Urban Housing
Lecture 9

Belapur Housing

To start with Belapur housing, it was designed by Charles Correa. With some quick facts about the project, it was designed in Navi, Mumbai, which is right next to the city centre, a kilometre across and it is done for Bombay's low income profile and the density which is achieved as extremely high which is 500 persons per hectare, which would usually be done in a high rise building. But here, the typology used was low rise. The most famous quote written by Charles Correa was " Making housing is like a bird building its nest. You start with a basic house, but you have to let people change it to their own needs." This is very apt in this context because Belapur is designed in such a way that people are given the core, a basic spectrum has been designed. People have allowed themselves to change according to their particular needs and desires. A simple form explains what Belapur housing is about. You can see a cluster of seven different houses encircling a courtyard of 8 metre by 8 metre. 7 units form a cluster. The main concept used in the formation of community in Belapur is clustering and this cluster eventually is repeated twice to form a bigger cluster which is 12 m by 12m. This whole ensemble of clusters which had 21 units are now being multiplied in the form of a site which has a river edge. Most of the housing forms have been aligned in such a way that this entire community spreads into different scales and hierarchies of open spaces which leads to the water on either sides of the river. This relationship with the natural environment of the housing is being established and the role of community plays a very important role here. Let us see, how is this being achieved. Looking at this image, it gives a clear space of demarcation of the community revolves around this entire unit and in a three dimensional axonometric, you can see how this community space with this tree is being used. This central space acts as thrust for all the seven houses to come together to interact. You can see some people, kids and different levels of sociability could be achieved in these spaces. This is something like a jigsaw puzzle which is being intertwined in different ways in different organizations and a different language or a grammar of architecture is being followed here. This is an extreme example of explanation and a demonstration of a high density housing. You might not be able to believe how 500 people per hectare could be achieved in a low-rise, this is a perfect example of a low-rise high density housing where this density is achieved not sacrificing on the community facilities, like schools and othe spaces.

The basic form develops through stages. As the first statement states 'Build it like a nest and give it to the people to change the rest'. An initial room which is multipurpose, has two entrances and a proper space for window for ventilation is given where the plot is accessed through the main entrance and the remaining space is free for future expansion and the basic amenities like water closet and bath is being provided in stage 1. This is leading to a plot size of

7m by 7m. The house expands itself according to the needs of provision of a verandah which encircles an entrance for the house where this becomes the private space. Slowly the house develops organically where the verandah becomes a more social space which makes entrance to the room which is accessed inside or maybe through the verandah where all the services, the plumbing lines are connected in one central space and the remaining is being left for the private courtyard. You can see how organically every part of the house is being assembled in a way to form a private and a semi-private space and a public area. Eventually the house determines itself to have a private room, a multi purpose room, a verandah, a kitchen, a water closet and a bath. Still not sacrificing on the community or on the private courtyard. Every user has the opportunity to develop this in the way they want, so that the house grows incrementally as well as according to their needs and desires. You could also see there is a common sharing wall for the toilet facilities which means that every house is cleverly planned in such a way that the houses are organized without sharing walls unlike our flats and our appartments. Only the service lines and the service utilities like kitchen walls or the bathroom walls have been clustered. One more important factor that is being followed here is about income generation which is the eventual part of any low income project where they involve the community to build houses for themselves. When you just teach them how to build, this generates income for the people.

Moving on to the next concept called pluralism. This context is just not built for the low income, this includes several different income groups so that, a sense of pluralism is followed. This accommodates or covers the entire social spectrum including the LIG, MIG, in different affordability rate users.

Slowly the house plan evolved into 5 different types of places which ranges from 45 to 70 sqm and it includes the lowest budget of 20,000 INR and it accommodates to an upper income of 1,80,000 INR. According to the user needs affordability, the size of the user changes. As you can see, this starts with a single room and a common kitchen space where this form eventually grows larger in terms of size and sqm area and this organically develops vertically. The house formed from a grounded structure is slowly evolving to form a G+1 structure still not sacrificing on what the community space is about. The scale of the community spaces vary in different forms and sometimes it might be bigger and sometimes it might be smaller. The living area and the entire unit of cluster is being proportioned in a way of 8x by 6x and this 8 times the x, x is just a single module which is being proportioned 8 times to form the plot area and x is the dimension that is let free and 2x and 4x, out of its proportion, the width of the length is being followed as a housing profile. The width of the plot and the length of the housing profile almost matches so that this entire spectrum or L by B is proportion: scale and the way it is clustered includes a common sharing wall which is exactly symmetrical to each other and a wall which

has the living facilities combined with each other where the toilet facilities are completely split and here a common wall abutting the neighbour and 2 different toilets having open spectrums and here a sharing wall with different units clustered on either side.

