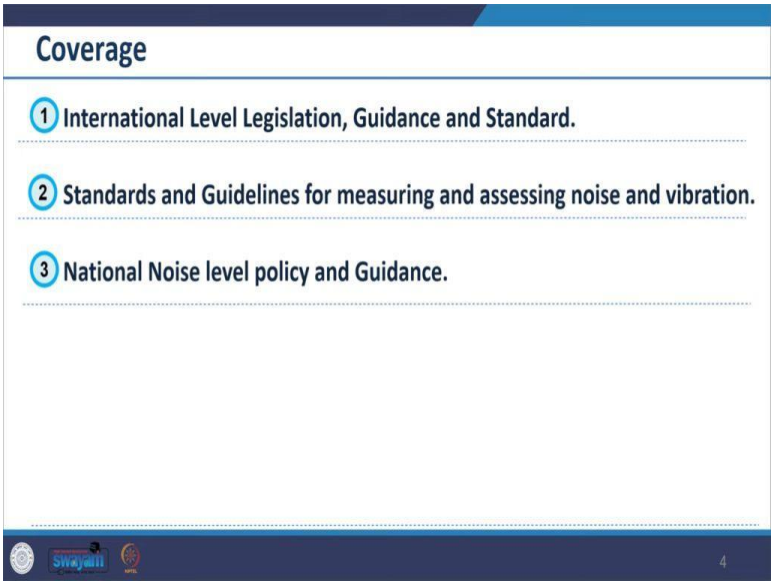

So, our coverage will include that, we are going to look at the international level legislation, guidance, and standards in these areas. Then we will look at the standards and guidelines, for measuring and assessing noise and vibration, which all are available and then, we will look at the National noise level policy and guidelines in the context of India.

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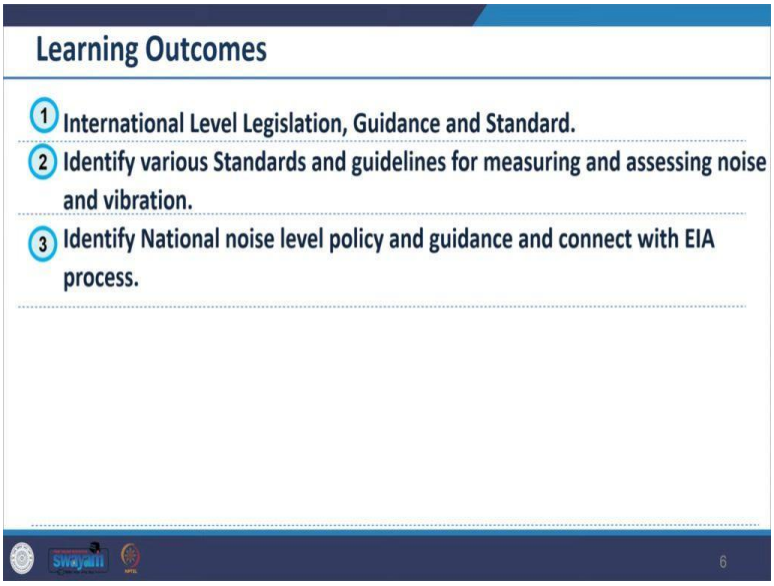

So, accordingly, our learning outcome, expected learning outcome would be that you should be able to list the international level legislation, guidance, and available standards. You should be able to identify various

standards and guidelines for measuring and assessing noise and vibrations. You should be able to like tell which standards and guidelines are there for what purpose, and then you should be able to identify national noise level policies and guidelines and connect all these to the EIA process.

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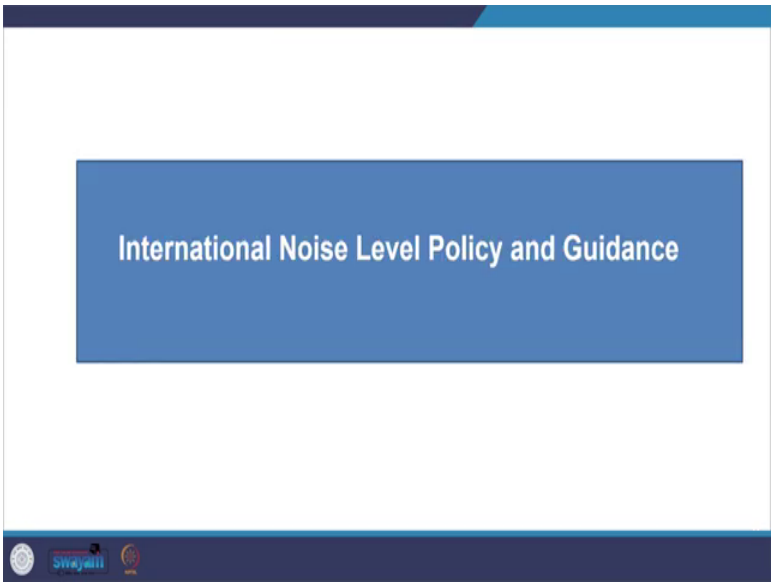

So, looking at the international noise level policy and guidelines. So, when we deal with noise assessments when we are dealing with it, the regulation varies a lot, and there might be a lot of variations from place to place, from country to country. Therefore, the environmental authorities should be consulted very early in the stage at scoping stage for the purpose of EIA, so that, whether it has to be included or not included, what should come in this.

So, generally, you would see that the policy and legislation concerning noise include the standards for noise levels. So, what would be the maximum noise level for those, the standards are prescribed, so that, is usually what you will find that, the standard, you will usually find in all the places, in most of the places.

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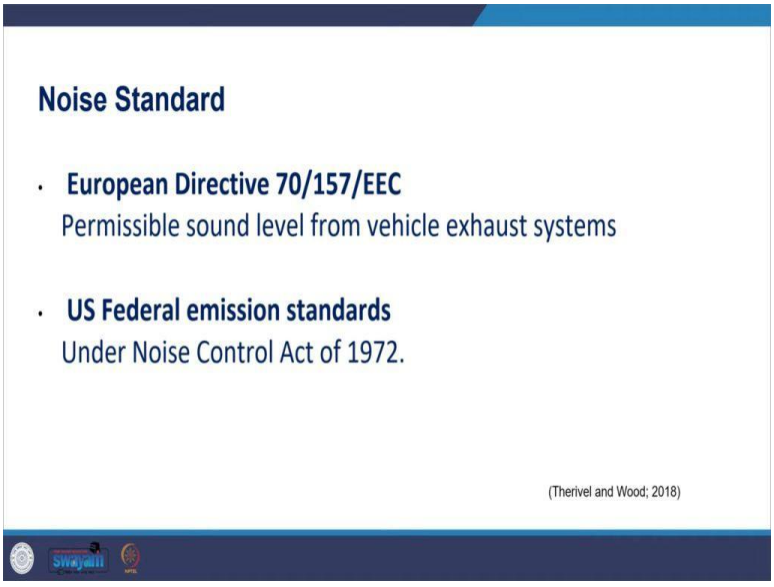

For example, you have a European directive relating to the permissible sound level from vehicle exhaust systems, or you would also find an example of US Federal emission standards set up by the Noise Control Act

of 1972. So these standards are theirs, which are very general standards and you would find them in many places.

