Vernacular Architecture
Lecture 02

Vernacular - Influences

The first factor would be climate. One of the most significant influences on vernacular architecture is the macroclimate of the area, the immediate climate or the macroclimate is the most important factor that influences vernacular architecture. For example; buildings in cold climates invariably have high thermal mass or significant amounts of insulation. They are usually sealed in order to prevent heat loss and openings such as windows tend to be small or non-existent. According to the Macro climate, in this case, the cold winds they are usually sealed in order to prevent heat loss and openings such as windows tend to be small or non-existent. Buildings in warm climates, by contrast, tend to be constructed of lighter materials and to allow significant cross-ventilation through openings in the fabric of the building. We have a single building, a shelter but it differs very drastically in terms of the macroclimate of the area. Furthermore, buildings for the continental climate. We looked at two contrasting climates, the cold and the hot. We talk about temperatures of climate that constitute both. Buildings of continental climate must be able to cope with significant variations in temperature, and may even be altered by their occupants according to the seasons. Here you have an image of an African dwelling unit. If you notice, the whole unit is lifted from the ground, to keep away from the dampness of the soil and to also catch the wind. If you look at the roof, it is totally pitched which means it is designed in order to act to the rain that prevails in the conditions. Further, buildings take different forms depending on precipitation levels in the region, as I said, the rains. Leading to dwellings on stilts in many regions with frequent flooding or rainy monsoon seasons. As much as you want to keep the dampness off your dwelling unit, it is lifted off the floor in order to deal with floods as well. Flat roofs are rare in areas with high levels of precipitation. Where there is rain, there is always a pitched roof which means that there is always a direct impact of the climate. Similarly, areas with high winds will lead to specialized buildings able to cope with them, and buildings will be oriented to present minimal area to the direction of prevailing winds. Similarly as buildings are affected by rain, winds are also an important factor such that the building is oriented or allowed punctures and openings in order to capture the wind or prevent the wind from affecting the temperature or macroclimate of the area.

Climatic influences on vernacular architecture are substantial and can be extremely complex. So it is not as simple as answering to the coldness or heat climate of the area, it can be very complex. For example; Mediterranean vernacular and that of much of the Middle East, often includes a courtyard with a fountain or a pond. I would like you to pay attention to the following; air cooled by water mist and evaporation is drawn through the building by the

natural ventilation set up by the building form. The building also has to draw in fresh air while fleecing heat out of the building. Similarly, Northern African vernacular often has very high thermal mass and small windows to keep the occupants cool, and in many cases also includes chimneys, not for fires but to draw air through the internal spaces. You'd notice that there is something called thermal mass which you would have studied in climatology before. When thermal mass is high, the buildings don't have to have openings to let out heat or bring in wind as it itself keeps cool. Such specializations are not designed, but learnt by trial and error method. We have seen that most of Vernacular architecture has been learnt through trial and error. All these techniques are derived from learning by making mistakes and finding out if they work or not. They are learnt by trial and error, often existing long before the scientific theories which explain why they work.

We have been able to explain how they work only now, but back then they were able to experience the impact of each technique and answer directly or correct if necessary. Moving on to other influences of Vernacular architecture. We will look at culture. As much as climate and materials available are important factors that influence the vernacular architecture in place. Cultures, the living conditions, the living practices and the social context is as important as the other influences. The way of life of building occupants, the people who are staying, the way they use their shelters is of great influence on building forms. The size of family units who also share spaces, how food is prepared and eaten, how people interact and many other cultural considerations will affect the layout and the size of dwellings. You'd notice its not only the climate, the number of houses, the number of people living in each house, affect the way vernacular architecture and group of houses are being shaped. Culture also has a great influence on the appearance of vernacular buildings as occupants often relate buildings in accordance with local customs and beliefs. As much as it shapes the building, the structure, the way the settlement turns out, it also has a huge impact on the way the buildings appear to us. I want you to look at this image, this is an image from an agraharam in South India, if you look at it, you will see the various influences that social culture have on an architectural building. If you notice, the building has a higher plinth in the front. This is a place where people sit and talk, recite prayers, have community discussions and so on. Other than that, it can be a place to sleep during the hot afternoons for guests or for people who are staying there. Then you also have decorations that depict that people are inviting neighbours over, with regard to a special occasion, with regard to a special festival of the area. That was about cultural influences. Now, we will talk about special case, such as nomads.

