

**Course on Landscape Architecture and Site Planning-Basic Fundamentals**

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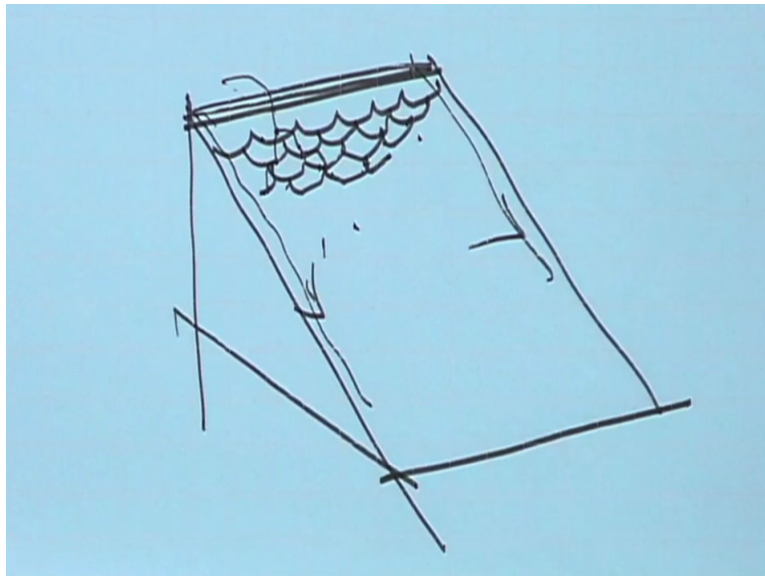
**Lecture 09**

**Module 2**

**Introduction to History of Landscape Design (Continued)**

Now that we have Water Channels, Fountains, Baradari, Chabutara, Slopping Water Cascade this is a very interesting one that is called as Chadar, Chadar in Hindi is basically a kind of wrapper.

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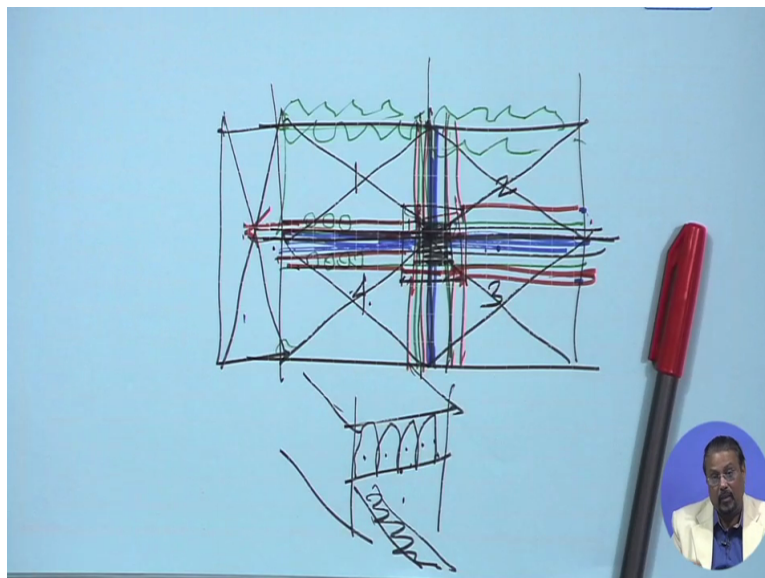
So you know it is it is something like this let me draw it in the paper I will show you the Chadar is a kind of sloping (0:38) like this which is kept on a slope like this and then it is scalloped in this form. Now what happens is when the water falls from here, it gets split into two other parts and then it flows to the next, to the next, so if you see this is almost like a fish scale that they have developed. This is what is the Chadar or sloping water cascade. Water is released over here at this particular edge in just like a sheet of water.

So this water when it trying to flow down this it falls from one to the next, to the next, to the next. So naturally it breaks the water into small small droplets, once it breaks the water into small small droplets naturally small droplets get absorbed by the (1:30) air and then ultimately the air temperature get reduced, this is a wonderful way of cooling one you have seen in the Spanish Garden that where they had a very shallow channels, wide shallow

channels for evaporative cooling, this is also a cooling but not directly by evaporation, this structure can be even indoor the moment it breaks so naturally smaller particles of water just you know floats in the air and air absorbs it, reduces the temperature this is one of the very interesting part that they have used.

I have seen this you know been used in another very Indian landscape styles which is in (( )) (2:13) very close to Delhi. In (( ))(2:15) also I have seen this they have used it, in fact I consider that they have emulated from the Mughal, ok. Then that is Chadar, other than that we have the low height center vegetations, large and high peripheral vegetations. So what happens let us think about it.

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The entire landscape or Mughal landscape will have a green carpet at the base, the whole area divided into four parts it is like as if divided into this, it may be rectangular, it may be squarish. Now this is one, two, three and four Gardens that is what makes it four Char in Hindi and Garden each one is such Garden, wherever whichever Mughal example that we will see it cannot be deviating from this rule and this is what was pioneered or rather propagated by Babur the Ram Bagh is the first example that we do see.

Now there have been several exercises or several experiments on this whether this will be the minor axis, this will be the major axis, whether the water will flow through this, also flow through this and then within this we have a space where they have placed one small podium here, this is what is that Chabutara.

