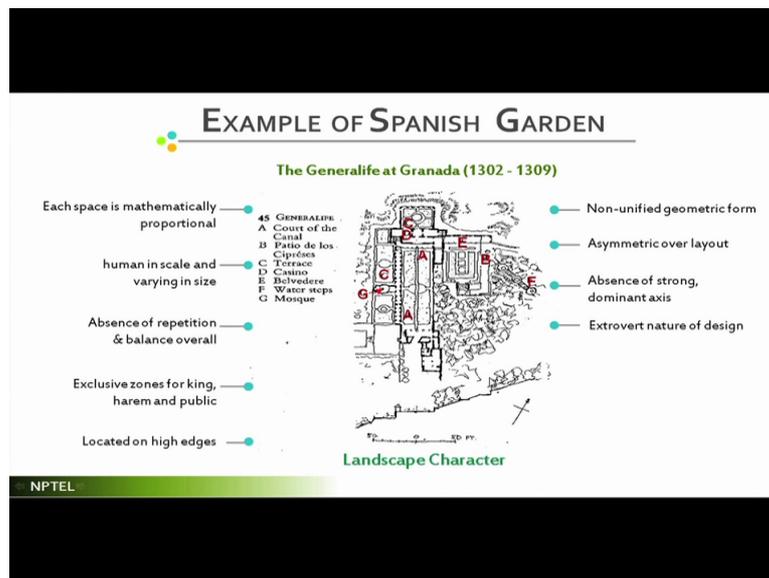


**Course on Landscape Architecture and Site Planning-Basic Fundamentals**  
**Professor Uttam Banerjee**  
**Department of Architecture and Regional Planning**  
**Indian Institute of Technology Kharagpur**  
**Lecture 08**  
**Module 2**  
**Introduction to History of Landscape Design (Continued)**

Now we continue with the same examples of the Generalife.

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Look at this particular slide see the first point is each space is mathematically proportional. As I said that individual spaces are highly geometric so they are mathematically proportional, they are not irregular, ok. Human in scale and varying in size, so basically if we now look at architecture and landscape combination in this you will find that the buildings are or the rooms are or the spaces are highly proportional.

And they are varying in sizes, they never bothered about you know just trying to replicate the same thing in the same size or scale, so that varied. But there is an absence of repetition and balance overall, so all spaces are placed but each one is very geometric. There was exclusive zones for Kings, Harem and Public. This division of Kings, Harem means Ladies or the Queens and her zone and the Public zone.

This has also been reflected or we have seen in Mughal landscape styles, so it is you can always correlate this with the social customs or the traditions or the religious beliefs by which they are guided. So here the Kings portion which are exclusive for the King and other (( ))

(1:43) and also the Guests and there is a separate space for the Queens and this was separate space for the Public.

The whole thing is located on a very high edge, altogether non-unified geometric form as I said, asymmetric overall layout, this what you are seeing is also repeated in the another examples of Spanish landscape historically renounce Spanish landscape, I will explain that in Alhambra.

So there is an absence of strong dominant axis, if you see this do not consider this as a dominant axis if you look at the entire profile of this particular area then we will find that this is the this is one axis, then you go here then this is another axis, if you go to this part there is another axis, if you go to this particular part there is another axis, so there is no dominant axis contrive to the other landscape styles we will discuss, we will compare see as will go from one style to another style will always keep back and forth comprehensive styles between the landscape styles that we have discussed.

So since it a first one that we are discussing I will not give any comparisons with other landscape styles but these will be referred back and again and compared again when this is going to be discussed in other landscape styles.

Extrovert nature of design, so this is what it is all these areas that we have to see in this particular landscape if you see the section over here, you will find that this is the particular structure, this is the zone which is here, this is the flat portion which you are seeing here and there is a sloping area in this. But do not underestimate this just by simple section that you are seeing.

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**EXAMPLE OF SPANISH GARDEN**

**The Generalife at Granada (1302 - 1309)**



- Gardens extension of architecture of house lying openly along the falling landscape
- Extensive use of flowing water and fountain
- Composition is based on romantic view overlooking outside

NPTEL

If you really see the pictures you will find the gardens has become an extension of architectural spaces. There is an extensive use of flower, flowing water and Fountains, if you look at this particular picture you will find the plantation is not very plenty, it is not very dominating but it is almost covering it is you know I would say that this is just optimal require as required.

In this they have this water channel which is running from here to here and the space where the rulers and his other friends will be sitting, they are at a high elevation. This has been again repeated in some other landscape styles will come later. So basically what happens is there is a central channel through which the water is flowing and this water is being kept in dynamic mode by Fountains and Spouts.

The water is flowing below this particular structure and then the vegetation, the low height vegetations not very extravagant. The bit of vegetations that we do see here, this is flowing overflowing from the upper regions which they have planned for, ok. So this is the kind of landscape that they do have.

This is what is romantic, if you recall we had been saying classic, romantic and all these I had been discussing earlier. You know basically it is a romantic and landscape style that they have created, there is no you know hardcore domination by the rulers in this, ofcourse it everything has been designed by their choices and by their approval but the whole ambiance is very very romantic.

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**EXAMPLE OF SPANISH GARDEN**

**The Generalife at Granada (1302 - 1309)**



- Gardens extension of architecture of house lying openly along the falling landscape
- Extensive use of flowing water and fountain
- Composition is based on romantic view overlooking outside

NPTEL



Look at this when you are seeing the downhill, they have the archways, so the archways blends with the landscape, here the architecture blends with the landscape quite often in current scenarios or in contemporary landscaping we are seeing that people are using archways, arcades, columns, colonnades such things with the water and other landscape styles as a blend.