These days travel isn't that much of a consideration in terms of living places as we move from one place to another. But those days Vernacular architecture had an impact on nomads as well. Nomads are people who move around from place to place. They carried around their own living

spaces. That also added to the variety and vernacular architecture. There are many cultures around the world which include some aspect of nomadic life and they have all developed vernacular solutions for the need for shelter. Nomadic life has been a way of occupation, a way of living for many people. They have been carrying their shelters or their vernacular solutions for shelters have been varied according to that. These all include appropriate responses to climate and customs of their inhabitants, including practicalities of simple construction such as huts and if necessary transport such as tents. The basic idea of vernacular architecture is to be simple, cheap and the kind that can be done easily. This makes it easy to be carried around or transported as such which makes it easier for nomadic people adding to the vernacular architecture types.

Many nomadic people use materials common in the local environment to construct temporary dwellings, such as the Punan of Sarawak, who use palm fronds. These people as they move around, they use materials that are available at the place where they move around. Another example would be the; Ituri Pygmies who use saplings and mongongo leaves to construct domed huts. They use whatever is available nearby, they dismantle it and carry it around. Other cultures reuse materials transporting them with them as they move. Here's a picture of how people move around from place to place and also carry most of their living.

Vernacular – Components

Next, we move on to the components of Vernacular architecture. We have seen influences, factors affecting Vernacular architecture, now we will see the components, what makes Vernacular architecture. When you talk about Vernacular architecture, when you look at it, there are some components that characterize Vernacular architecture. The first thing that comes on the list is; Construction Techniques - walling materials and construction, foundations, roofing shape, materials; all these are an important aspect or an important component of Vernacular architecture or architecture for that matter. Cultural Background - geographical location and evolution. We just looked read about culture and how it affects Vernacular architecture. So its an important component. The planning - documented through plans, sectional forms to show how the internal arrangement of these buildings are done and how they are revealed on the exterior. The planning and settlement pattern is an important component of the Vernacular architecture as it is the further extension of a single dwelling unit of a Vernacular architecture. Then we move on to, Architectural detail - we talked about the visual aspects of Vernacular architecture, that forms an important part of Vernacular architecture as well. The details - windows, staircases, external and internal ornamentation. All form a part of it. Other data such as; place, time, context, use, user group, also become components of Vernacular architecture.

When we have to look at Vernacular architecture, we should be able to study it. There's this particular process in which you evaluate Vernacular architecture or Vernacular settlement in order to understand it better. The study of vernacular environments, leads inevitably to the need to acknowledge the range of forces acting on a particular society that prompts regional building patterns, spatial adjustments, and meaning. There is this filter through which all the aspects pass through and we have the result of Vernacular architecture. On the structural model, these collective forces are described as the regional filter. Among these forces are climatic, cultural, social, racial, historical, political, economic and religious factors.

Moving on, we will just have a brief look on how to study Vernacular architecture in order to document it and learn about it, so that we will be able to apply it in further studies. Study of Vernacular architecture, we have systematic methods in the study of Vernacular architecture. This is nothing but what we do for a rural study during our architectural graduation, this is something very similar but with respect to the Vernacular architecture types. The first thing we do is to Identify site. The scope of any study must be defined clearly. Geographical area of the study should be demarcated clearly. When we move into study Vernacular architecture of a particular region, we mark an area and go forward in order to study the aspects that make Vernacular architecture. Building types - typologies in the study area to be carefully analyzed. Study starts with the analysis of a single residential unit, then to the buildings in the community, cultural and industrial use. When you take Vernacular architecture study, you'd be talking about the dwelling unit put together, then you will talk about a group of dwelling units and then you will talk about the community, the settlement and the various other aspects that affect or shape it. The period of the study is also very important. Architecture, other than being affected by climate, social and cultural aspects, it is also affected by the era in which it was placed. Since the vernacular architecture type that would come after the industrial revolution would be different from the ones during the stone age and the ones before that. The period of study has a significant impact on the built form, architectural style, etc. Now we have the Study methodology. As I mentioned earlier, it is very similar to the rural study that we do. The complete Vernacular study that we do includes operations at four levels. Extensive recording, Intensive recording, Socio Economic study and Visual study. Extensive recording is nothing but a more physical study of the whole place. A systematic method of recording relevant details in a superficial way. It is basically the reconnaissance survey including the visual impacts. Intensive recording applies to the survey of selected examples from extensive recording based on typologies and its significance in the study area. We moved down to a more specific level of understanding a group of settlements. Then we move on to socio economic studies. We have done physical and physical to specific level. Now we have to study the socio and economic aspects that affect architecture. Last but not the least, we have to look at the visual impact that

these things have in order to understand better what other aspects went on to making Vernacular architecture of their spaces.