Now here there can be an architecture structure it can be Mausoleum like tool, it can be palace, it can be (( ))(3:49) for the rulers whatever it is that particular structure if it is elevated I am just trying to show you through my sketch here, that if it is elevated and this is a structure and you have archways and the water is flowing below. So water is flowing below this is what is your Baradari and the rulers used to sit here and they used to enjoy the flowing water below.

These are the three things which are very important part of Mughal landscape styles. Now if I try to compare with respect to this before I come to the examples of the Mughal landscape if I just compare with respect to this Baradari was there also in Spanish landscape, but Chabutara was not there, this Chadar was not there, that makes Mughal unique. More than that this is the green carpet that they have created with grass on the edge they will have high vegetations on this particular edge, high vegetations.

And here they will put low height vegetations, it may be Conifers, small small Conifers. So what happens is you have a green edge on either side of this over which I am just trying to use the color that I have in front is this is the portion which where the water is flowing, this is the area through which the water is flowing and within this you have the fountains, this is that Chabutara and this is the Baradari and then you have the entrance gate.

If I compare this again with the Spanish yes they have an entrance gate, they have the Baradari, they also had vegetations but here since they have always made it flat most predominantly flat then all these are nothing but high vegetations, these vegetations that they have used in the Mughal Garden essentially to protect first of all there is a wall, the wall is for physical protection and just before this we have a series of large trees, those large trees have some other benefits or some other utility.

In terms of landscape this has to be understood what is the utility of this, let us take the case of Agra. This is not really very much true of affective in the case of Kashmir, in Agra what happens is since it is hot arid area and it is mostly divide of the vegetative cover of the land. So naturally the wind erosion of rate of wind erosion is very high.

So high winds uninterrupted wind when it is flowing over the surfaces surrounding that particular Gardens, that is too loose in the small soils and that soil now becomes small small particle ultimately floats in the air with the wind flow that particles used to flow over the

entire area just to make it a filter of those particles the large trees worked. So the large trees having a large leaves were essentially the feature.

So if you look at it technically, it is not simply for aesthetics or for good looks or for recreations they have used it for very very technical reasons for their protection. So in the Mughal Garden you have the edges which are filters, the edges are the filters, we have the carpet in the center, we have the water channels crossing and we have a place to sit and perform the performer sit in the center, we have the elevated Baradari from where you view it and then the pathways along the water.

So what happens is this is the pathway which will be running and there will be crossovers ofcourse there will be crossovers over these water everywhere so you cross like this. So somebody enters from here can always take this path and ultimately can change to this particular path ultimately going target to this. So this is how it is but so regular, so geometric that it has earned its unique identity in the history of landscape architecture this has to be understood, ok.

Let us see some of the examples now where we are saying that it has been primarily developed in Agra and Kashmir. In fact the concept of Mughal Garden style is a replica of the carpets and the replica of the carpets of such idea came from Persia. So Babur when he came here first invaded India at that time he got that concept in the back of his mind and he tried it here.

So the entire Mughal landscape looks like a carpet green carpet, all the squares they are also subdivided with multiple such patterns those patterns are done with florals or beds, flower beds but they are never very high hedges. So when you look at any landscape Mughal landscape you will find that from any point you can say the entire landscape like a carpet and majority of the surface area is green very well-manicured lawn and in between the patterns.

So only the patterns got changed but however even if the patterns got changed, the patterns also remained within the main structure or of the patterns of the Mughal architecture. So what we see in the Mughal screens we call Jali in Hindi, Mughal screens in which we find the profile of squares, octagons, hexagons combination of such you know they are also replicated in those patterns of the plantations small small plantations means I am talking about the flower beds they have used that too but yet it has never dominated the entire landscape.

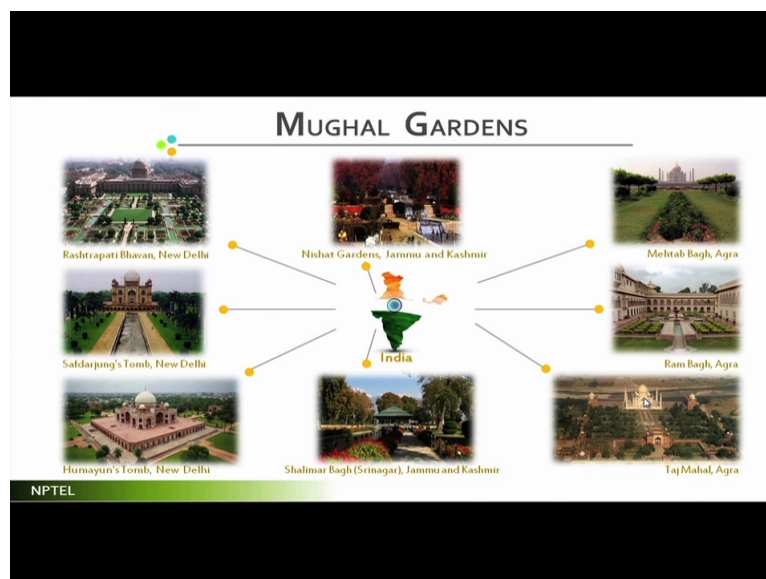


So it is when you look at it only or one point is you know Mughal Garden if you enter and you stand at the edge and look at the end, you will see the entire Mughal Garden at a stretch. So comparatively with respect to Spanish in Spanish landscape if you want to experience a Spanish landscape then you have to traverse through every space that they have designed.