There is another approach that is also taken apart from this standard for the maximum level, you would also find that countries can maintain or manage overall environmental noise levels as per the health impact. So, they would not set up the maximum level, but they would look at the overall environmental noise level.

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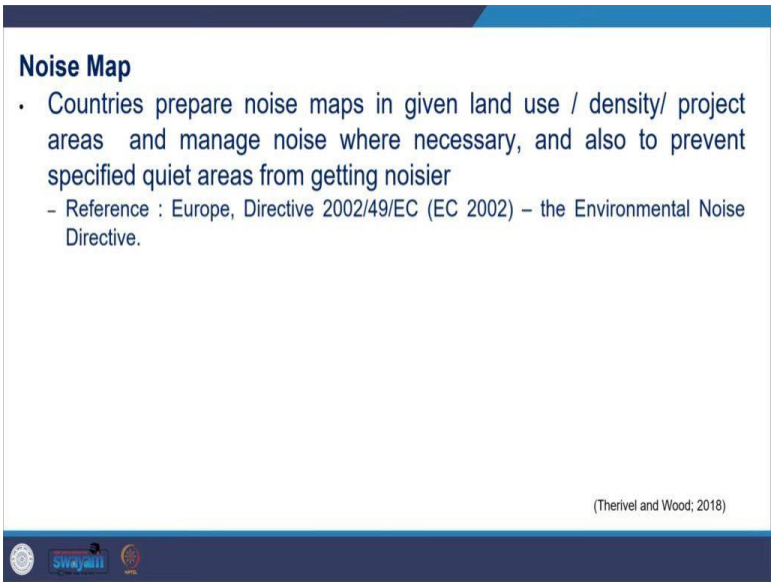

For example, in Europe directive, you see that, the environmental noise directive is there. Through that, it is required that countries prepare noise maps, especially in areas that are densely populated, or areas near the major transport projects. Or, if there are plans to introduce certain new projects, so there all the noise maps have to be prepared too.

There would be also designated areas that would be identified as quiet areas, and then it would be certain kinds of projects would be avoided in those areas. So, this approach of mapping and maintaining the noise level is also used. So, in this, they do not specify the quantitative levels rather a generalized environment is maintained.

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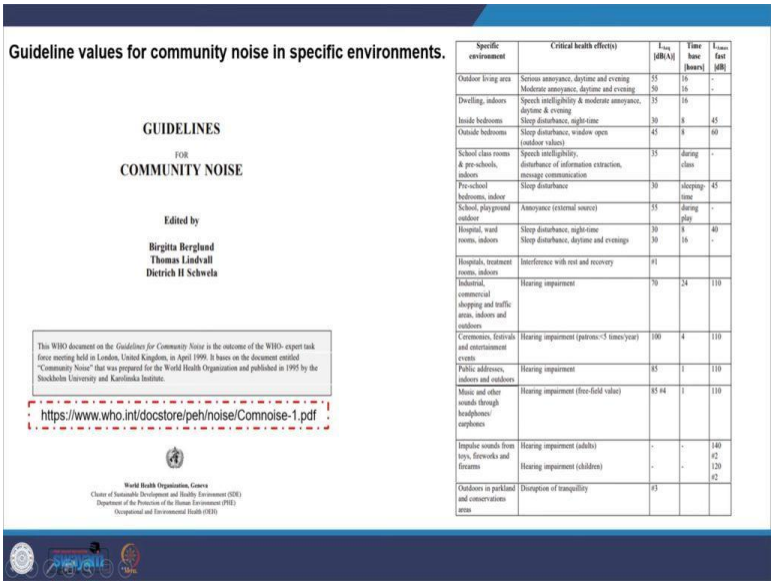

So, you would also find World Health Organization WHO guidelines for community noise, which especially gives noise levels based on health parameters. You can see different environments like those given in the

guideline, and now you can look at the critical health noise level. And you can see that all the measurements are given in decibels, decibel is the relative loudness of sound in air, as perceived by the human air. So, that, is how it is that, is the unit, and that, is what levels are prescribed here.

So, the guidelines, also recommend internal and external noise levels that, will prevent detrimental effects on a community, including rest, sleep, and work, that, require concentration among others. So, you see, how different for different activities also it is being determined.

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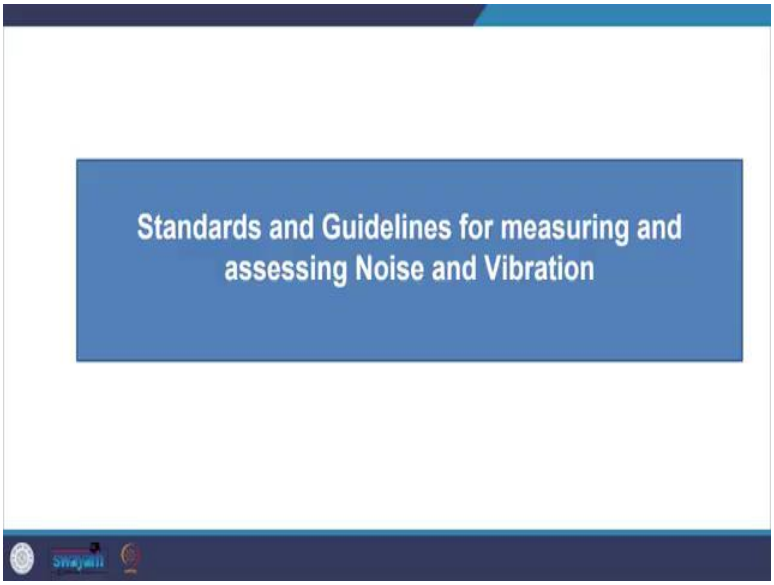

Now, looking at different standards and guidelines for measuring and assessing noise and vibration. So, you see that you have international standards like ISO 1996 to 2007.

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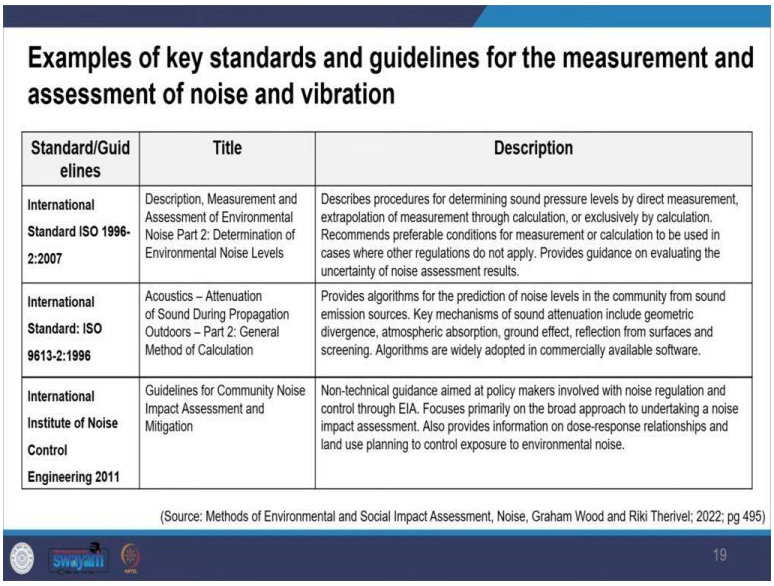

So, here you see this is meant to like it provides procedures for determining sound pressure levels by direct measurements. Then, you also can do extrapolation of measurements and undertake calculations, or by the like completely you can take it through calculations.