You look at these images and you get a more clear perception of what Vernacular architecture is all about. There is also a lot of visual impact and also, socio economic impact plus the physical and intrinsic recordings. Now, we will be talking about the contextual scenario with respect to our graduation i.e India.

Vernacular Architecture in India – A Contextual Scenario

We will talk about Vernacular architecture in India.

Indian vernacular architecture is the informal, functional architecture of structures, often in rural areas of India. When we talk about Vernacular architecture in India, it is not something that would prevail in a more urban space or even a town for that matter. It is more prevalent in rural India such that you walk into a rural area, today in India, you will be able to witness the direct form of Vernacular architecture. So, its found often in rural areas of India built of local materials and designed to meet the needs of the local people. Everything is local with respect to the area or the region of the place. These structures reflect the rich diversity of India's climate. We all know India has a climate that varies north, south, east and west. The Vernacular architecture is a direct reflection of that. Locally available building materials, and the intricate variations in local social customs and craftsmanship. As much as the climate is diverse and the building material varies in each area, the socio economic or the religious conditions are even more varied in our country. This has a more direct impact and gives a variety of Vernacular architecture types in India especially. It has been estimated that the worldwide close to 90% of all building is vernacular, meaning that it is for daily use for ordinary, local people and built by local craftsmen. 75% of India is mostly rural, you'll just have to look into several types of Vernacular architecture to understand it all the more better in India and simultaneously apply it to the present scenario. You can see more direct locally available materials used, basic level of aesthetics, the visual impact they have on rural architecture. Moving on, Vernacular architecture can be simply defined as 'of, relating to, or characteristic of a period, place, or group; especially : of, relating to the common building style of a period or place.' This again is the same different variation of the Vernacular architecture definition. Though this definition is better applied to the Western culture mostly in the context of America, where the Vernacular often denotes pioneer construction and architecture. You talk about the West Vernacular architecture is much more simpler and more confined but in India it leads to a variety of building types. Hence you have so much to study and learn from. The 'Vernacular' in India denotes low cost, traditional village and small town settlements, where construction is carried out without the help of architects and professionals, where building activity is regulated by a long tradition that stretches back for many centuries, in many cases. Unlike architects having to

deal with buildings, buildings were being built by people themselves, by generations of families who understand or identify what they need in that particular concept. This is an example from Kerala. This is a direct impact of both the religious, the climatic and the socio cultural aspects.

Moving on, Vernacular settlements in India often take on the shape and form that is dictated by the climate they are in. We have talked about the factors the factors that influence Vernacular architecture, it can't be any different in India. In Fact it is more complex and different in India. The socio-cultural norms that they are designed to preserve and protect. The village settlements in Uttaranchal are often characterized by houses of stone, timber and mud mortar on slopes, with thick stone walls of coursed rubble masonry designed to ward off cold. This is Uttaranchal in the north where they are cold winds, to keep off from the cold, with a shelter for animals below the main house, the heat given off by mulch animals heat the house above further. They have this house lifted above the ground, they have it sealed to keep away from the cold. To add to it, they have farm animals that give up heat and add to the building's eat. Further examples are in Kerala. We were talking about the north, now we will talk about the south. In Kerala, village houses are slope-roofed with Mangalore tiles and thatch to draw off and channel rain. You know that Kerala is known as God's own country, it always rain there and it's beautiful. That is the main aspect they have to deal with in terms of Vernacular architecture. In Assam again, the same houses are often built on stilts, the better to counter the often damp ground. In Kerala, there are backwaters but in Assam the water settles down on the soil which makes it really damp. Hence, the need to lift it off the ground. You can see the variation between each region that gives of various building types. Next, we will move on to Punjab, where the whitewash on the outside walls help to cool down the summer heat. Punjab is really hot and is extremely cold during the winter, which makes it complex. They have a whitewash on the outside walls to make sure the heat is reflected off and taken of the building. In each case we see that Vernacular architecture in India's diverse regions have evolved a unique way of responding to the climate and the environment that is sustainable. It also shows an intelligent approach to the problems of climate, and is a delicate balance of social and cultural factors through spatial vocabulary such as walls, courtyards, floors, and semi-private and private spaces. This has a direct effect, direct impact on the spaces that are created. When we talk about dwelling units, there are spaces that make up a dwelling unit. Each and every aspect, the climate, the cultural, the religious aspects, the materials available affect each space accordingly. Climate as I said, is a predominant factor in determining the forms of vernacular architecture in India. Climate in India varies from the scorching sun in the Gangetic plains to the tropical conditions in the South, from the cold dry climates in Spiti and Leh to the perennially damp conditions in the northeast of the country. We also know that the north-eastern countries have a lot of rains and high levels of precipitation. This is Kerala again, this is a direct response of the precipitation level where the main idea is to drain the water off.