Now this I feel has been we can always say that it has been borrowed from this kind of landscape styles, no harm as long as it is the best practice that could result, ok.

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**EXAMPLE OF SPANISH GARDEN**

**The Generalife at Granada (1302 - 1309)**



- Gardens extension of architecture of house lying openly along the falling landscape
- Extensive use of flowing water and fountain
- Composition is based on romantic view overlooking outside

NPTEL



This is the picture of the same one that we have seen earlier but this picture has been taken from this entry point. So, when you enter you have this structure and then when you are looking at the other parts of it it is the (( ))(6:15) this side.

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**EXAMPLE OF SPANISH GARDEN**

**The Generalife at Granada (1302 - 1309)**



- Gardens extension of architecture of house lying openly along the falling landscape
- Extensive use of flowing water and fountain
- Composition is based on romantic view overlooking outside

NPTEL



**EXAMPLE OF SPANISH GARDEN**

**The Generalife at Granada (1302 - 1309)**



- Gardens extension of architecture of house lying openly along the falling landscape
- Extensive use of flowing water and fountain
- Composition is based on romantic view overlooking outside

NPTEL



So the picture has been the earlier picture was taken from the left side, the (( ))(6:20) on this side and the other picture is taken from the other side. So altogether if you look at it, it is very low key landscape styles.

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**EXAMPLE OF SPANISH GARDEN**

**The Generalife at Granada (1302 - 1309)**



- Gardens extension of architecture of house lying openly along the falling landscape
- Extensive use of flowing water and fountain
- Composition is based on romantic view overlooking outside

NPTEL



Another picture at different point of time gives us a very good overview of this.

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**EXAMPLE OF SPANISH GARDEN**

**The Generalife at Granada (1302 - 1309)**



**Patio de los Cipreses**  
secluded garden of harem with U-shaped canal, surrounded with oleanders

NPTEL



They have other zones you would refer to the plan that hand sketch plan that I have given. If you refer to that you have there is a patio de los Cipreses, this is the area again in which it is highly introvert this does not have any clue of the other areas, other regions. Because this has been placed in different portions and this particular area now is also landscaped well. But again low key, low height, vegetations which we generally call hedges or small shrubs, low height shrubs and then Fountains. So this is a secluded one, essentially for the ladies. So it required even protections.

(Refer Slide Time: 7:33)

**EXAMPLE OF SPANISH GARDEN**

The Generalife at Granada (1302 - 1309)



**Patio de los Cipreses**  
secluded garden of harem with U-shaped canal, surrounded with oleanders

NPTEL



This is small small Spouts in the Fountains which are surrounding surround by hedges.

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**EXAMPLE OF SPANISH GARDEN**

The Generalife at Granada (1302 - 1309)



**Patio de los Cipreses**  
secluded garden of harem with U-shaped canal, surrounded with oleanders

**Water steps**

NPTEL

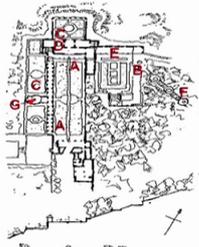


So different views the same thing from different directions. Another thing that they have added here that is called the water steps, interestingly this water step is you know take note of this.

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### EXAMPLE OF SPANISH GARDEN

The Generalife at Granada (1302 - 1309)



- Each space is mathematically proportional
- human in scale and varying in size
- Absence of repetition & balance overall
- Exclusive zones for king, harem and public
- Located on high edges
- Non-unified geometric form
- Asymmetric over layout
- Absence of strong, dominant axis

Landscape Character

NPTEL

### EXAMPLE OF SPANISH GARDEN

The Generalife at Granada (1302 - 1309)



**Patio de los Cipreses**  
secluded garden of harem with U-shaped canal, surrounded with oleanders

**Water steps**  
flow from the tread hillside, creating sound of falling water

NPTEL

If you recall I will just go back to that particular sketch plan to give you a reference for linking you I will come back, ok. In this, this F is the water step, it starts from here goes down like this. So this is the up the hill and this is downhill, ok. What they have created is these steps where we have the balusters or the edges in which the water is flowing. And this water when it falls from one elevation to the next elevation to the next elevation then it creates a sound and that sound is a small you know a ripple sound which makes it very interesting.

So it is no longer a kind of playing kind of landscape which you view it is also you know in siting your auditory sensors. So when you look at this kind of landscapes you find a ripple

sound, so this becomes from the higher elevation when you keep on going down like this the water flows on the sides.

So if you now walk along this and when the water is flowing that also cools the entire (temper) area. So this is what is the water steps these water steps also has become very important feature in many of the modern day landscapes.

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This is a step again if we look at that, the steps which is coming in this form and the water is flowing through this, the water is also sometimes allowed to flow to this particular steps the steps is wet. So what happens is if you walk on that you can have slightly wet steps. It is also very interesting kind of landscape feature, which can be emulated even today.

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**EXAMPLE OF SPANISH GARDEN**

**The Generalife at Granada (1302 - 1309)**



**Patio de los Cipreses**  
secluded garden of harem with U-shaped canal, surrounded with oleanders



**Water steps**  
flow from the tread hillside, creating sound of falling water

NPTEL

So these are different views of this water steps and all these you know different kind of surfaces allows the water to flow and get broken into small small small particles and make sound interesting sound.