The elevation here is kept very simple and you look at the largest, the 70 m square area plot, you start with a staircase which leads to a private space and which eventually leads to a kitchen backyard. The kitchen, water closet and bath are thus connected to again a separate courtyard space where there is another store that leads to the upper part where you still have a semi open space or an open terrace which leads to another private space and a small side room with a bath and a closet. You can see the bath and the closest form a common court so that its made easier for the utilitarian networks, the plumbing lines to fall under a single category and kitchen, side room, room and the private spaces are organised on other side of the open space. Even though this is a 70 sqm or 700 sqft typology, you have series of open yards which define the spatial organization for the community to grow eventually.

The clustering - 7 units are combined that eventually lead to 8 x 8 meter courtyard and these three clusters are combined to form a 12 x 12 m courtyard and the third level or the third hierarchy is formed together to form a 20m x 20m courtyard. This is otherwise called as hierarchy of different open spaces that have been led in the master plan designed by Korea. There is something called a Shaped Grammar, the language of architecture that is being followed by the architect himself. Assume C to be the courtyard and 7 units assumed around it. Taking the positive impacts of how the spatial organization could be has led to different series of permutations. Imagine the courtyard to be on the centre where the north eastern part of it is going to be 1 unit. What would be the orientation of the unit if taken in the first part. Assuming the courtyard towards the left of the unit, what would be the possibility of orientation of it. The same unit is being repeated in a different way to form this cluster and this is called the shape grammar. These houses are structurally simple and can be built and altered by local ministries which means that there is not much technology involved and local people without any knowledge could be involved. This scheme caters to wide range from the lowest budget of 20,000 INR to 1,80,000 INR. Now in shape Grammar B, this explains how individual clusters of 7 units and 7 units are combined. Assuming in shape grammar A, we have got 7 units. Now,this is being symmetrically organized into two groups of 7 units that form 2 courtyards. It can be mirrored this way or vice versa to form a connected open space and another way to connect it would be in a three format which has a series of open spaces.

In shape Grammar B, he tries to explain how the different clusters are organized around each other and the spatial format leads to different series of courtyards.

Yerwaada Housing

Moving on to the next example which is almost similar but in a different context where this explains the concept of incrementality in a different way. Yerwada housing which is designed by Elemental in Pune, the site location is close to the city, not very far away, only 6 km away from the city centre and the typology followed here is a low rise incremental and it is a participatory approach unlike the Belapur housing. Here, the density achieved is 1200 units in total and approximately according to the slum clearance board over there, 269 sq ft is followed as a common thumb rule for every unit and it is a slum rehabilitation programme.

Developed in Bombay, this incremental housing strategy is intended to allow districts to improve organically without uprootin communities, the slum grows eventually one on top of the other, this model can exist with any similar urban conditions which means that this cannot be replicated elsewhere but this can be followed in a pattern where the urban conditions context remains the same in any part of the country.

As the architect Prasanna Desai said, "What we did was to involve the beneficiaries in the proces. With a 270 sq feet carpet area and two different housing typologies, the possibilities of grouping to share walls, have individual homes or mixing options to fit individual demands are adapted to most arrangements." By involving the beneficiaries, it leads to participatory action and participation is very important in such activities and will explained through these lectures. Two different typologies were designed and possibilities of groups to share walls or have individual homes or mix the options to fit the individual demands are adapted to most arrangements. When something is participatory, individual demands come into existence, when these two are put together, they cater to the needs of the individual user. This strategy is to create these informal slums into urban districts through the process of gradual upgradation. Any slum upgradation or rehabilitation project cannot happen in just one go. It has to take time and gradually improve over the course of time. Looking at the centre, it is surrounded by different places and is close to the airport which means that, there is possibility of city growing towards this and eventually this could be encircled in a way that every access to social and other facilities could be through the site. Now, talking about the project and how it has evolved. It started with the Central government scheme, this is more or less a top-down model. It has started from the Central government through the BUSP - the basic services for urban poor under JNNURM - Jawaharlal Nehru Urban renewal machine was one scheme that has been started and carried out with Mahila Milan i.e the women empowerment society and NSDF - National Slum Dwellers Federation, SPARC. You could imagine at what scale is this project functioning, involving the central government authorities, state government authorities, different agencies or local bodies and national organizations involved in developing or upgrading to give a face lift to the slum along with the Prasanna Desai Architects involved. This

started from around 2008 and it is still organically involved. In this kind of project, we couldn't define the timeline of the project. It is a continuous process, it is still happening on site. Addressing the media, Mr. Prasanna Desai said for this they conducted workshops and activities that allowed the families to play with maps and models. This clearly intends every community or every person in the community has been involved in the design process. Architects along with global organizations and the community altogether play a very important role in building these houses and communities.