It also provides recommendations for preferable conditions for measurements or calculations and so on. So, this particular international standard can be used for this purpose, then you also see another international standard ISO 9613-1996, so, which is related to the acoustics attenuation of sound.

So, you see that, it provides algorithms for the prediction of noise levels in a community from sound emission sources, so all these standards can like all these algorithms be used. Then you also see the International Institute of Noise Control Engineering 2011, which also provides guidelines for community noise impact, assessment, and mitigation. So, this is provided and this gives you non-technical guidance, especially aimed at policy for the policymakers, who are involved in noise regulations and control through the EIA process.

So, this guideline is also available. This primarily focuses on the broad approach to undertaking noise impact assessments, so, how you can do that, assessment. It also provides information on the dose-response relationship and how land use planning can be taken care of to control more noise exposure.

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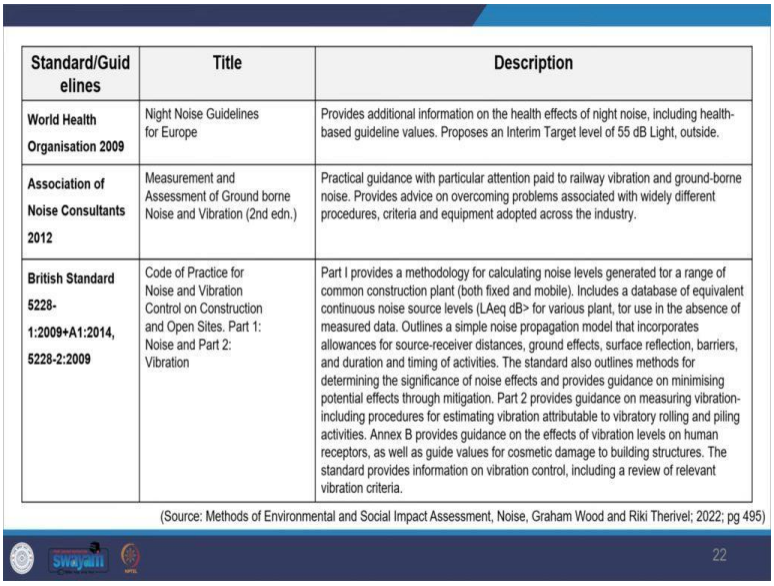

You also see the World Health Organization guideline, which also gives information additional information on the health effects of night noise. So, what could happen, then you also see the association of noise Consultants 2012. They provide measurements and assessments of ground-borne noise and vibration.

So, this is practical guidance with particular attention paid to the railway vibration ground-borne noise. It also provides advice on how to overcome these problems and what could be the mitigation strategies for this. You also find British Standards which are like the Code of Practice for noise and vibration control on construction and open sights, so, this is also available.

And in this, has many parts, and then these parts provide a methodology for calculating noise levels, generated for a range of common construction plants like those construction work, which are both fixed or mobile, so it provides that, Further, you see part two, another part guides measuring vibrations, including what kind of procedures have to be used for estimation of vibration, and so on. So, that, all is provided in this British standard which can be used for noise estimations impact assessment.

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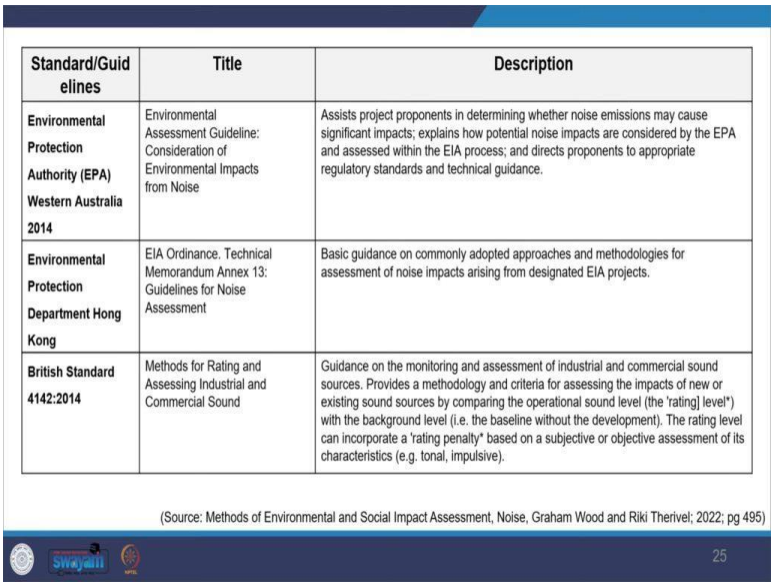

Then, you also see the Environmental Protection Authority EPA Western Australia also giving Environmental Assessment guidelines and Consideration of Environmental Impact assessment from the noise perspective. So, they also come up with a guideline. So, these particular guidelines assist the project proponents to find out whether the noise emissions may cause significant impact or not, so, these guidelines are available. And they explain how potential noise impacts or is considered in the environmental protection by the Environmental Protection Authority, and how this assessment has to be done within the EIA process.

So, all, guidelines are provided to undertake the study. We see another which is like the Environmental Protection Department Hong Kong, which gives EIA ordinance. So, it provides the ordinance, which gives the technical memorandum and guidelines for noise assessment, so noise assessment can be done through this.

It also gives assessments of noise impacts and different kinds of impacts, which might happen because of the nature of the project. So, all those things are provided here. For the industrial and commercial sound, how you are going to rate it and how you are going to assess the noise level and the impact is given by British standards.

So, this standard guides how to monitor, how to assess industrial and commercial purposes. It also gives you the methodology for this and then the criteria for how this can be done, and how these existing sound sources can be taken care of by comparing the operational sound. The British Standard gives guidance on the monitoring and assessment and it also provides you the methodology and also provides you the criteria for assessing the impact.

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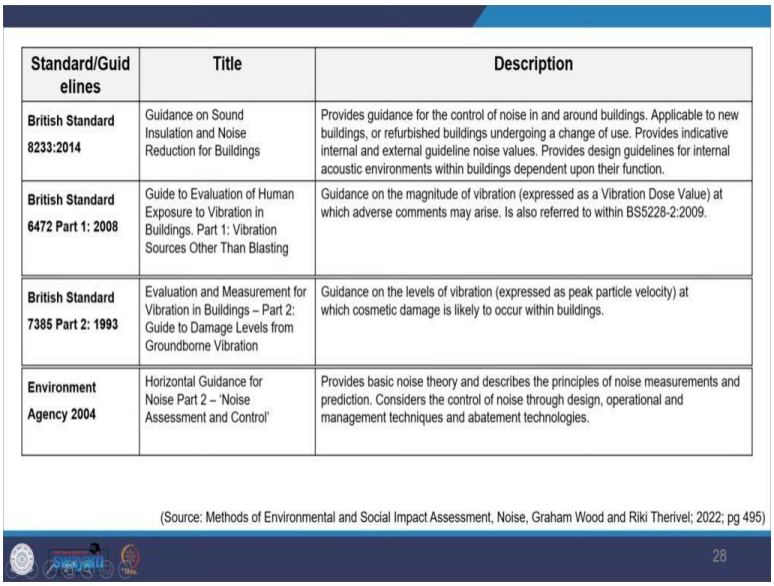

