

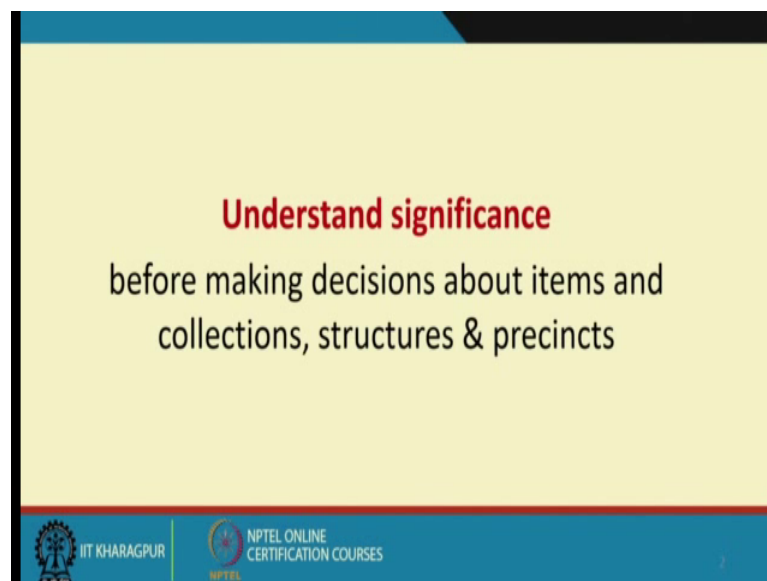
**Architectural Conservation and Historic Preservation**  
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**Lecture – 10**  
**Divergent Approaches for Managing and Rehabilitating Heritage Properties**  
**Degrees of Intervention**

Welcome to our next lecture, we have discussed about the significance of the cultural properties. From that today we will discuss about the different approaches or divergent approaches for managing and rehabilitating the heritage properties. We can also call it a degree of intervention, because as you will see that it also, when we are talking about how do you intervened in the cultural properties there is also degree, because we have to talk about the minimum intervention.

Anyway we will gradually come to that. We have in our last lecture discuss about understanding the significance, and we also discuss or with the various case study cellist an example, that before making decisions about the items and collection and structures and precincts we have to understand the significance, and we have at length discussed about values and significance, the process everything.

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We, also as I have mentioned in our introductory lecture that conservation means all the processes of looking after the place, which has of course, as a significance so as to retains its cultural significance. So, this is very important that to understand that there are many ways there diverge interpret. So, there can be many ways, many processes and also the major objective or the main objective, is to retain the cultural significance what we have discussed. These two are interrelated, because until and unless we understand the significance we cannot decide which process has to be adopted for a particular case. So, now, today in our lecture, we will discuss the various approaches and processes. Let us see one by one.

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**Processes / Degrees of intervention**

- Indirect conservation
- Preservation
- Consolidation
- Restoration
- Adaptive Reuse / Rehabilitation
- Reproduction
- Reconstruction

*Fielden, Bernard (1989). Guidelines for Conservation :a technical manual. New Delhi: INTACH*

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There may be the indirect conservation, they may be preservation, consolidation, restoration, adaptive reuse or rehabilitation, reproduction, reconstruction all of this processes come under the broad umbrella of conservation. So, we will take one by one that what these term on each of this process signifies. First let us take the indirect conservation or prevention of deterioration.

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**Processes / Degrees of intervention**

**Indirect conservation/ prevention of deterioration**

- Protecting cultural property by controlling its environment
- Preventing agents of decay and damage from becoming active
- Sound maintenance procedure based on regular inspection guidelines of conservation

*Fielden, Bernard (1989). Guidelines for Conservation :a technical manual. New Delhi: INTACH*

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It actually says that protecting cultural property by controlling his environment. So, if you have signify or understood the significance of a place or a cultural property it can be

an artifact or can be a structure, it can be a group of structures. So, here what is being seen that it has to the culture by controlling its environment, preventing agents of decay and damage from becoming active, there may be various ways or that or structure can be affected and so, preventing the agents of decay and damage from becoming active. And finally, the sound maintenance procedure based on regular inspection and guidelines of conservation.