Now, there are different sets of plans. Unlike Belapur where you see how five different typologies have been replicated in different parts which is an upgradation which means existing plots, this is an already existing plan where specific set of buildings, these specific set of buildings have been taken into consideration and typologies have been derived.

There are two different typologies on an incremental basis. Here, unlike Belapur where there is a horizontal expansion of communities. In Yerwada, there is a vertical expansion. Incrementality is the same concept that is being followed here but rather growing horizontally, this grows one or two floors above. Just the model of the house is being replicated and you can see how gradually the house grows according to the different user demanding needs. But keeping a central point that this does not exceed the 269 sq ft that has been indicated by the government slum clearance scheme. Whatsoever the philosophy of housing or whatsoever the design that caters these low income profile people, there is a standard that has already been set by the government which should be considered. Most of these, according to the slum housing; efficiency, economy and energy are three major points that have to be considered where efficiency leads to proper utilisation of resources and efficiency of the labour involved. Economy is generating micro economy or teaching them how to build so that they could later develop their lifestyles through this economic process and energy. How much footprint do you use, how much energy efficiently you build and how sustainable you are in terms of social, economical as well as physical sustainability. These are some of the drawings and maps that have been generated by the Mahila Milan, architects and the organization where the existing hierarchy of open spaces have been rooted at different levels and the road characters, the primary, secondary, tertiary; all these roads along with plots have been studied and mapped out. This eventually turns into a land use map that addresses these typologies on how these individual units could be modified. On a phasing manner, these have been individually retrofitted by the user himself. The plan indicates seven different or seven groups of slums in Yerwada. The configuration of a series of slums in Yerwada area has been taken into consideration and slow gradual developments of temporary and permanent places have been designed. This is an organically growing community, not having a set standard of development

other than having a standard sq ft area. This involves community and this has been successful in terms of upgrading the user's lives.

Moving on to the next example of Tsunami housing which is in TamilNadu, Nagapattinam district. This was sponsored by Swiss solidarity and Swiss Red Cross, close to Sirkazhi, Nagapattinam districts. They were totally thousand units that were being developed and again the typology that is being adopted here is a low-rise cluster typology.

As everyone knows, after December 26th 2004, the Tsunami, the entire coastal stretch was hit. The tsunami created a devastative environment in coastal areas. Addressing this, there was a low-rise community proposal where this was a holistic approach which benefitted the disadvantaged people and minorities. Unlike the other example where we were talking about low-income profile in general, here this project more or less addressed every part of the spectrum of low income user group taking into special consideration, the minorities and disadvantaged people. Out of the 1000 houses that were built, 250 were in the same side i.e an incinto development and 750 were moved out of the site and relocation was done in the area provided by the government itself. The road map to this was started with analysis of damage. So first, the group of people identified what kind of damages happened and slowly moved on to study what kind of spaces do the coastal community people require. After the spaces, the habitat mapping was done. The socio-economic survey was taken up and from socio-economic survey, awareness was done into the villages on how to develop these communities and what could be the construction process. Then, construction of seven model houses were done and eventually this developed into the formation of cluster communities because once the construction is done, there needs to be a group of people or committee that has to be assigned to maintain all these houses. Training of engineers were done and finally building of communities happened.

These communities and the construction method were very conventional and used appropriately of RCC kind of construction and a simple framework was done. These communities thrive on a low rise typology and the cluster approach was very simple. The project was divided into clusters of 25 - 50 houses. Each cluster was assigned 5 house owners to take care of the community or the cluster along with the cluster supervisor. This cluster officers were in turn associated with engineers and architects who would train them. Now, these people who eventually were targeted for the entire community are taking decisions at micro level which means that larger contractors can be avoided in a housing process. Always when larger contractors are evolved the profit making becomes the motive. When profit making is the motive, low income might not survive. The ultimate decision taken by the government was to take decisions at micro level, that involves the community people and the supervision officers.

There are seven different typologies which include a living room, a bedroom, a kitchen, a water closet bath, a staircase, a verandah and wash place were added according to different users. This also addresses a spectrum of social strata. It doesn't only cater to a family size or 2 or three numbers but caters to a wider variety. As the typologies move further, you'd notice there is a growth in the spatial typology in increasing the sq m and also growing in terms of floors. The floors generally don't exceed G + 1. This is a mass housing and it is a customized product which means that, every house that was built almost resembled in typology except for the colour differences according to the user's needs. This has been stamped and sealed throughout the ground which is being done. The cost of the house which was around 3 lakhs was a little affordable and the finance for this was made much easier for people to avail it.