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**EXAMPLE OF SPANISH GARDEN**

**The Fortress palace of the Alhambra at Granada (1250 – 1500)**



NPTEL



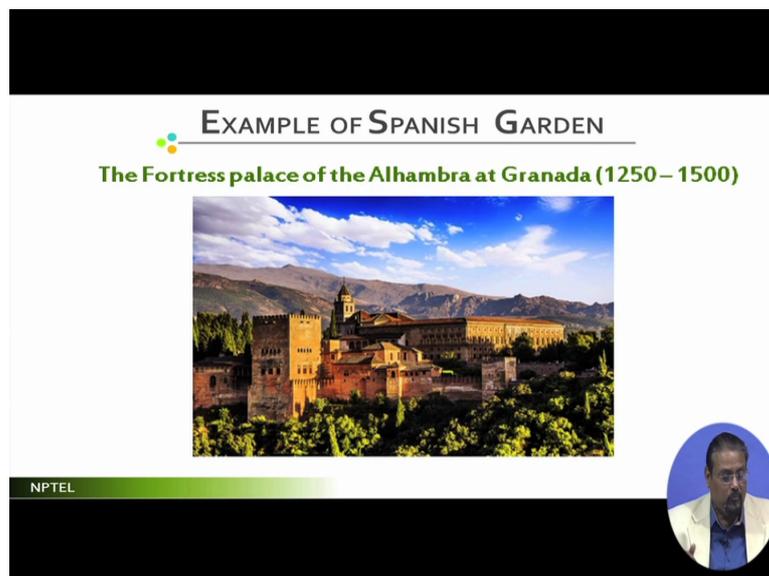
Next example that I am going to cite here is of Alhambra. So it is a fortress palace built over a long period of time. So over 250 years this have been built. So basically it is very interesting to watch, see there is nothing no symmetrical in expression in the whole architecture if you look at the picture. This picture does not give us any idea that this is very very symmetrical if you look at the plan you will believe in it also.

And since it has been built over long period of time you know two centuries then what happened is it kept went on you know appending different structures to the old one to the old one some got dilapidated they got demolished so it was a I would say a dynamic process by which this has been developed or this I am saying architecturally but let us look at it also landscape wise.

But however we are position of this as the higher altitude gives us an advantage in terms of landscape, not indoor but outdoor. If you see on these structures you know all the windows are all the edges they have deliberately put windows on the edges so that you know the inhabitation can see the surrounding landscapes. There are (11:19) people say that it is also for the security, safety reasons no problem I do not contest it.

But the thing is if you have a window overlooking the rolling mountain then ofcourse security, safety is there you will you can take care of it and you can watch as a surveillance. But the thing is enjoying the nature is also very very important.

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So you get that benefit here different are the views of the same places.

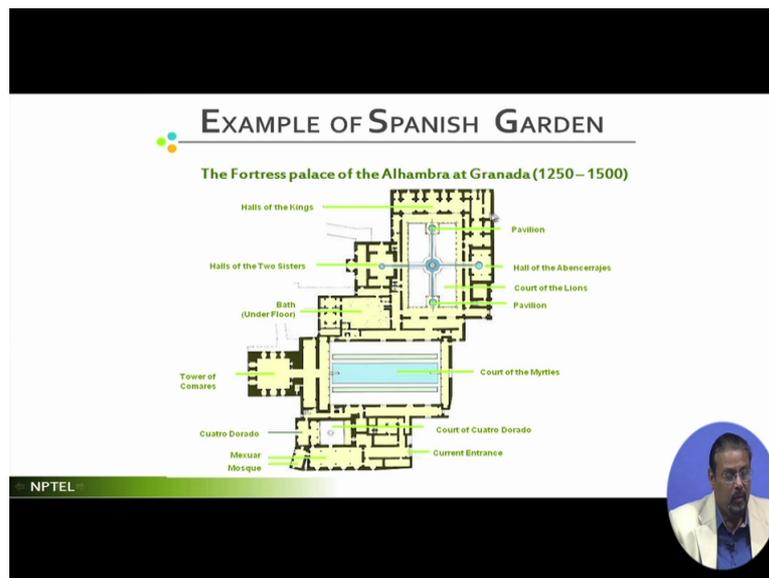
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Look at this plan it gives us a very clear idea that this is developed over edges and at different parts they have got appended. This is one of the architectural characteristics of Spanish architecture. That means each space is highly formal geometric but placed as it required so it was organic in nature of placements and layouts but very much geometric in placement of inside spaces or indoors. This particular project has almost run out of his life so some portion which has still the historians have identified this could be learned from this particular picture.

In fact this is the one which is now visible to all the tourist and which is only this part but let us look at it in this if you see this here each spaces they have a geometric profile and these geometric profiles are interconnected with another spaces, other spaces. But how is the landscape character of this.

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In this let us look at it this portion is hall of the kings, why we are focusing on the architecture because in Spanish architecture, architecture and the landscape they almost blended, it became integral.

And both are equally important in fact I would say in this in Spanish landscapes the building dominated over the landscape, landscape was only complimentary but in other landscape styles landscape quite often dominated. So if we in current scenario in contemporary situation if suppose whenever we are trying to integrate landscape with the architecture then Spanish landscape is the place where we can learn from.