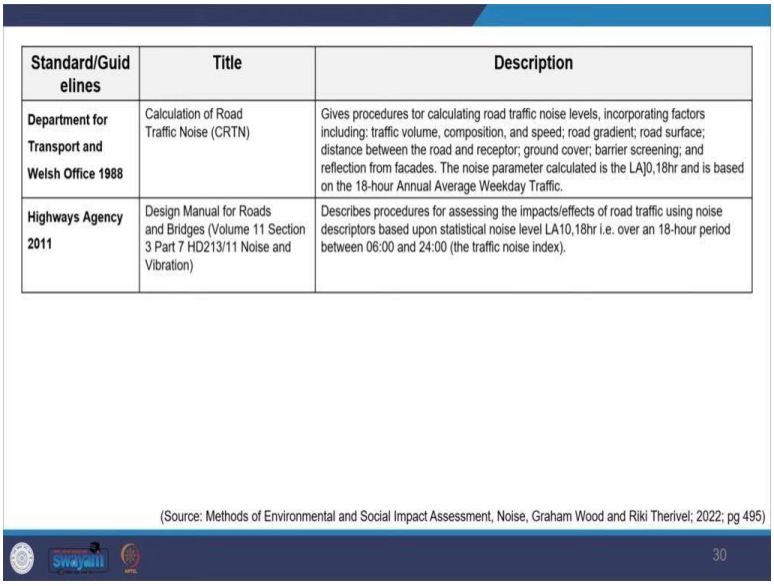

So, you also find other British Standards for guidance on sound insulation and noise reduction for buildings. So, this provides guidance for control of noise in and around the building, how the noise has to be, and how you can control that noise. And then this guidance applies to the new buildings and then also the refurbished buildings, which are changing. It also provides indicative internal and external guidelines for the noise values that have to be maintained and the design environment that has to be maintained in this.

You also see the British Standard of 2008 which provides you with the guide to the evaluation of human exposure to vibration and buildings. So, what happens to the exposure, it gives you guidance on the magnitude of a vibration as per the dose value, at which the adverse impact would arise. So, those things are provided here. Further, you can see another British Standard of 1993, so that, gives you evaluation and measurement for vibrations in buildings. So, it gives you guidance on the levels of vibration, and then what kind of cosmetic damage is likely to occur within the building.

Then, also you see environmental, Environment Agency 2004, which provides you with horizontal guidance for noise, and noise assessment control. So, it provides basic noise theory and describes the principles of noise measurement and prediction, and how you can control it through design operations and management. And then it also gives you different techniques and other technology for reducing it. You also see the Department for Transport and Welsh Office gives you the calculation of road traffic noise, so, it helps you to calculate that.

So, it gives the procedure for calculating road traffic as well as noise levels. It also gives you incorporation factors including traffic volume, what factors have to be included, what compositions one has to look into the speed, and all these considerations: road gradient, road surface, how these factors have to be taken into consideration, so all those are given in this particular guidance. Then, you also see a highway agency, which provides you design manual for roads and bridges. So, it describes the procedure for assessing the impacts, and effects of road traffic, and then how you can use noise descriptors based on the statistical noise levels.

So, it gives you guidance on that, So, all of these can be referred to while you do that, and more we will see when we do the method section. So, these are the standards, range of standards, and guides you see.

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We also find International Finance Corporation which provides the. We have been seeing how IFC has been giving standards for several aspects. So, you see it also provides for the noise level, so, they have performance standards. It gives you the international benchmark for environmental and social risk management and it has specific reference to noise in its performance standards one, two, three, and six. Then, we see that 1.7 of the IFC also considers the environmental health and safety aspects of EHS guidelines. So, that also provides information on noise assessment and management including absolute noise level limits.

So, this is also available to help with like how to go about the assessment process. So, this guidance is useful for operational noise impact in particular, and I like measuring it during the function of the project as it provides a reference for these stationary noise sources. So, what IFC provides is much more useful for the operational noise impact compared to the mobile noise impact, because it provides references from the stationary noise source. So, you cannot use it for mobile purposes. So, you cannot use it when you are dealing with transport or mobile noise sources, for your measuring for mobile noise sources.

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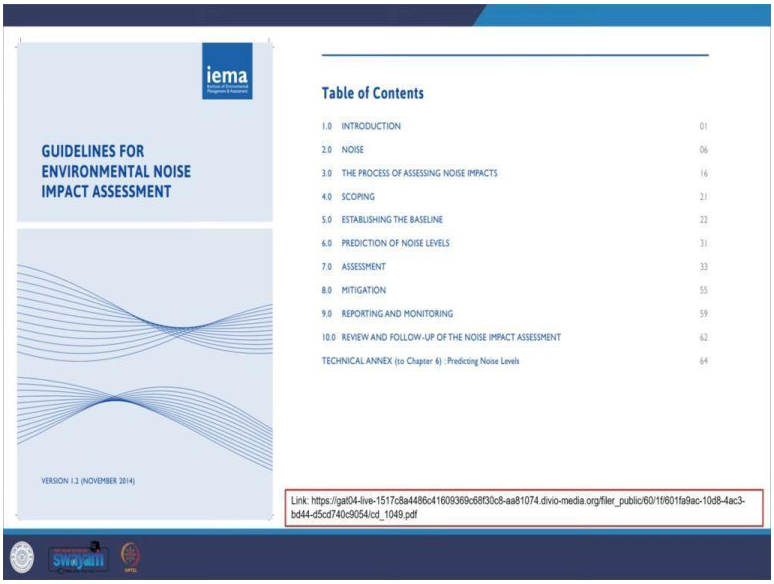

Furthermore, we find that is also very useful for EIA purposes is the Institute of Environmental Management and Assessment IEMA, IEMA guidelines for environmental noise impact assessment. So, they have specific guidelines for undertaking environmental noise impact assessment. In this snip of the guidelines you can see here that, it provides advice on how to do the noise assessment at the scoping level then, it also helps you to baseline noise environment. Then, also how you can predict changes in the noise level because of the development, and then how you would evaluate the entire impact, and how you would evaluate the significance of the impact it would have. So, all that is provided here.

It is also advised to include the sensitivity of the receptor, and then the frequency, and duration of noise sources, and the time of the day. You will study more in the method section. So now, looking at the national level policy and guidance. There are many statutory provisions related to noise pollution in our country. These provisions are spread across various laws. It is not just one law, but across the laws like, you have studied primary and secondary laws, which are there, policies which are there. So, it is spread across various laws and amendments.