In Mughal landscape you stand in one corner see the other corner finished. The whole view is done, there is no obstructions or visual obstructions these idea of you know segregation creating climaxes I will discuss in another set of lectures may be the next week again I will sight and bring for this examples. So in Mughal Garden it is at one shot you have a full view, in Spanish Garden it is not so for Spanish Garden you have to travel from one place to another for experiencing but when regulated.

Mughal Gardens examples when you search we found that it has though it has we are saying that it is generated in India but they have also spread it to some regions this regions. So we have some examples in Pakistan, also we have some example in Afghanistan, some examples in Bangladesh.

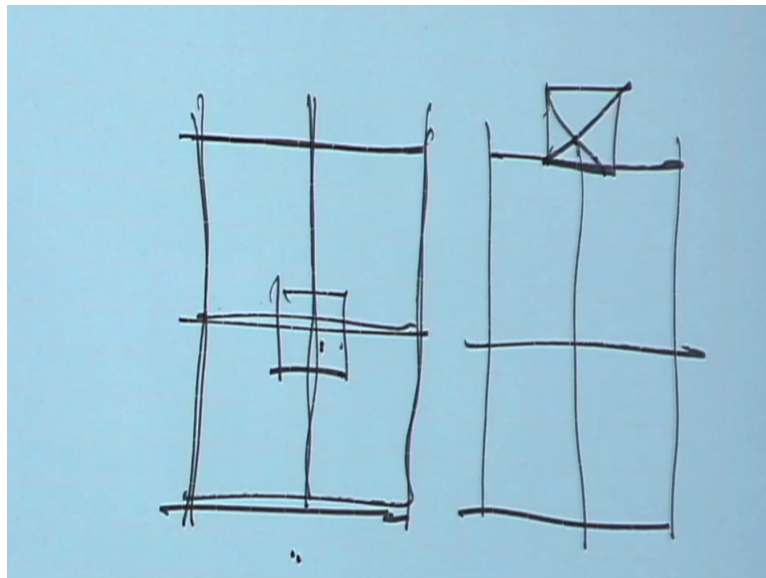
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I am just siting few examples of India then other countries, take note of the pictures that I am showing here. Nishat Gardens in Kashmir, Rashtrapati Bhavan in Delhi, this is interesting ((11:13) designed the New Delhi and he designed the Rashtrapati Bhavan and he really recognized the utility or the superiority of this Mughal Garden and he has implemented this Mughal Garden in the Rashtrapati Bhavan of Delhi.

So idea is if there is a (good prac) best practice which can be emulated he has done it but this has been done quite later much much later many years later than the Mughal Garden got developed. Safdarjungs Tomb in New Delhi, Humayuns Tomb in New Delhi if you look at this just look at one of the pictures which I am focusing with my cursor look at this, the main Tomb is in the center Humayuns Tomb though it is stationed at the central point may be drawing all attention of the viewer, surrounding it is a Garden.

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So in this Mughal Garden let me also explain it may be a case where this is the Garden and the Mausoleum or the palace of the structure may be at the center. It may also be other Mughal Gardens in which this is the Garden and then we have the Tomb of the Mausoleum at the end. Humayuns Tomb is this example, Sikandra which is very close to Agra also this example and Taj Mahal is this example. In Taj Mahal we have the Mausoleum at the end.

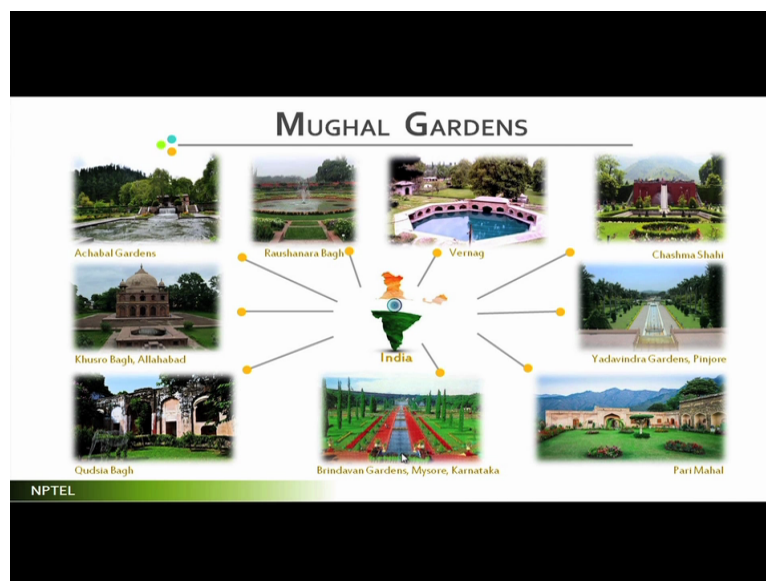
So the point is whether it is at the end or at the center wherever it is Charbag never changed, this is what is the uniqueness of Mughal Garden. So in this if you look at it this is one corner of one Bagh one square, another square here, another square here, another square here the area is quite large. So Mughal Gardens usually is quite large in scale, the moment you try to emulate the Mughal Garden in a small scale it looks to be miniaturized and it looks to be out of scale. So the scale of Mughal Garden is quite grand.