The halls of Kings, these are pavilion, this is the court of lion famous court of lion in which they have a series of stone lions small small miniature stoned lions, they have put it here and they have the (( ))(13:54) of the Spouts each lions face is spouting water and the water is flowing from here to here. So it is not an extravagant water zone, it is only the water is flowing from this particular zone to this particular zone and through Spouts.

So what happens is what is the remaining area is dry there is no landscaping done in this landscaping is this is the portion which we consider as a landscape zone. This is the Hall of Two Sisters, this is the Bath and this is the Court of the Myrtles, this is the tower of Comares. Now let us look at this these are all architectural very much clear architectural in this Alhambra the best two examples that we find is one here and one here.

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### EXAMPLE OF SPANISH GARDEN

The Fortress palace of the Alhambra at Granada (1250–1500)

Halls of the Kings

Halls of the Two Sisters

Bath (Under Floor)

Tower of Comares

Cuatro Dorado

Mexuar

Mosque

Pavilion

Hall of the Abencerrajes

Court of the Lions

Pavilion

Court of the Myrtles

Court of Cuatro Dorado

Current Entrance

NPTEL

### EXAMPLE OF SPANISH GARDEN

The Fortress palace of the Alhambra at Granada (1250–1500)

Halls of the Kings

Halls of the Two Sisters

Bath (Under Floor)

Tower of Comares

Cuatro Dorado

Mexuar

Mosque

Pavilion

Hall of the Abencerrajes

Court of the Lions

Pavilion

Court of the Myrtles

Court of Cuatro Dorado

Current Entrance

NPTEL

So there are examples which are in this Halls of Two Sisters, the earlier picture was of the halls of the Kings, this is the Halls of the Two Sisters.

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**EXAMPLE OF SPANISH GARDEN**

**The Fortress palace of the Alhambra at Granada (1250–1500)**

The diagram shows a detailed floor plan of the Alhambra palace. Labels include: Halls of the Kings, Halls of the Two Sisters, Bath (Under Floor), Tower of Comares, Cuatro Dorado, Mexuar, Mosque, Pavilion, Hall of the Abencerajes, Court of the Lions, Court of the Myrtles, Court of Cuatro Dorado, and Current Entrance. A small inset photograph shows an interior view of an arched hallway.

NPTEL

And this is the Bath under floor.

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**EXAMPLE OF SPANISH GARDEN**

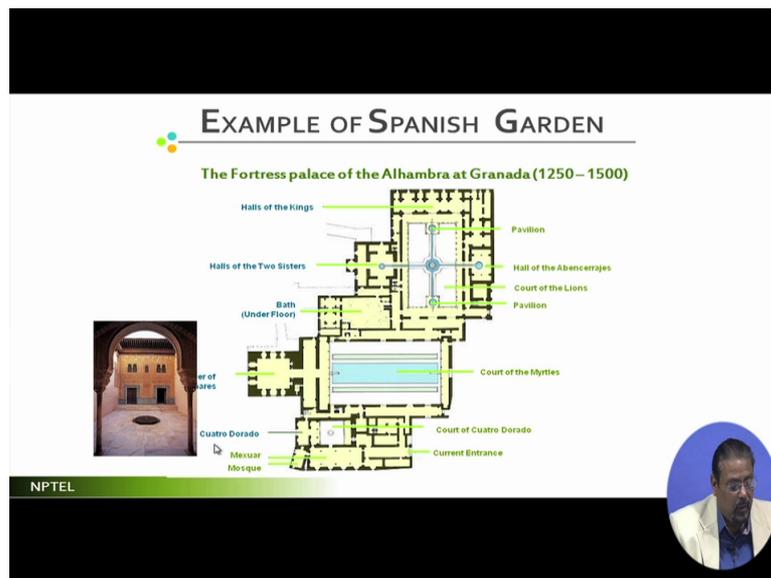
**The Fortress palace of the Alhambra at Granada (1250–1500)**

The diagram shows a detailed floor plan of the Alhambra palace. Labels include: Halls of the Kings, Halls of the Two Sisters, Bath (Under Floor), Tower of Comares, Cuatro Dorado, Mexuar, Mosque, Pavilion, Hall of the Abencerajes, Court of the Lions, Court of the Myrtles, Court of Cuatro Dorado, and Current Entrance. A small inset photograph shows an interior view of a room with arches.

NPTEL

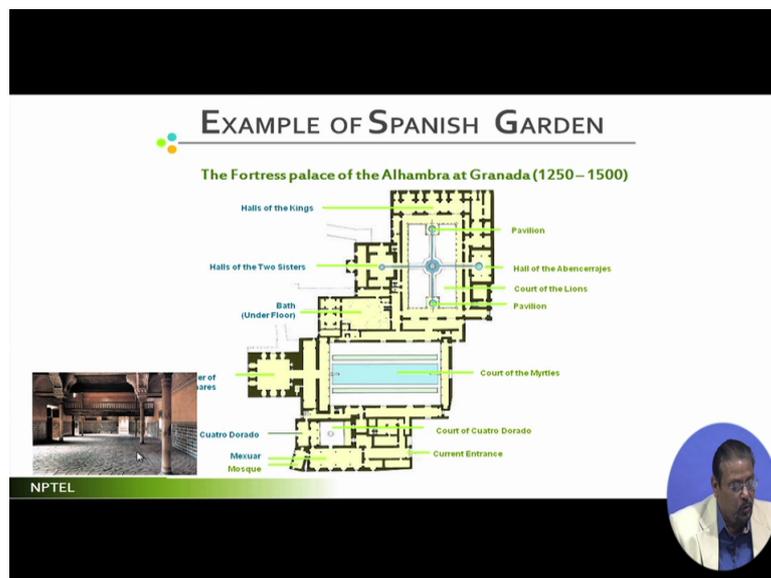
This is the tower of Comares.