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**Processes / Degrees of intervention**

**Indirect conservation/ prevention of deterioration**

- Protecting cultural property by controlling its **environment**
- Preventing **agents of decay and damage** from becoming active
- **Sound maintenance** procedure based on regular inspection guidelines of conservation .

*Fielden, Bernard( 1989). Guidelines for Conservation :a technical manual. New Delhi: INTACH*

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So, as we can see that these words are to be understood and remembered very clearly. So, once we are talking about the environment, we are talking about the agents of decay and damage, we are also talking about the sound maintenance policy. So, let us see what all this mean.

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Processes / Degrees of intervention  
**Indirect conservation/ prevention of deterioration**

Protecting cultural property by controlling its environment



Udayagiri caves from Khandagiri hill  
Bhubaneswar in Odisha

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So, protecting cultural property by controlling his environment. Let us take an example of Udayagiri caves from Khandagiri hills in Bhubaneswar Odisha, its located here, and it is a very important site. What is this importance will come gradually. There are two hills on the two sides of the road and there are many rock cut caves.

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Processes / Degrees of intervention  
**Indirect conservation/ prevention of deterioration**



Hathigumpha inscription  
the inscription erected by Kharavela

Udayagiri caves from Khandagiri hill  
Bhubaneswar in Odisha


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Now, in this caves one none of the cave, the Hathigumpha inscription is there and this inscription is absolutely important, why it is important? Because these inscriptions are

done by Kharavela was the Emperor of Kalinga in India during the second century B C, he was also responsible for the propagation of Jainism in East India.

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**Processes / Degrees of intervention**  
**Indirect conservation/ prevention of deterioration**



**Hathigumpha inscription**  
the inscription erected by Kharavela



**Kharavela-Kingdom**  
Source : Jatland Wiki  
retrieved on 20/12/2017  
Under GNU Free Documentation  
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- Karavela - Emperor of Kalinga in India, during 2nd century BCE.
- He was responsible for the propagation of Jainism in East India

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If you look at the emperor of the Kharavela, it is a huge area, because he is actually Emperor Ashoka devastated and then he sort of built up his an empire. So, now, what is the relationship of this empire Kharavela and this inscription, because this inscription the Hathigumpha inscription is the one which talks about Kharavela his reign, his twins and everything, and it was been deciphered and this is in one of the caves, and it has been gems princes and many other historians actually try to understand and it gives a very important historical document. But now where it is located is very susceptible to damage, because it is exposed to the environmental condition, water, the sunlight, many other causes if its kept there like that it cannot be maintained.

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So what were the options which are available? One could have copied that and kept it like that, one could have removed the entire stone to a museum, but if you see that if we associate this inscription with the place in his best to keep the inscription in his original location. Now keeping it original location, just like that it own would not have been stayed very long. So, it was very important to protect it from the environmental condition without touching the inscription and. So, archaeological survey of India who is in charge of decides what they have done, is they have done this external sort of an extension in a very comfortable manner with the stones, similar type of sand stone and they have done it. So, that that inscription which is a very valuable historical document, its kept in its place and is no damage by the different condition.

So, in this case what we see that the inscription is being protected without touching the inscription, what are the causes and the prevention has been taken like that. this is quite a good example, oh why I see is good example, because this is one of the example I think archaeological survey has done a very sensitive manner, the extension they have matched the material, but at the same time they have not tried to copy any original, the structure is very clear that is a new addition, what some sort of a sensitive approach has been adopted, it is not always like that.



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Processes / Degrees of intervention  
**Indirect conservation/ prevention of deterioration**




**Ramkinkar Baij**  
(26 May 1906 – 2 August 1980)

an Indian sculptor and painter, one of the pioneers of modern Indian sculpture and a key figure of Contextual Modernism.


Mill Call, Sculpture by Ramkinkar Baij,  
Santiniketan



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This other example also where we have talked about an inscription, these are the examples of the sculptures, it is in Santiniketan by Ramkinkar Baij. Ramkinkar Baij, it is a very interesting life, he was the son of a barber a village boy, and he came and he was noticed by the teachers there and Ravindranath Tagore adopted him and brought him to the campus of Santiniketan, he adopted means I say did not as an adoption in the normal way, but I mean he was taken care of and he studied there and he became a sculptor, renounce sculptor.