Contrive to the Spanish in Spanish it could be a very small scale I have shown you examples, so the scale matters. If you make a very small so you have a front Garden in your house and then you try to make a Mughal Garden we will appreciate this for your you have diligence of

working and creating Mughal Garden but the thing is that is really not a Mughal Garden the Garden has to have a grand scale, ok.

Shalimar Bagh in Srinagar, Mehtab Bagh in Agra, there are many other small small Gardens in Agra, Ram Bagh this is what I was referring to one, two, three, four, four squares with the center spines at the water. Taj Mahal, if you look at this Taj Mahal here, this is the entry point and then we have this as a Garden in the center in which the central spine of water is running from here to the edge.

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Other examples, Raushanara Bagh, Achabal Gardens, Khusro Bagh, Qudsia Bagh, Brindavan Garden I will come to Brindavan Garden for discussion purposes these were originally done, Brindavan Garden has been done later, Pari Mahal, Yadavindra Gardens, Pinjore these are all emulations, Chashma Shahi and Vernag, these are historical Gardens.

Brindavan Garden when in Mysore when they have developed this they have tried to emulate the Mughal Garden. The same concept if we combine see basically what happen in you know in Shalimar Bagh and all, they had a different domains I think I have a sketch I will show you with respect to that, I will explain.

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In Pakistan it is a Shalimar Garden again, Shahdara Bagh, Lahore Fort, Hazuri Bagh, Hiran Minar, Tomb of Jahangir, Chauburji and Mughal Garden Wah. Interestingly in all cases if you look at it you will find that you will be able to identify Char Bagh and the moment you identify Char Bagh may be the scale varies from one to another may be the Central Mausoleum sits in different positions but that gets the popularity or identity of a Mughal Garden.

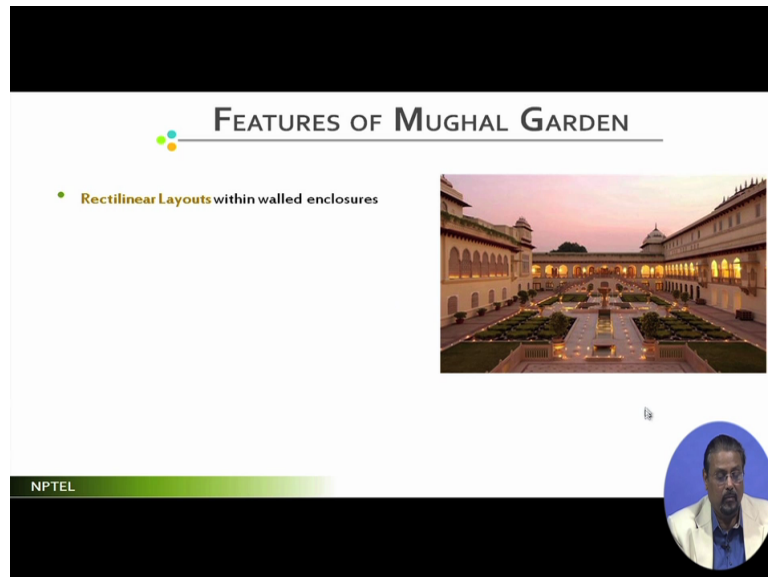
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In Bangladesh we have Lalbagh Fort and in Afghanistan we have Bagh-eBabur there may be many more examples we could get atleast these much of examples for your purpose but there could be many more examples and we will be happy if you know any more and if you could

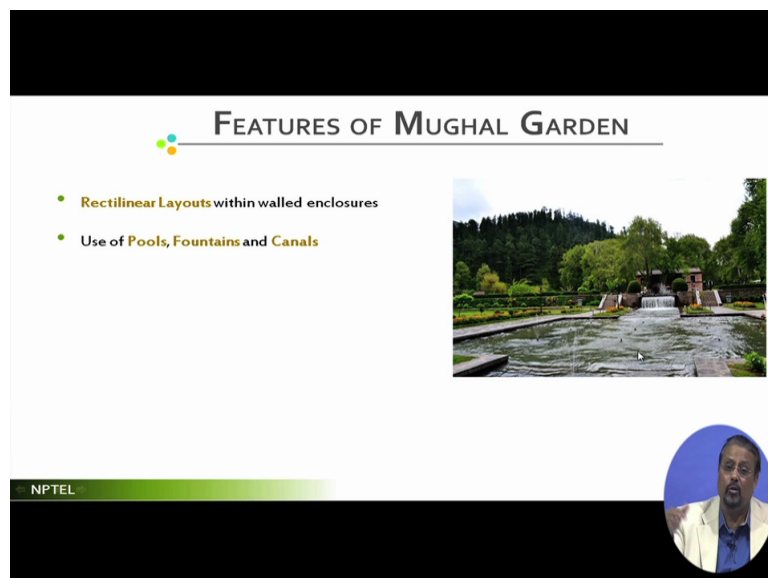
identify any more Mughal Gardens or such other styles please feel free to communicate in the forum and we will share with all of you.

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Now what is the feature then Mughal Garden I am just summarizing it, it is rectilinear layouts within walled enclosure first like this.