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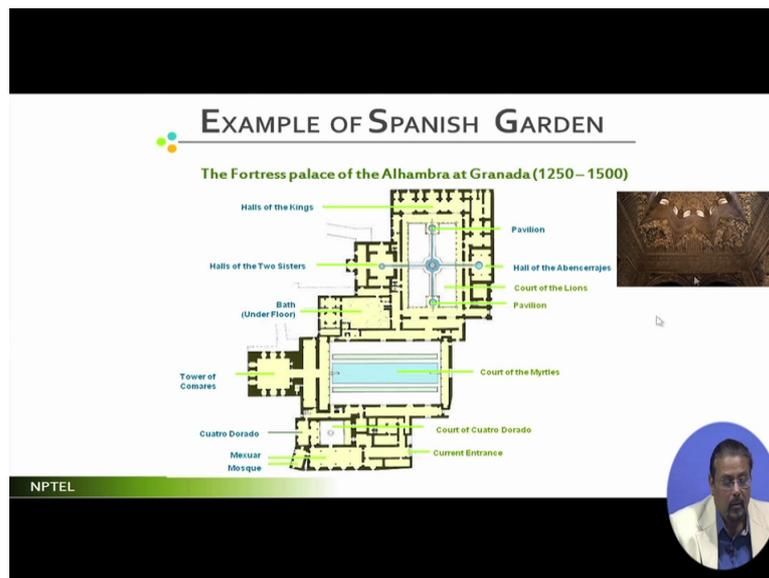
This particular area is called Cautro Dorado sometimes this you know pronunciation is very very difficult for these terms we are not used to it, ok.

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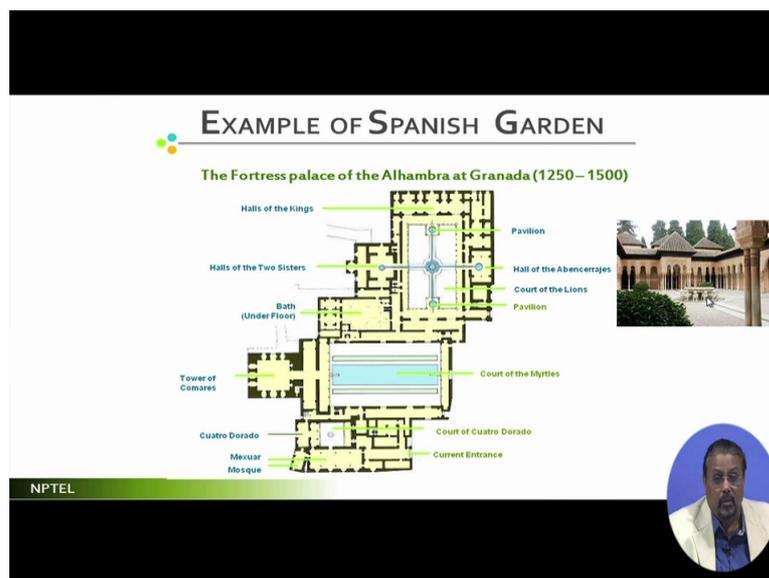
Then this is a zone which is called as Mexuar they have a Mosque here.

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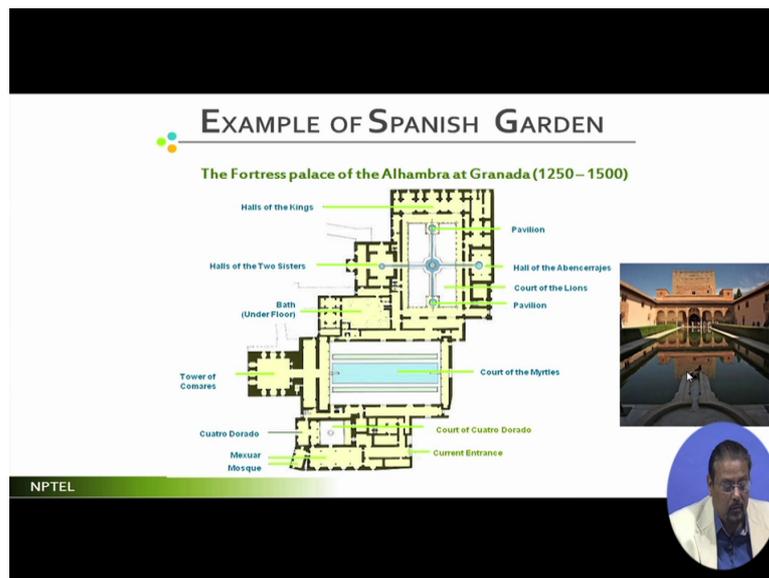
And then this is the Hall of Abencerrajes.

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This is the Court of Lions. Let us see I might have a bigger picture of this but however looking at this itself, look the entire portion is paved, this entire zone is paved and then we have a Court of Lions a series of lion statues here each one of the mouth of these Lions are (15:55) though which water will be spouted and these are small small Channels on all four directions through which water is coming here and ultimately being spouted from here and also they have the Spouts at this Spouts at this particular point.