Now, as we see the Indian sculptor and painter, he is one of the pioneers of the modern Indian sculpture and a key figure of the contextual modernism. So, night Ramkinkar Baij what he did that, because he was very innovative and he was experimenting with the material. So, when he was doing apart from his painting another sculpture, when he built the series of sculpture here he experimented other than the clay and the mud and other thing he experiment with concrete. So, when he did a series of such sculptures which I keep outside, he experiment with concrete and the reinforcement was given by the (Refer Time: 08:58).

Now being outside and there are many of them, like there a statue of Buddha, there is a Santal family and their lot series all over the campus, they are there. They are very important artistically, aesthetically, historically an association with a great person a sculptor an artist like Ramkinkar Baij.

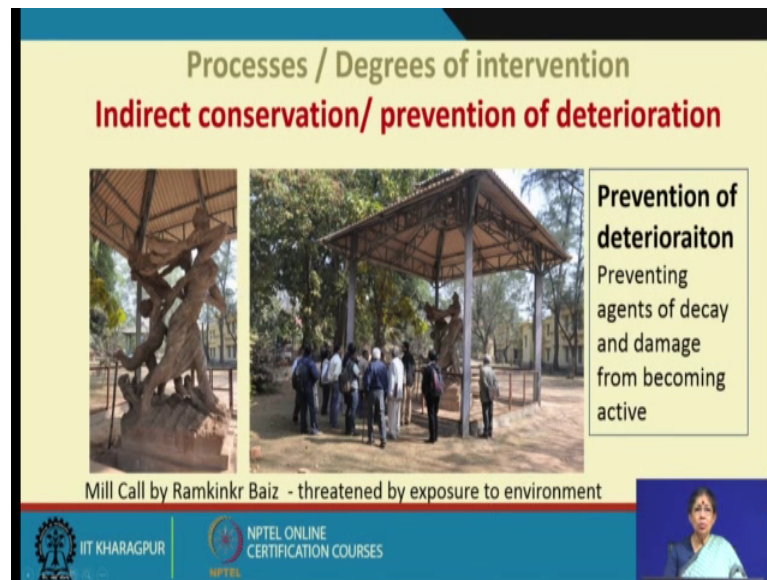


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Now, the problem is that, when they are exposed to the environment and there are some cracks there, and when there is a crack, there is a seepage of the water and because of that the iron rods which are inside, which he used as a sort of support that gets corroded and it bursts and a corrosion sort of expands. So, what would have been the best way to preserve that, there were been many ways to do that; one is that to remove that within in interview whether they will not be exposed to the this such environmental condition or the damage or decay or just to leave it like that and say that let it be. Now, what Visva Bharati authority or Santiniketan did, is that they put up certain shelters or support or canopy on these structures.

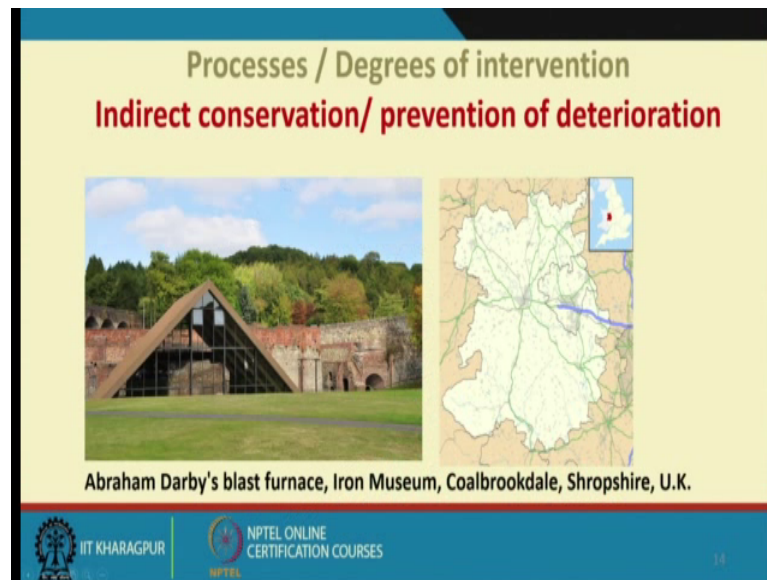
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So, that they do not get eroded by rainwater and other things. There is a lot of opposition against that, because some say that it is not very aesthetically pleasing, it is not the original environment, but I think one has to take a decision, but in this case what we see, that it is actually without taking care of the structure itself or sculpture itself, it is trying to manage the environment which is causing damage to the sculpture of the structure itself. I will later on come to that, the other alternative also has been adopted in that case, but that will talk of later.