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Second is use of pools, fountains and canals like this flowing from one level to another, in Agra it is not but in other places in Kashmir they took the advantage of the slopping hills leading to the Dal lake, so naturally they have done it. So idea is the water has to flow it is not static water.

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**FEATURES OF MUGHAL GARDEN**

- Rectilinear Layouts within walled enclosures
- Use of Pools, Fountains and Canals
- Large Gateways and High Walls



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Large gateways and high walls like this.

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**FEATURES OF MUGHAL GARDEN**

- Rectilinear Layouts within walled enclosures
- Use of Pools, Fountains and Canals
- Large Gateways and High Walls
- Use of concept of Char Bagh planning



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Use of concept of Char Bagh in this if you focus this central point here where my curser is there, this is what is the Chabutara what I was referring to. If you go to Fatehpur Sikri I do not have the picture of Fatehpur Sikri here, if you go to Fatehpur Sikri, Fatehpur Sikri is a combination of many such profiles in which there is one place where Tansen used to sit and sing, it was channels you know crossing channel of water and the center there was a Chabutara slightly elevated podium in which Tansen used to sing you know sitting over there. This is the kind of thing that they have followed.

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## FEATURES OF MUGHAL GARDEN

- Rectilinear Layouts within walled enclosures
- Use of Pools, Fountains and Canals
- Large Gateways and High Walls
- Use of concept of Char Bagh planning
- Incorporation of Geometric symbols within gardens



Incorporation of Geometric symbols within Gardens as I said that all the geometric symbols that they have used in the architecture of Jalis or Nets, or Measures, or Screens in the building element they have followed it here. If they have done that for you know line works on the surfaces, they have also used it in the Gardens like this.

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## FEATURES OF MUGHAL GARDEN

- Rectilinear Layouts within walled enclosures
- Use of Pools, Fountains and Canals
- Large Gateways and High Walls
- Use of concept of Char Bagh planning
- Incorporation of Geometric symbols within gardens
- Inclusion of various types of trees, colourful flowers, grass lawns and birds



And also the inclusion of various types of trees, colorful flowers and grass lawns and birds so basically they have created out of nothing in a large hot arid region they have created the Gardens which becomes the real (18:33) or a place of respite and you know what happened is historically when Babur had developed this if you look at it Babur first

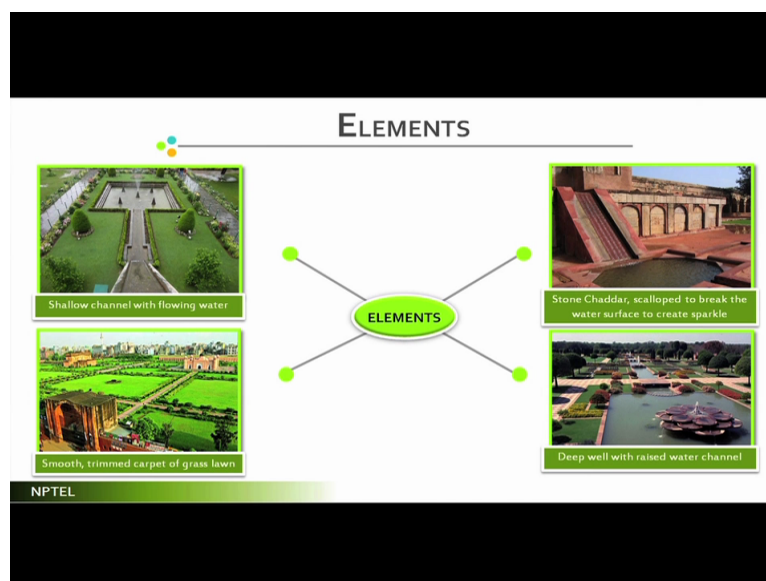


developed this, then other rulers his descendent did not followed this much but Jahangir did it, Jahangir took this concept and ultimately he built this in Kashmir.

So most of the landscape of Mughal styles they are available in Kashmir, later on Shah Jahan built for the Mausoleum in memory of his wife Mumtaz, he did it in Agra and Taj Mahal became the World famous one of the wonder of the Worlds. If you look at it chronologically Taj Mahal came quite late. So Ram Bagh was the first one then the others, so who followed this system of Char Bagh or the Mughal Garden styles creation Babur then Jahangir and then Shah Jahan, after Shah Jahan his son Aurangzeb who became the ruler he had no interest in all these things.

So Mughal Garden (( ))(19:39) Mughals may no longer there, so Mughals did not build anything. So Mughal Garden the last example that we see is the Taj Mahal, wherever you are finding any more they are emulations of that, ok. So in Rashtrapati Bhavan it is emulation, in Brindavan Garden Mysore it is emulation.