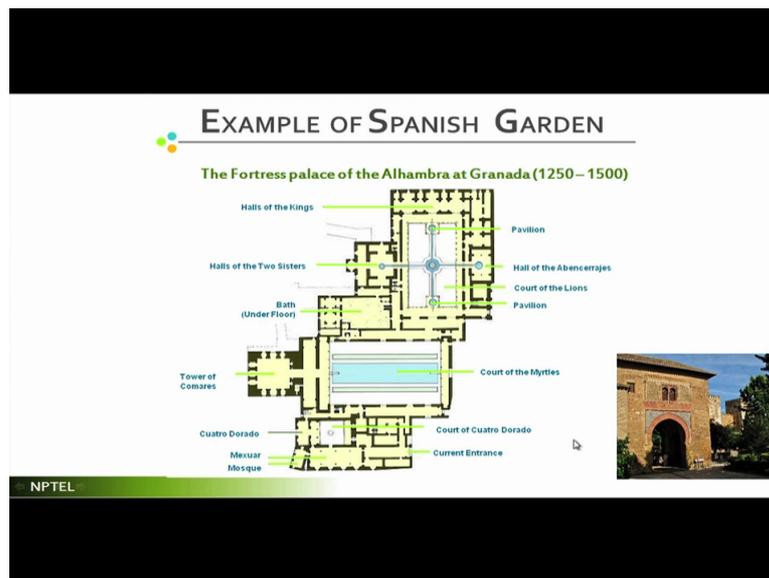
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This is the Court of the Myrtles look at this the entire area is very much enclosed and at the central base they have a large water body and on the edge they have a very low height Hedges, interestingly this is not an extravagant landscaping. So what these Spanish landscape teaches us is you do not have to overdo do not overdo in the landscaping, you do the landscaping as much as it is just required.

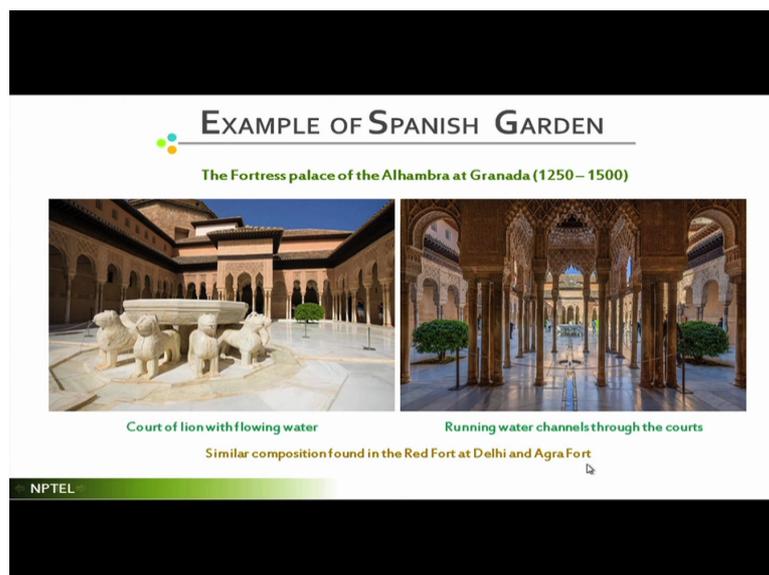
So just required means this is what brings us to a kind of philosophy that where some people think that the landscape should be adopting the minimalist approach. The movement you overdo you forcefully put in landscape then it becomes a landscape actions but here it is an integral actions people failed to realize when you have stepped from one architecture space to a landscape space or wise versa this is something to be learned, ok.

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This is the Court Court of Cuatro Dorado.

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This is the view of that Court of Lions in which these are the Spouts and we also have the Fountains over here and these are the Channels through which the water is flowing. See the Channels are not very deep this one interesting thing is their objective was not to have a deep channel objective was if they could have a surface water because what happens is when there is a evaporation action takes place at that particular point interestingly only the surface of the water matters, the depth does not.

So there is no use giving that depth and ultimately having more amount of water because even if they had plenty of water, this depth does not add anything to our temperature conversions. So it is just the depth that is required over which the surface of water will be now evaporated and it will cool the entire surfaces. If you look at this particular picture in detail in slightly closely you will find it is hardly there is any depth.

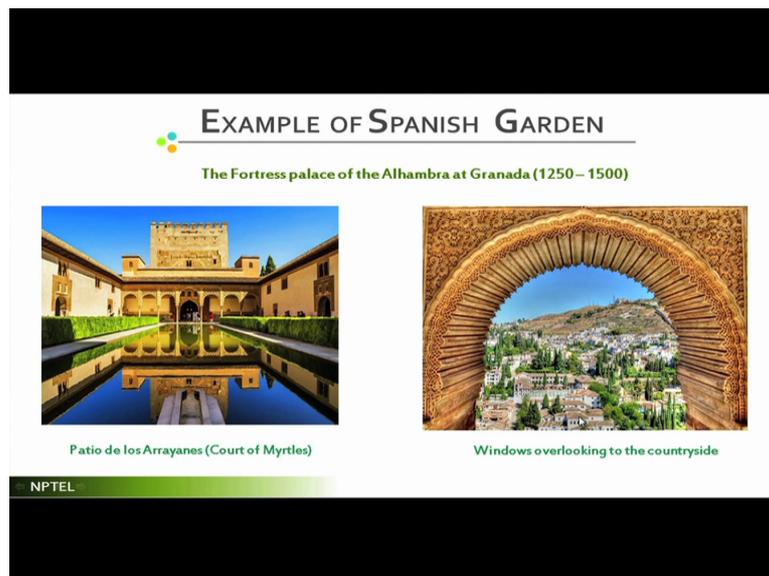
And if I try to see measure from this it may not be more than 50 mm or may be slightly more 80 mm that is a kind of depth. So we have a sheet of water which is rolling, so we do not require more amount of water but what is important is you have to have more surface area more surface area in that means you have more surface area of water for evaporations and the depth is little.