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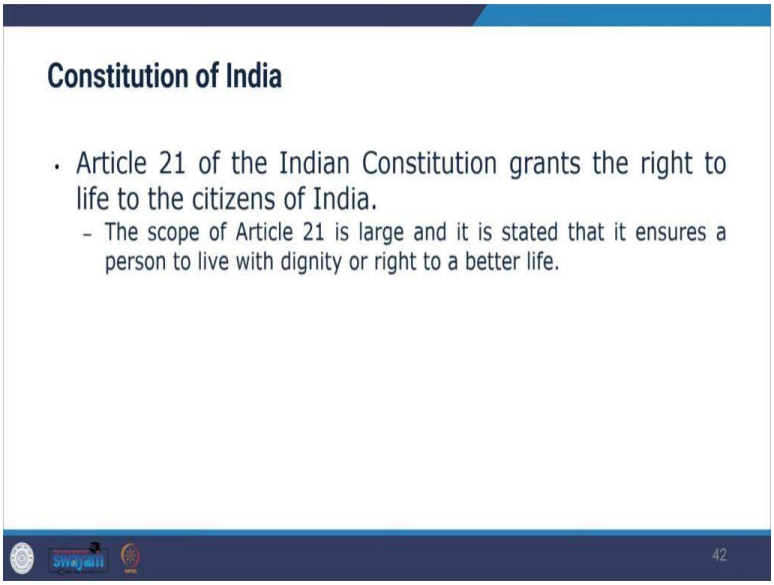

Various statutory provisions we can see are like, you have one is Article 21 of the Indian constitution, which grants the right to life to the citizens of India. So, through this, through the Supreme Court pronouncement, it has been made clear that the right to life does not just mean the mere existence or survival of a person. But, it also, addresses the quality of life, dignity right to a better life. So, under that, article, it is also it is covered

primarily under the Constitution of India. And so any person who faces a problem due to noise pollution disrupts the person's peace and comfort then, it means the noise pollution is violating a person's right to life, so, that, also you see.

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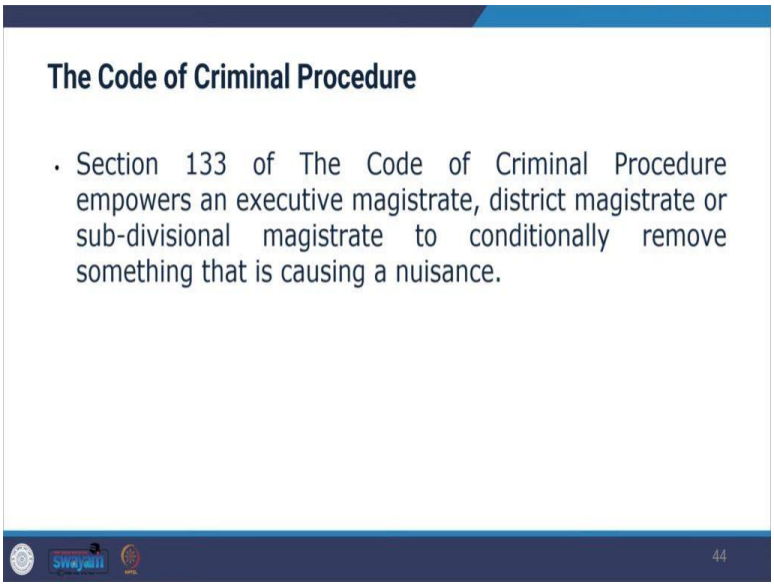

Then you also see the Code of Criminal Procedure. So, you have section 133 of the Code of Criminal Procedure, which empowers the executive magistrate, district magistrate, or sub-divisional magistrate to conditionally remove something that, is causing a nuisance. So, that is there.

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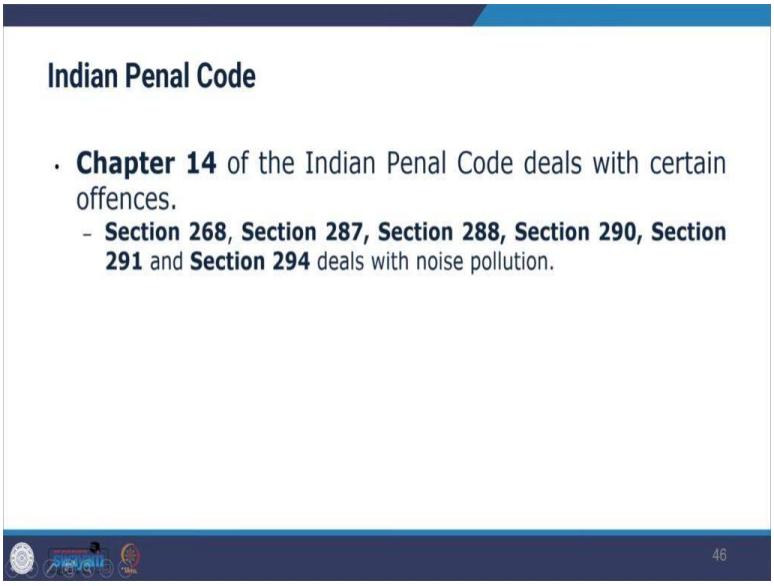

Then, you also see Indian Penal Code chapter 14 deals with certain offenses, such offenses can be any action that, affects public health and safety. We will see that, numerous sections 268, 287, 288, 290, and 294 deal with noise pollution.

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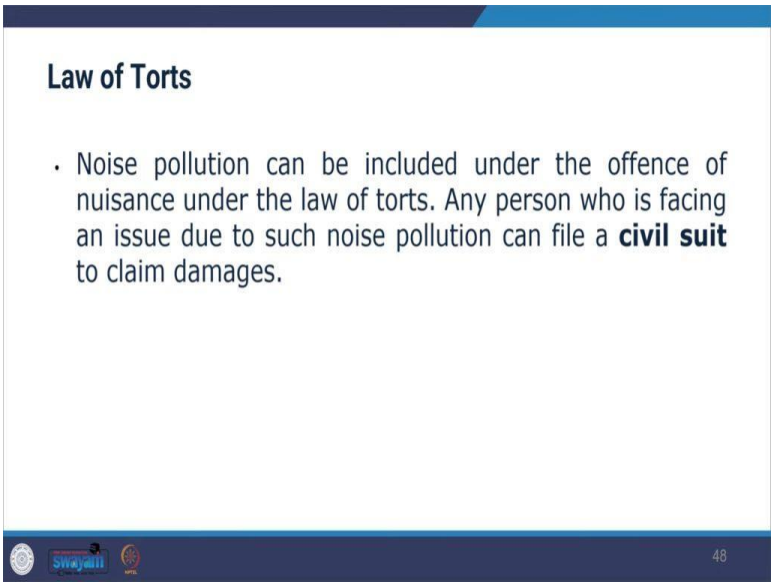

So, there is also the law of torts. Noise pollution can be included under the offense of nuisance under the law of torts. Any person who is facing any issue due to such noise pollution can file a civil suit to claim damages. So, you need to see, how these things can impact your assessment procedure, the legal status of your assessment, or the running of your project.