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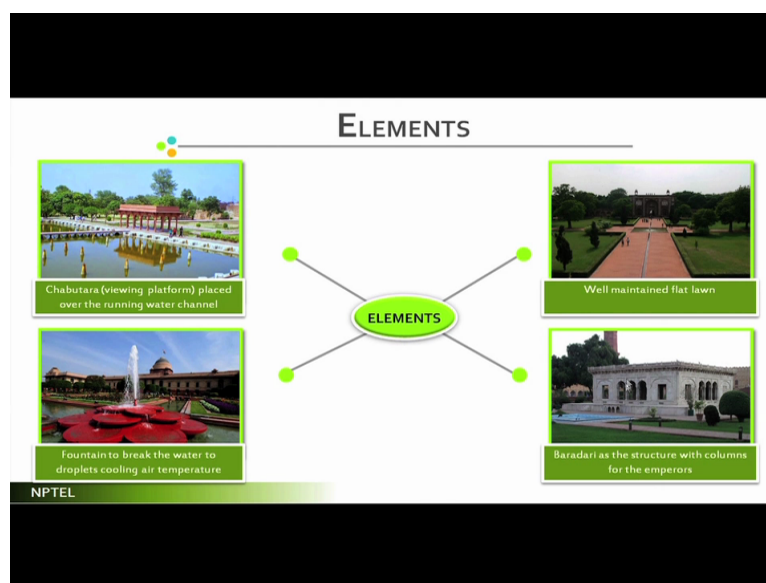


What are the elements, shallow channels with flowing water same concept of Spanish, stone Chadar this is what I was trying to draw scalloped to break the water surface to create sparkles so sparkles of water as well as reduce in the temperature. Smooth, trimmed carpet of grass lawns deep well with raised water channel this is important to be noted, deep well because see in Spanish landscape they were endured with slopping hills so the molten snow water use to come by gravity.



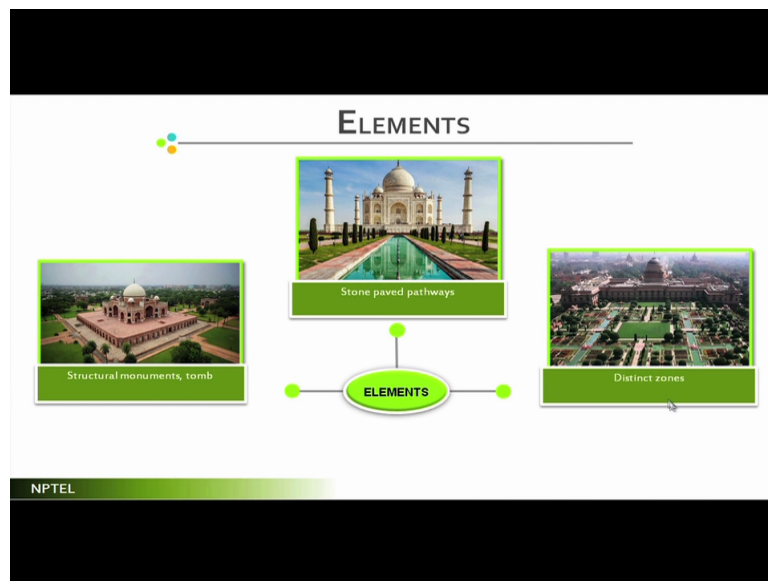
But in Agra it was flat and they had ofcourse in Agra whenever this Taj Mahal was built it was Yamuna river next to it but the thing is it is it was at higher elevation Yamuna was lower. So they had to (( ))(20:52) lifting of water and then flowing contrive to the Spanish in Spanish it is a gravity flow but in Mughal the water was lifted up either from the well or from the neighbor river and then ultimately through an elevated channel water way they released it to the Chadars and then to the canal and that water used to flow down to the drain so every time the water is to be replenished this is what it is. Now a days what we are doing is we are having a circulation of water with the pumps and motors.

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Other elements Chabutara the place where we sits, flat lawns, fountains at different heights and the Baradari this is the house the elevation.

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Other elements structure monuments, tombs, stone paved pathways, distinct zones.

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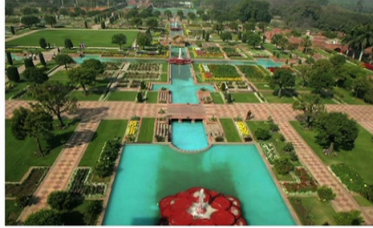


What is the landscape character if you try to understand this we have a unified Garden structure, unified Garden the structure with a difference not like Spanish. In Spanish the structure and the Garden got unified absolutely one after another compliment to each other in this it is just you know adjoining element.

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**LANDSCAPE CHARACTER**

- Unified garden with the structure
- Garden divided in four major squares, each square subsequently divided in regular four squares




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The Garden divided into major squares four major squares as I discussed. Regular, rectangular or square but geometric.

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**LANDSCAPE CHARACTER**

- Unified garden with the structure
- Garden divided in four major squares, each square subsequently divided in regular four squares
- Regular, rectangular / square, geometric
- Strong central axis with minor transverse axis



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Strong central access with minor transverse axis. Terrain matching with the terrain of the region. In Agra it is flat, in Kashmir it is in slope, it is a slope in Nishat Bagh they have multiple tiers or terraces in fact Nishat Bagh it is said that they have divided into twelve such terraces and each terrace is representing one of the zodiac. That means the water and the Garden is coming from one level to the next level to the next level to the next level ultimately going to the Dal lakes, this is how it is.

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## LANDSCAPE CHARACTER

- Unified garden with the structure
- Garden divided in four major squares, each square subsequently divided in regular four squares
- Regular, rectangular / square, geometric
- Strong central axis with minor transverse axis
- Terrain matching with the terrain of the region




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This will give you an idea that how it is flowing from one point to another. Exploiting terrain through terraces.