The key decision taken was to avoid contractors and involve house-owners, cluster volunteers and engineers. At the smaller scale, they were able to control all these non-profit making issues so that the housing typology could be a bit more successful. The quality of construction was achieved, it was tested and the essence was extended and they improved their houses to achieve an upgradation in life. Ultimately, the involvement of the people of the communities made the entire project a holistic and also a successful one.

Though, the space for stakeholders were provided and it also resolved several conflicts and demands, involving the community made it a process of success and the community wanted immediate resolutions of conflicts to be done at those stages itself and this eventually did not compromise on the quality of construction.

Kanchenjunga Apartments

Moving on to the last example, Kanchanjunga apartments, which is much diverse from all the three we were looking at before. Kanchanjunga apartments were firm, it addresses aesthetics, it addresses vertical zoning of different spaces and it address different climatic aspects on how architecture could be addressed with respect to climate. Again, the architect was Charles Correa, it was in Mumbai, right in the centre of the city, heart of the city with vicinity to the coast. It was targeted to middle income and high income. It was 27 floors, it was between 1970 - 1974. One could achieve this target of feet 20 or 3 decades before on creating a high rise which is 27 floors. The concept is very simple, oriented east-west so that it catches the sea breeze and monsoons could pass through. Secondly, it was to maximize the veranda spaces. The concept was being achieved or taken from the olden bungalows where there are deep filters. There were two lines of defense and these veranda protects from air pollution. From the interlock of four different typologies. Four different units were taken and clustering of these four in different dimensions, in different scales, in different vertical zoning, resulted in this high rise marvel. As we said, there were four typologies which were stacked horizontally and these

smaller displacement levels was ready to differentiate between the external earth filled terrace and the internal living room difference. These levels were critical because this only addressed what was an outdoor space and what is an indoor space; these scale differences have been derived by interlocking different units and sections. These were addressed using deep, garden verandas suspended in the air. You could see all these yellow blocks represent verandas and that relates to catching of monsoon winds and the concept of verandas.

There were four different typologies and this sits right in the city centre where the location is in the heart of the city where the form corresponds to neighbours which are again high rises now. When this was built, this was 1 tower that was standing. The road access as mentioned is from the main road and the site is accessed at different levels where yellow becomes the main structure which has a central lobby which is accessed through it and the lift core is here, the green here leads to the parking at a lower level and the outer part from can be accessed from the road is landscape space. The main access is through the central lobby that takes you into the tower. As an elevation source, it is kind of exhibiting again shape grammar. Different punctures at different levels gives you an aesthetically appealing, visual quality of this entire facade and the facade is very simply planned with punctures here and there, that creates these verandah spaces at a smaller and larger scale. This displacement of verandahs keeps it non monotonous so that the entire form on different elevations are much more ambiguous.

The vertical zone we were talking about is parking that is related to the basement at the central lobby that connects to different floors of 27 levels. These internal sections, internal slabs casted creates the difference in the living environment which is internally placed. You have the surface parking of 20 cars, basement parking of 30 cars and a clubhouse and pool. ABCD typical apartments. To be noted, the elevators stop at alternate floors.

Now, the modularity is being explored in 4 different kinds of models. Starting from three to a 5 bed apartment ranging from 294 to 373 m sq and a special penthouse is on the top. Just to explore further, this image explains how internal organization leads to deeper verandahs. In the 3-d, the deeper verandah is double floor high which is exhibited in the corner as you can see here. There are two scales of verandah, one on the right and one on the left to maximize the wind which is based on its orientation and from that wind that enters through the main. A closer look of it, exhibits that through the entrance on the ground floor, you have a living, a staircase closeby that leads to the upper floor and through the slab enters the bedroom and the ground floor and a small study which has attached bathrooms and a small balcony on the right side. This exhibits a terrace garden on the left which is access through the living room which moves through the dining and there is a separate entrance from the corridor which is being given to the kitchen and utility area. This clever spatial organisation deals with separating the service entry and the utilities on one side and the private spaces that are being clustered

around the organization of verandahs and balcony on the other side. This explains what kind of breeze movement is within the internal section as you all have already seen in the structure of the entire building. The structure is followed from a 'slip form' technology which was first used in India where the concrete is being poured or the shutter moves or slips once the concrete gets set and that is being adjusted with the quality of concrete to set early. These sketches explain the visual quality of the interior spaces on two different levels, how one and double height spaces work together. Balconies and verandahs work at different scales creating different punctures on different levels, the colours added to it also gives a visually pleasing environment and finally, Kanchanjunga sits within the city which makes it a landmark and a qualitable space to live within.