So this is the quantum of water that just (( ))(18:45) for the entire evaporative cooling, this is interesting to note and mind it they have done it long long years back. So the running water Channels again enters to the court from there it comes inside, so this has been followed even the Mughal garden styles.

So what happens is, this particular space which is under shed also has a cooling affects, first of all the cooling is done by shading and the second of all cooling is done by evaporative cooling. Here the water that flows it does not go in high velocity it just flows very gently over it because if it goes by high velocity, evaporation may not be feasible that way.

So if it just remains but does not remains static it just flows automatically there will be evaporative cooling that will take place, this is the fundamental that they have used very interesting. So that is what I have said here, similar composition is also found in the Red Fort of Delhi and Agra Fort, I will discuss that later.

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This is Patio de los Arrayanes (Court of Myrtles) they call if you look at this, it is a water body. See esthetically if you look at it people get amazed to see that there is a nice reflection of the structure where the point is we are discussing about landscape specially ofcourse aesthetic also a part of the landscape. So if you look at it you do not see much of reflections rather greens and you do not have much greens either, so what you have here is the water body and a very low height hedge that is enough and that creates a grandeur in this particular landscape styles.

If you recall I was talking of the windows to overlook to us outside, this is what it is. They have different such kind of (())(20:37) on the exterior wall. So whenever they look around they will see the hills they will see the sky blue sky, they will see the greens and other structures. But they are at the lower altitudes, so they always overlook towards this, this is interesting.

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The garden of Daraxa in which they have a very ordered landscape design and here we can see they have also used the vertical landscaping creepers you know which are you know which are supported by the trees. So this is again very inwardly introvert landscape that they have created. I will summarize these, so these are all separations they have the pathways, pavements and then the small small hedges.

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Before going to the Mughal let us summarize what we have learnt from Spanish landscape architecture. First of all they have always integrated a blended landscape with the architecture, architecture never dominated over the landscapes rather landscape became

complementary to or complementary to the architecture. So in this what we learn is architecture and landscape are together.

Second thing what you have learnt from here is they have not overdone landscaping they have utilized anything that is available. They have utilized the (22:06) molten snow water for Fountains and all. So they have always used, they have always placed the water Channels and the other things at the lower altitudes so that the water can flow from up to downhill using the flow of gravity. So that eliminated a good amount of manpower, nobody had to lift the water to that level and then ultimately release it for Fountains to work, it worked naturally so the basic science they have used.

Third thing that they have used is architecturally the spaces are different though very geometric they are different and they are not necessarily in the same axis. So the landscape also did not remain in the same axis. So if I now say, architecture is non-axial but geometric here the landscape is also non-axial but geometric, why it is geometric because it is guided by the inner walls of that particular space within which it is contained.

But however the moment you walk into this see through the picture then you feel that you it is very much to the human scale and highly responsive and highly romantic. So it was not the strong grandeur that you are forcefully being said look at the landscape and enjoy, no you as soon as you step into it you start enjoying.

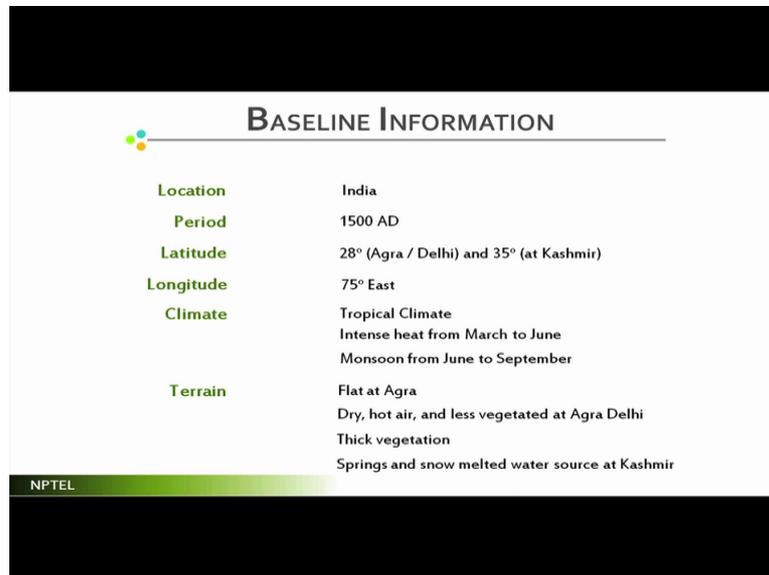
At the same time they have used the scientific phenomena of evaporative cooling, this evaporative cooling through court of lions, through flowing Channels, through less shallow Channels, wider shallow Channels and the Fountains they have reduced the air temperature in the surrounding zones up to the human height there is no reason that you have cool all the parts or entire volume and there they have done it very very intelligently these are things to be learned.