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## LANDSCAPE CHARACTER

- Unified garden with the structure
- Garden divided in four major squares, each square subsequently divided in regular four squares
- Regular, rectangular / square, geometric
- Strong central axis with minor transverse axis
- Terrain matching with the terrain of the region
- Exploiting terrain through terraces
- High protection walls around the garden for Security



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High protection walls around the Garden for security and also for screening.

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The slide is titled "LANDSCAPE CHARACTER" in a serif font, with a horizontal line underneath. To the left of the title is a small logo consisting of three colored dots (green, yellow, and red). Below the title is a bulleted list of landscape characteristics. At the bottom left of the slide is the "NPTEL" logo. On the right side, there is a small circular inset photograph of a man with a beard and glasses, wearing a light-colored shirt.

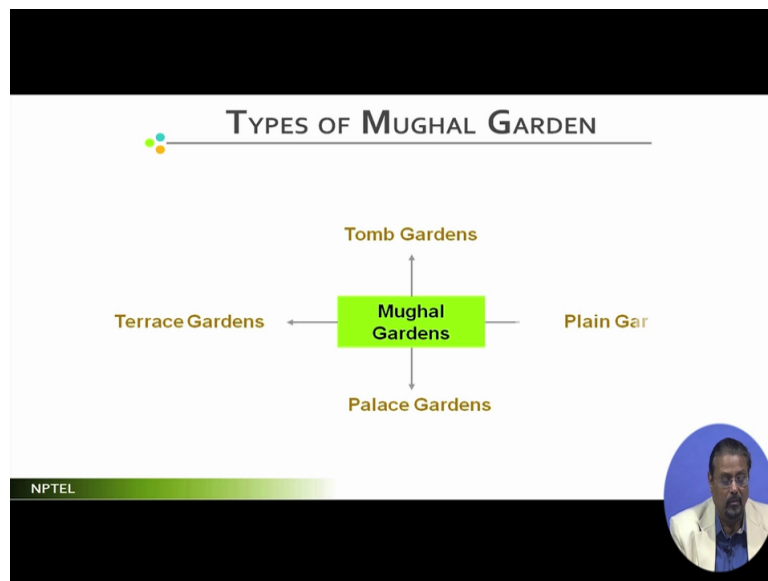
- Protection from dust and hot sand laden air
- Highly repetitive pattern on the garden floor
- Geometric ornamentation with hedges, flowering plants
- Monotonous
- Low height vegetation at the central zone
- Large height vegetation at the boundary for filtering sand
- Exploiting stream
- Strong focal point created with structure (e.g. monuments, Baradari, minarets) etc.

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Protection from dust and hot sand laden air. Highly repetitive pattern on the Garden floor. Geometric ornamentation with hedges, flowering plants but it is Monotonous. It is monotonous because from one point I said already from one point you can see the whole Garden.

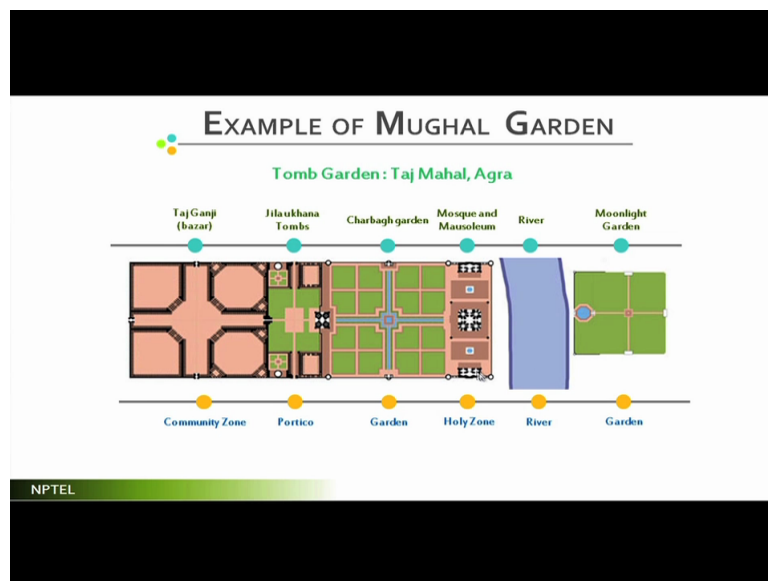
So if you walk further closer, closer and closer already you have seen the things earlier so it might become a little bit of little bit of monotonous but the thing is it is a creation it is one style and we can learn from it and we can use it whenever it is applicable. Low height vegetation at the central zone. Large height vegetation at the boundary for filtering sands. Exploiting stream. Strong focal point created with structure like monuments, Baradari, Minarets.

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The Mughal Gardens can be divided into certain types one is the Tomb Gardens another is the Terrace Gardens, another is a Palace Gardens, another is the Plain Gardens.

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Tomb Garden is Taj Mahal in which the Tomb is placed, this is Yamuna River, this is that Tomb you have the entry, you have a large plaza from where you enter and then ultimately this is what it is. In fact in this Garden Taj Mahal the Char Bagh or the Four Square has been made really square, ok. In other Gardens there had been some variations.