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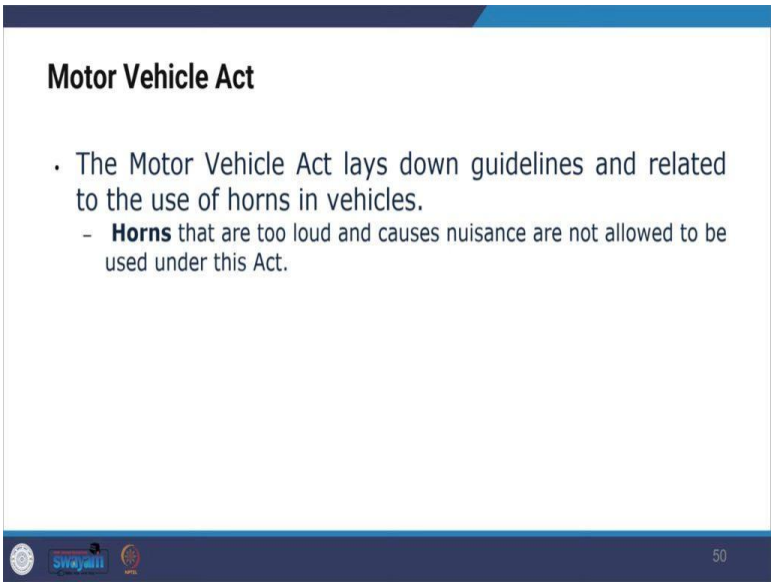

As well as you see, there is also the Motor Vehicle Act, which puts the guidelines related to the vehicles, honking, and all those things.

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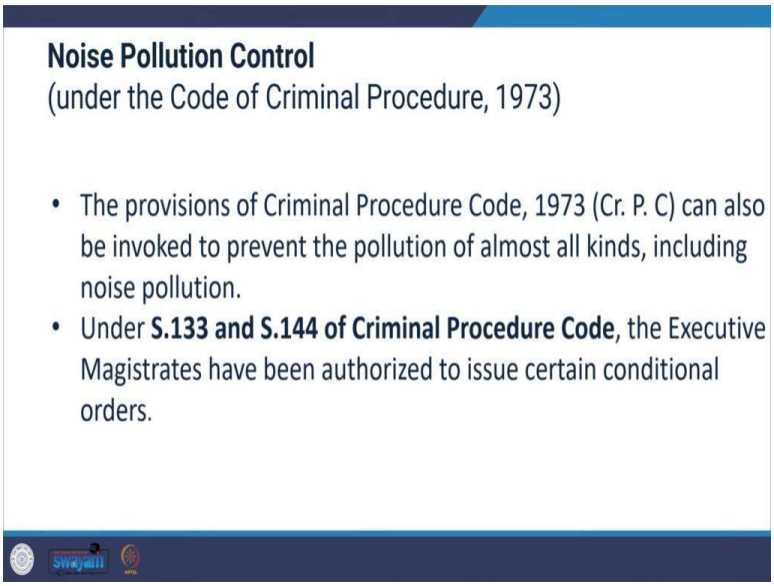

So, you will also find noise pollution control under the Code of Criminal Procedure 1973. So, this provision of the Criminal Procedure Code can also be invoked to prevent pollution of almost all kinds including noise pollution.

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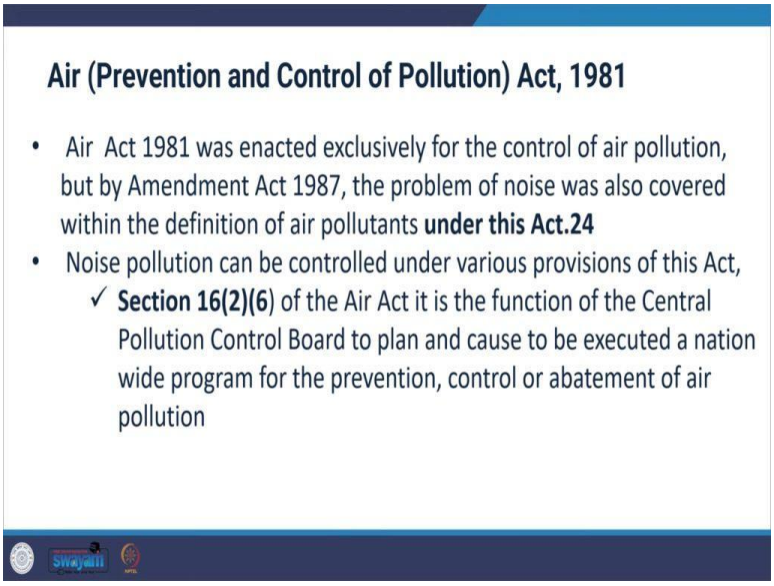

So, we see the Air Prevention and Control of Pollution Act 1981. So, this Air Prevention and Control of Pollution Act originally had air as a main concern, air pollution as a main concern, but it was in 1987. The problem was noise was also covered within the definition of air pollution. So, noise pollution can be controlled under various provisions of this act, there are several provisions which are made. And CPCB takes care of and develops these standards in this regard to how to prevent it, and how to manage it.

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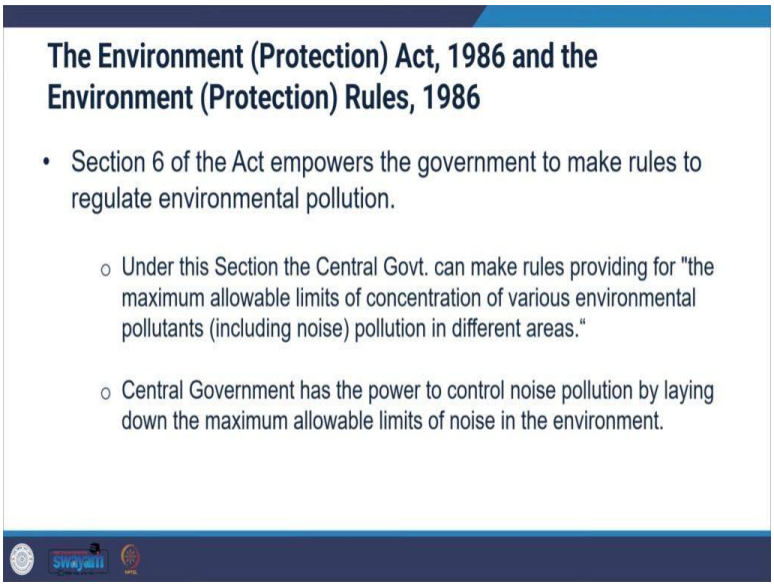

We see that, the Environmental Protection Act 1986 and the Environmental Protection Rules of 1986. Within this also, Section 6 of the Act empowers the government to make rules to regulate environmental pollution. So, under this section, the central government makes rules providing the maximum allowable limits of concentration of various environmental pollutants, including noise pollution in different areas. So, according to that, the central government has enacted an environmental protection rule, which provides maximum allowable limits of various environmental pollutants, including noise.