If you look at the Cordoba is an example in which the first idea or the intension of cooling an area for the benefit of the people is to be learnt. So this is what we have learnt from the Spanish landscape design and I can assure you if you look at the contemporary designs you will find it appears to be almost almost Spanish but with a bit of mix of other styles.

Now let us discuss about the Mughal landscape style, see why Mughal I am placing immediately after Spanish because the concepts are similar, they have used similar similar ideas, similar concepts, similar elements. So element wise in the Spanish what we will found

it is water body, fountain, vegetation, steps, pebbles such elements. In Mughal also we find the similar things what we are coming sequentially here.

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BASELINE INFORMATION	
Location	India
Period	1500 AD
Latitude	28° (Agra / Delhi) and 35° (at Kashmir)
Longitude	75° East
Climate	Tropical Climate Intense heat from March to June Monsoon from June to September
Terrain	Flat at Agra Dry, hot air, and less vegetated at Agra Delhi Thick vegetation Springs and snow melted water source at Kashmir

Baseline information, location is India and the period is 1500 AD, latitude is 28 degree in Agra/Delhi and 35 degree at Kashmir, interestingly in India we have two regions one called Delhi region and other is called Kashmir region. Delhi is typically hot arid zones and the Kashmir is cooler zones, Kashmir is in the hilly area and Delhi is in the flat area, interestingly the whole Mughal garden concepts got developed in these two parts which earned popularity in the history.

So longitude and latitude wise longitude is 75 degree east the climate is tropical climate, intense heat from March to June, monsoon from June to September. So that is the kind of climate and ofcourse in the Kashmir region it is cooler all true. The terrain is flat in Agra and dry, hot air and less vegetated at Agra Delhi, Delhi is similar to that Agra, thick vegetation and springs and snow melted water source in Kashmir but which has not true in Agra Delhi.

So if you look at this how does it differ as I said that I will be always comparing with the last one that we have discussed how does it differ or match with the Spanish landscape. Here some areas which are very flat, very hot arid they have used the landscape. Some areas which is undulating in hills very cold, they have used the landscape but interesting thing is in Spanish landscape they have used it as it required but in Mughal they have used the different style I am coming to that.

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The slide is titled "BASELINE INFORMATION" and contains a table with the following data:

Socio-Political History	Descendants of Taimurlang of Islamic Faith
Expression	Organised - Symmetrical
Architecture	Symmetric individual Spaces with Strong Axial Layout
Landscape Character	Highly Formal, stands out independently <i>Charbag</i> (Four Garden square concept)
Elements and Materials	Water channels, Fountains, <i>Baradari</i> , <i>Chabutara</i> , Sloping water cascade ( <i>Chadar</i> ), Low height central Vegetation, Large and high peripheral vegetation

NPTEL



If you look at the socio-political history of this Mughal landscape styles, so you know basically Mughals were you know descendants of Taimurlang and they are of Islamic faith but Islamic faith did not really dominate the landscape styles that might have dominated some bit of architecture but not the landscape styles, landscape style was a very clear thing that they have develop and which is unique I would say.

Expression of the landscape is organized-symmetrical, if you look at Mughal garden it has to be symmetrical compare with Spanish no they are asymmetrical, each individual component may be symmetrical or you know balanced and regular but as soon as we look at all those parts you know as a whole is not symmetrical, their it strongly differs. This Mughal garden strongly differs from (Islam) Spanish landscape.

Architecture wise Mughal garden styles in which symmetric individual spaces with strong axial layout, ofcourse we do see in Agra Fort or in Red Fort in Delhi that they are placed one after another, we sometime we fail to see the real axis but if you really follow one space you will find that it is lining one space to the next to the next to the next. But however it is symmetrical individual spaces in general with a strong axial strong axial layout.

Landscape character let us see highly formal, stands out independently. It is like what do I mean by this standing out independently is if in the landscape you have some structures take the structure out landscape still remains as it is. So landscape is unique just placed with the architecture features. Charbag is the concept that was brought here by Babur the first ruler of Mughals who we identified as the first Mughal.

Charbag means in Hindi Char, in English it is four, char means four and bag in Hindi, in English it is garden. So it is four gardens and four garden means four squares. So Charbag is a concept which was brought by Babur and first introduced in the example of Ram bagh in Agra, ofcourse the garden is in a back step now but however that is the first start of the Charbag and later on it had been followed everybody followed that till the Mughal gardens were developed by anybody.

Historically I will come to that historically little later, ok. What are the Elements and Materials, Water Channels, Fountains, Baradari, Chabutara, Sloping Water Cascade called Chadar. Let me just highlight Baradari and Chabutara. Water Channels you have seen just like our Spanish gardens, Fountains you have seen just like Spanish gardens.

Baradari is a place you have seen in the Spanish garden as well in Generalife if you recall that once you see the first courts at the elevated level the rulers position that is what is the Baradari, what they have done is all these rulers they always used to sit over the flowing water, so whenever they were at the elevated position the water is to flow below them and that is to cool the entire temperature, so they used to always have a very nice experience the water is to flow below that particular space that is what is Baradari.

And Chabutara is a square podium which they have placed even over the cross water but very close to the water. Baradari used to be very high it may be one floor above or you can say slightly half above but Chabutara is almost above the water and that is the place people used to have you know all kind of cultural activities or even the ruler used to sit with his (( )) (30:30) in such areas, thank you.