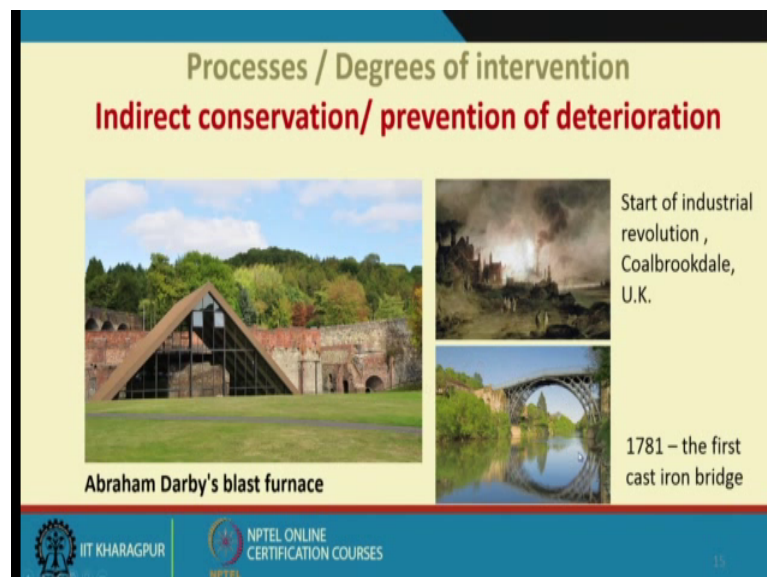
So, this is one of the case of a minimum intervention and which you call the indirect conservation, because it is really not touching the sculpture itself and trying to prevent the process of deterioration, and preventing the agents of decay and damage from becoming active in this case mainly the rainwater. One can question that why not taking them inside the museum. In this case we have to remember that the context is also very important the site, the surrounding, the nature keeping them in the museum could have sort of saved the structure, but it would have lost its context and the surrounding. We will talk in the next example, we will talk about another example where this contextual or this importance of the surrounding to a structure is very important and we will see that how to maintain the relationship and how do we do the prevention of deterioration.

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These example is a very well known example, because it is a world heritage site, it is a Abraham Darby's blast furnace in iron museum Coalbrookdale in Shropshire in UK is here. Now what is the importance of this blast furnace, you can see that it is protected the original burst furnace which is made of brick, it is protected by a very modern structure.

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This blast furnace actually indicates the start of the industrial revolution in coal brutal, the entire area it is a 7 miles long area, the entire area is known as a iron bridge gorge museum or what you decide, the indicating the place where industrial revolution took his


birth and this is the blast furnace which because Abraham Darby with your family or we are experimenting with the blast furnaces, the Abraham Darby the third who actually, because of the smelting mask in melting of iron in this blast furnace was able to build the iron bridge which is still there, very close to this blast furnace 1781 the first cast iron bridge he built, because of the processing of the iron instead of coal he used coke and that is why the blast furnace, because of this technological process it is very important.

Now, being there like that, it was exposed to all the damages and decays and it would not have stayed. So, one could have taken the photograph and let it be like that, one could have again removed it reconstructed in inside, what the authority and the stakeholders and the experts thought that it is, it has a relationship with the site and the surrounding and being very close to that cast iron bridge is very important. So, let it keep it like that and so cover it.