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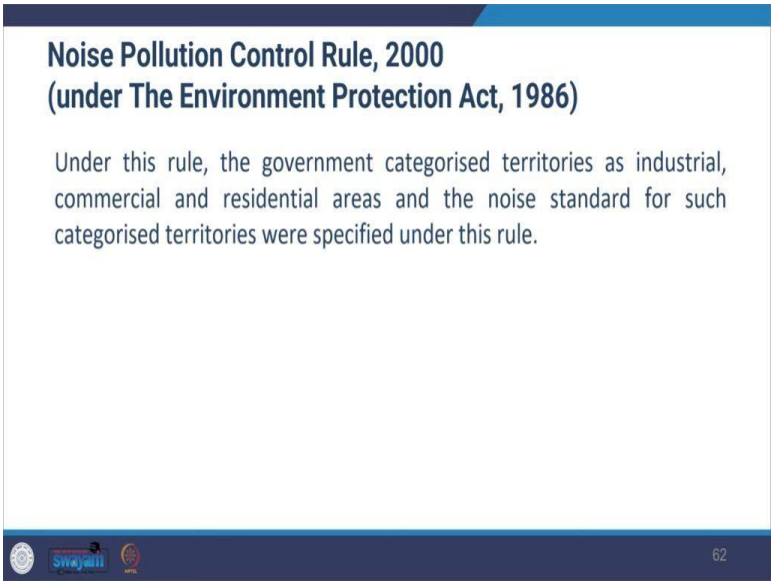

So, looking at Noise Pollution Control Rule 2000. So, this is under the Environmental Protection Act 1986. So, the Noise Pollution Control Rule was amended in the year 2000 by the Indian Government, to tackle and restrain noise pollution, and it was made part of the Environmental Protection Act 1986.

So under this rule, the government categorized territories or industries, commercial, and residential areas, and noise standards for such categories and it was specified. There were also buffer areas that were demarcated around like hospitals, schools, universities, and the court premises which needed to be taken care of.

So, looking at the Noise Pollution Regulation and Control Rules of 2000, we see that, the noise pollution Regulation Control Rules of 2000 have been enacted to regulate the level of noise pollution in urban areas, including the metropolitan cities from various sources of noise pollution.

So, looking at the objective of this, the purpose of this is that, it makes rules to safeguard the, to reduce the increasing ambient noise level in public spaces. Because of the industries, construction activities, generator sets, loudspeakers, public address systems, music systems, vehicular horns, and other mechanical devices.

So, to curtail those noise levels, it makes provisions, and it finds it necessary to regulate and control noise-producing and generating sources. The purpose is to maintain the ambient air quality standard concerning noise.

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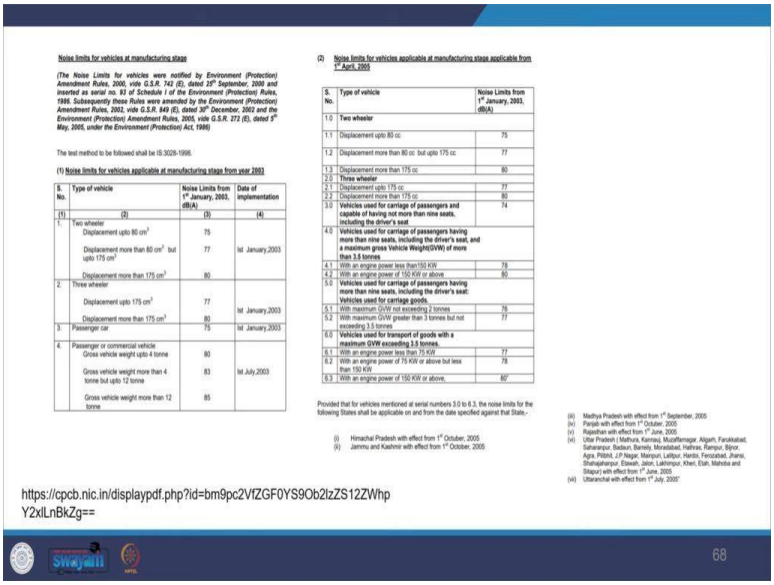

CPCB provides standards under the provision of the Environmental Protection Act 1986. You can see here, the Gazetteer notification, which shows the noise limits for vehicles, link is also provided for reference purposes, you can see. You see how those are for different types of vehicles, two-wheelers, three-wheelers, passengers, cars, and other things, and then the noise limit is provided here. And from when it is applicable for the applicable is mentioned here.

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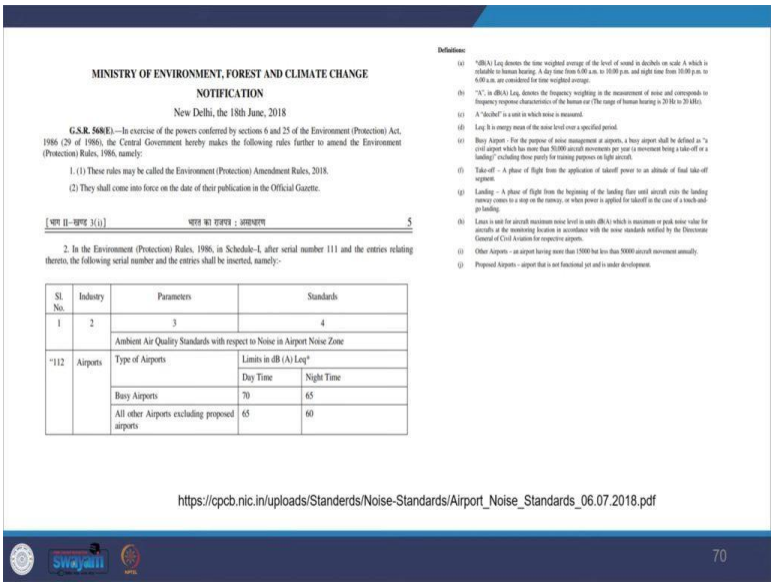

You can also see noise limits for airport daytime/nighttime limitations, definitions, and nodes for existing and proposed airport infrastructure. It has provision for airport noise mapping as well like you saw in the other country, and there is also protocol for measurement also provided, and guidance for development, and regional authorities also how to undertake, how to take care of all these concerns. So, you can see here for the airport and all the definitions involved here, and the link is also provided to you.

So, CPCB also provides noise levels for generator sets. It also provides an authorities list for implementation of noise rules, so that, all is also given here, so, the institutional setup also can be seen. And then in addition to that, the policy mechanism like how different areas are taken care of.

So in India, we see that CPCB in association with the state Pollution Control Board has established a national ambient noise monitoring network. So, in these seven metropolitan cities namely Bengaluru, Chennai, Delhi, Hyderabad, Kolkata, Lucknow, and Mumbai. In these cities, nearly 70 noise monitoring stations are made operational to regularly keep the data and the record. So, you can also use these data sources also for when you are undertaking EIA process.

CPCB has prepared a methodology for formulation of the noise mapping. Then, we also see like that, was that, was about a country. We also see that there has been intervention in linking noise policy, land use planning, and noise guidance. So, we see for example, from England here we see that, how national policy in England links to land use planning and related noise guidance. So, in this, they have taken a very unique approach to avoid having to prescribe specific quantities of things.

But then rather, they have worked out on like working out the toxicology to support the interpretation of significant adverse impacts. So, they have developed toxicology, where rather than recommending one particular number, they would look into how one particular noise, the noise which is created, what would be the adverse impact of that, particular noise. So, you can see there. And then they have also developed a framework guidance, the National Planning Policy Framework, which puts the government's land use planning policies for England, and how these are expected to be applied for decision-making.

So, all these frameworks are also provided here. This helps in making decisions regarding how to avoid noise, how to avoid the significant adverse impact of that noise, and how to mitigate, reduce, and minimize any other negative impact on health and quality of life. So, all these National Noise Policy and Guidance Frameworks provide this. So, while you assess this, you might note some of the terms like no observed effect level no L, where the level below, where you get the levels which are below, where there is no detectable effect on the health and quality of life due to the noise.