We talked about climate, apart from the climate, the geography of the region is an important aspect in shaping up Vernacular architecture. Geography once again can vary from the hilly terrain of the Himalayas and Kashmir, to the flats of the Deccan and the south from the damp ground of Assam and Bengal to the dry Earth of Punjab. The third factor is again, the availability of material. We have talked about climate and geography. The next thing that comes into picture is the availability of materials which again is very varied across the country. In Goa and Karnataka, an abundance of red laterite stone makes this the medium of choice for Vernacular construction, and in north India a clayey soil makes sun burnt bricks and mud mortar a commonly used medium. Bamboo construction can be found in the northeast, and roofs tiled with the so-called 'mangalore' tiles in the South. Similarly, a plethora of sandstone made medieval Jaipur into the famous 'Pink City'. When these are different types of materials, the desert have stones that can be used to make their architecture very distinct and fully stoney. Similar stone was used to face Mughal buildings in the 17th century. When you move to central India, more of stone was used. That was totally different way of having the context of vernacular architecture apply in India. Now, we talk about more specific conditions which was prevelant in India. India was a country that had so many different races, there happened to be not so uncomfortable factors that affected Vernacular architecture but nevertheless a study that we should do.

An interesting theory holds that materials also varied according to the caste system. White stone was apparently used only by the Brahmins, red by the Kshatriyas, yellow by the Vaishyas and black stone by Shudras. We have this caste system that used to dictate the building materials that were used to build local buildings. The Indian vernacular is a true representation of the people and their culture, and India's diverse heritage makes this a fascinating study.

Vernacular architecture is in itself a direct response to the climate and the people. In India it is all the more specific and distinct because of the varied dynasty and culture. Little more after the Industrial revolution or after more building materials or building technology was available, houses or Vernacular architecture dwellings were classified into three types; the Kachcha houses, he the Pukka houses and the Semi-Pukka houses.

We have been studying this from junior school. A Kachcha is a building made of natural materials such as mud, grass, bamboo, thatch or sticks and is therefore a short-lived structure. Direct application of locally available materials, made just by hand directly and fitted in, just to make a dwelling unit with no fanciness. It is not made for endurance, it requires constant maintenance and replacement. They are made of natural materials and they need replacement and maintenance, they are ready for that since it is cheap and easily available. The practical limitations of the building materials available dictate the specific form which can have a simple

beauty. You have only two or three materials available specifically and you know only to operate or play around with that material. This directly affects the form of the building, makes it very simple. The advantage of a Kachcha is that the construction materials are cheap and easily available, which is a very important factor for Vernacular architecture and relatively little labor is required. This is an image that talks about Kachcha house. These are mud units that are made, framed and their dwelling unit is wrapped around in this manner. It is as simple as that.

A pukka structure is made from materials resistant to wear, such as forms of stone or brick, clay tiles, metal or other durable materials. We have moved on a little further. This becomes more pukka or solid with readily available modern form of technology and materials. However, such structures are expensive to construct as the materials are costly and more labor is required. Compared to before where people were used to replacing it and maintaining it often, people now settle for something that is more durable for a longer time. Thus, pukka houses are a solution to that. A pukka house may be elaborately decorated in contrast to a Kachcha house. Once these things are standardized and systematic, it gives more scope for the particular inhabitant or occupant to add decorative elements to the housing. This is an example of a pukka housing. You have a solid house, a neat roof and openings that answer directly to unique methods.

Semi-Pukka is obviously a combination of the Kachcha and Pukka style, the semi-pukka has evolved as villagers have acquired the resources to add elements constructed of the durable materials characteristic of a pukka. They use easily available materials and use the technology of Pukka houses to come up with a solution. Vernacular architecture always evolves organically as the needs and resources of people change. That is the crux of Vernacular architecture. It keeps evolving as per the needs, as per the available materials, as per the climate, as per the social economic conditions.