So it is a community zone, it is called Taj Ganji (bazar), this is the portico from where you enter, then we have the Garden this is what is a Garden, then we have the holy zone we have

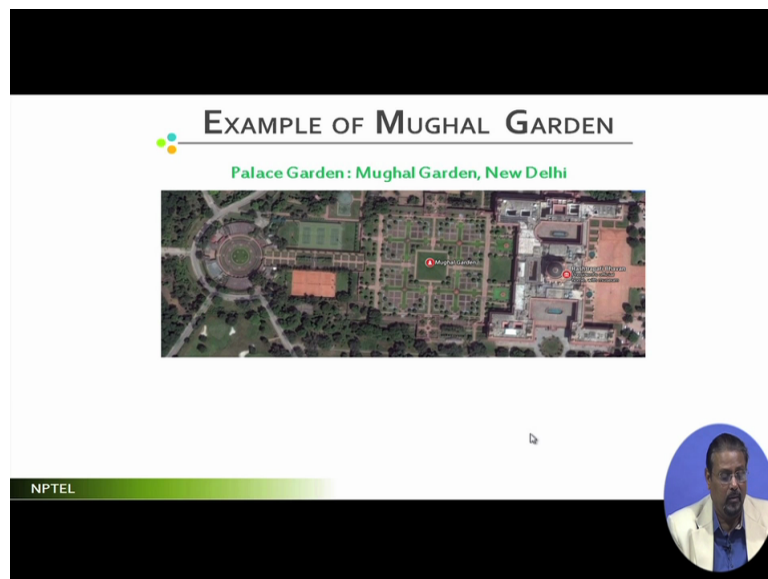
the mosque and Mausoleum, then we have the river and there is another Garden. History says that Shah Jahan had a dream of building another Mausoleum here, history says it I am not very sure about it, I did not get a very subsequent information but history says that somewhere it is mention that he wanted to make another similar but ok before that his life almost got ended by imprisonment by Aurangzeb, ok.

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So this is what is Taj Mahal in this one interesting that happens is the Garden the Mughal Garden acts as a foreground to the structure and Taj Mahal has become beautiful everybody says Taj Mahal is beautiful I do not know whether it would have been really call beautiful if it did not have a kind of foreground like this. So what happens is sometime to give (25:57) foreground this kind of Mughal Gardens can be very very useful, ok. This is from the entry point to this look at this kind of patterns of the pavements and all which are very very geometric of typical Islamic style.

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Mughal Garden in New Delhi.

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Then we have Raushanara Bagh in New Delhi.



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And then we have Nishat Gardens in Kashmir in which if I try to tell you this this is a canal which is leading to the Dal Lake ok, this is divided into different zones the top most one portion is the Ladies Zone, then we have the Kings Zone, then we have the Public Zones.

But here they have many other things they have the Baradari, they have the Orchards here, they have the Zodiac Terraces, they have the Plain Trees at this, they have the Pool, Retaining walls on this side and the Zenana Garden here, the Gazebo here and the Zenana Building here, this is a sample of the Nishat Gardens, this is some of the pictures.

So essentially when you are at the upper level you can see the lakes at the downhill. So this gives the idea, so now how we would analyze this Mughal Garden as a really true to the Mughal Garden style if you find that they are all divided into squares with a central axis and different structures.

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Achabal Garden here.

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This picture I have shown here for one reason, go by the rule of the Mughal Garden this is truly a Mughal Garden but where is it in Jubilee Park Jamshedpur in Jharkhand State of India go by the rule let us follow. This is a Garden beyond which we have the other greens which is not the rule of the Mughal Garden but once you enter this particular zone surrounded by tall Ashoka trees we call but *Polyalthia Longifolia* the actual Botanical name is *Polyalthia Longifolia*.

If you see this bounded you will find that there is a central axis and there is transverse axis. There are steps you step down from here to here to here and ultimately you come through this path it is a wonderful emulation of Mughal Garden, each of the center has lighted spouts in the night they are with change in color that attracts very much.

The whole Garden if you look at it, it is not the Mughal Garden but a small component in this is a Mughal Garden this is also possible what happens is whenever you are trying to learn from the history and trying to emulate it it is not necessary that you have to recreate another Mughal Garden wholly, it is just a combination and you know my experience of moving around this place is whenever I am travelling along this it gives me an idea that ok it is almost like an English Garden and when I am within this domain it is like a Mughal Garden. So this is how it is.

Some pictures of this (29:10) you see at the back so you are the higher altitude here and the lower altitude here, this water ultimately flows and goes to this particular lake and then again pumped up. So if we now compare with Spanish and then Mughal, this brings us to the end of the Mughal Garden discussion. Mughal is very regular, very geometric mostly all flats, Spanish is irregular in placements but they are regular in its own individual shapes.

They have also used the same idea of pavements, running water channels. In Mughal Gardens if you stand at one particular point and then look at the entire Garden you have a full view of it so it makes it slightly monotonous where Spanish Garden does not. It is always with some kind of surprises or excitements but however if you look at it micro climatically then Spanish and the Mughal Gardens are very much in a similar line, they have used the flowing water in the hot arid region of cooling the air.

So that brings us to the end of the discussion on Mughal Garden we will discuss the other styles, thank you.