Then, you also see low L, which is the lowest observed adverse effect level. So, the level above which adverse effects on human health and quality of life can be detected. So, those are identified here and then you also have a term, L which is a significant observed adverse effect level. So, the level about which significant adverse effects on health and quality of life can occur, so that, you can take care of.

So here now, most of the guidance has started avoiding prescribing specific levels but, rather having an approach of assessment that guides what kind of interventions have to be taken and allows assessments of any particular development in the ambient environment.

And then, there is also planning practice guidance, which provides additional guidance on how planning can manage, potential noise impacts of new development. Indicating that planning authorities should consider, whether or not a significant, negative impact is occurring, and whether or not the adverse effect is occurring or likely to occur. Or, whether there is a good standard of amenities can be achieved or not so all those guidance are provided.

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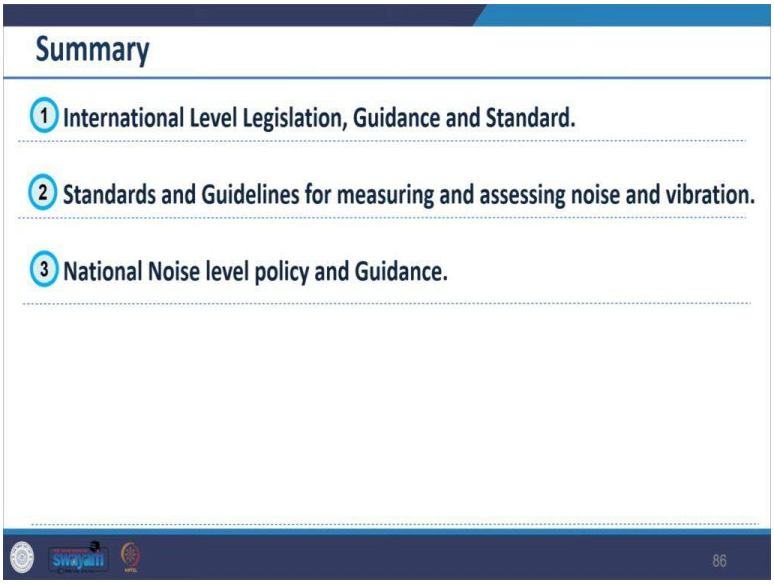

So, this is what we saw today. To summarize, we looked at the international level legislation, and guidance. And we looked at the standards and guidance for measuring and assessing noise and vibration. Then, we looked at the National noise level policy and guidance in this and then we also looked at certain changing scenarios, how people are addressing it, how countries are addressing this, their approaches are changing.

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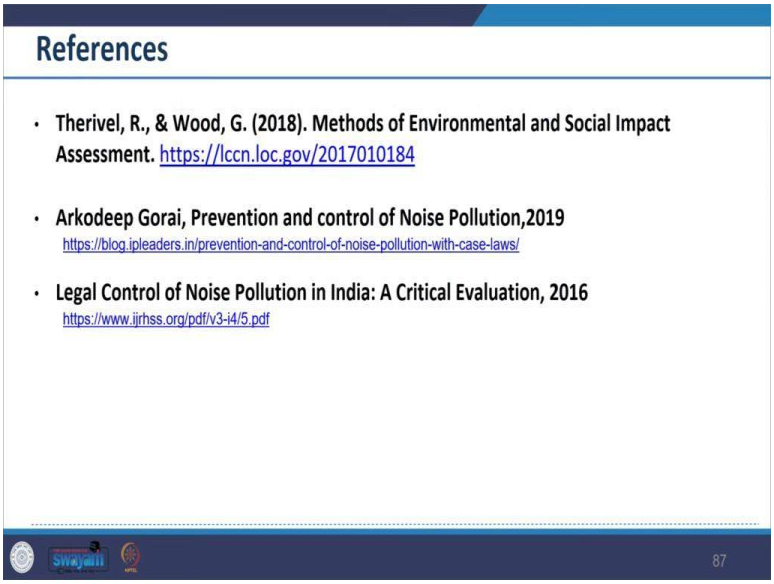

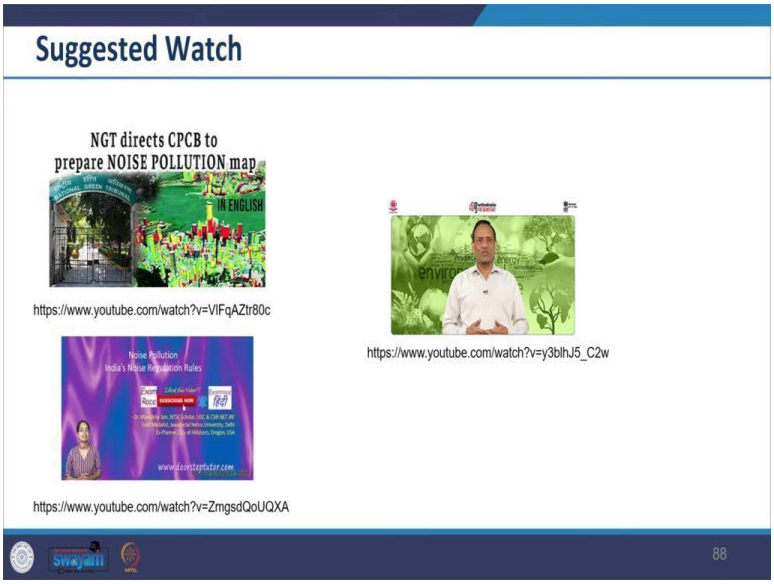

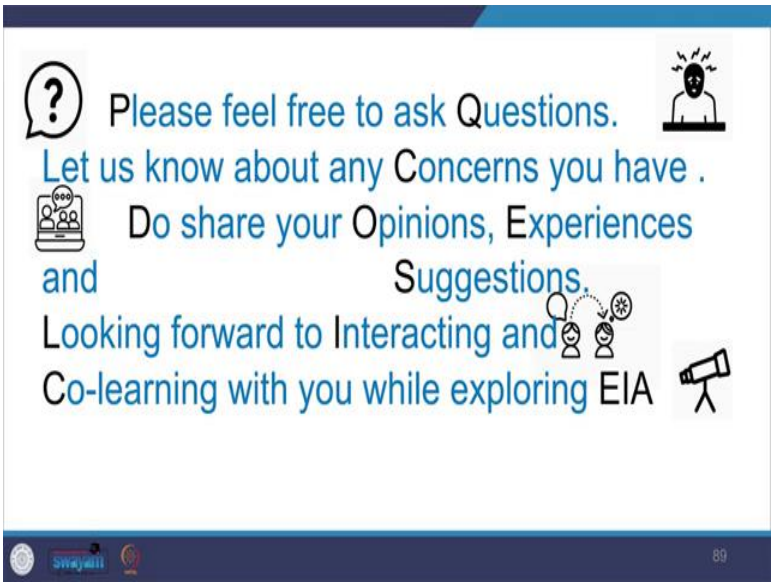

So, these were the references that we use for today. You can also look at the suggested watch and read, in addition to these what has been provided to you. So, please feel free to ask questions. Let us know about any concerns you have, and do share your opinions, experiences, and suggestions, looking forward to interacting and co-learning with you while exploring EAI. Thank you.