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**Processes / Degrees of intervention**  
**Indirect conservation/ prevention of deterioration**

**Preventive Measures**



<https://media-cdn.tripadvisor.com/media/photo-s/0e/ea/f0/de/blast-furnace.jpg>

The old Furnace is where Abraham Darby I perfected the smelting of iron with coke instead of charcoal 1709

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So, they have covered it, there is a very interesting thing, because this is the picture of the blast furnace where he perfected the smelting of iron with coke instead of charcoal in 1709, and when it is now protected and there is a sound and light show which goes on and people come there and can know that what had happened, what is the significance of this blast furnace, and this is the what we talk about the preventive measures. So, what we have seen in this example is that this indirect control or conservation means prevention of deterioration, it can have the various depending on the case, depending on

the artifact, depending on the structure and its nature the material it can has to take care of what are the major causes of decay and damage one has to understand that and then one has to take preventive measures.

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Processes / Degrees of intervention

**Indirect conservation/ prevention of deterioration**

- ✓ Control of internal humidity, temperature

The slide features a photograph of a temple interior with a large, ornate archway and a statue. The bottom of the slide includes the IIT Kharagpur logo and the NPTEL Online Certification Courses logo. A small video inset of a presenter is visible in the bottom right corner.

So, it can be the control of the humidity and the temperature; like in this case we see that it is the humidity and the water seepage which is really causing is one of the temple in Bengal, where the humidity and the seepage actually is creating the problem and which lead to further structural problem with measures to prevent fire, arson, theft, vandalism.

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Processes / Degrees of intervention

**Indirect conservation/ prevention of deterioration**

- ✓ Control of internal humidity, temperature
- ✓ Measures to prevent fire, arson, theft and vandalism

The slide features a photograph of a temple interior with a large, ornate archway and a statue. The bottom of the slide includes the IIT Kharagpur logo and the NPTEL Online Certification Courses logo. A small video inset of a presenter is visible in the bottom right corner.

You can see that even manmade causes have very significant, because in this case if you see that it is just your vandalism which is causing the damage of this property, how do you take care of that, this is also very important, it can be the fire, it can be the theft. There are many cases. So, one has to understand how to prevent such a damage or decay.

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**Processes / Degrees of intervention**

**Indirect conservation/ prevention of deterioration**

- ✓ Control of internal humidity , temperature
- ✓ Measures to prevent fire , arson , theft and vandalism
- ✓ Provide for cleaning and good overall housekeeping
- ✓ Measure to reduce both atmospheric pollution and traffic vibrations

By Pam Brophy, CC BY-SA 2.0,  
<https://commons.wikimedia.org/w/index.php?curid=1300249>

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Then third is the, provide for cleaning and good overall housekeeping. So, this housekeeping is very important, the regular maintenance to understand, because every fabric the building tell his own story, it shows that there is a process of decayed does not happen suddenly and. So, it sort of gradually builds up and wanted. So, if there is a good housekeeping then many of the later damages and decay can be prevented very well. They can be measure to reduce both atmospheric pollution and traffic vibration. This is also very important examples, this is Stonehenge which is again a world heritage site, there has been a highway which is very close to the site, and this highway is causing vibration and it is creating problem of the visibility of the temperature, the environment, overall environmental thing and there is also archaeological remains.

So, there has been a great movement, and the now this load has been shifted, this highway has been shifted away from the Stonehenge which is a world heritage site. So, there are measures which can be taken which we can, if you try to understand that what are the causes and others. So, all this thing actually come under the first step; that is indirect conservation and prevention of deterioration.



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**Processes / Degrees of intervention**  
**Indirect conservation/ prevention of deterioration**

- ✓ Control of internal humidity , temperature
- ✓ Measures to prevent fire , arson , theft and vandalism
- ✓ Provide for cleaning and good overall housekeeping
- ✓ Measure to reduce both atmospheric pollution and traffic vibrations
- ✓ Control of ground subsidence caused by, say abstraction of water

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Control of water again is in various form, is very important to understand, because in many cases the control of ground subsidence caused by let us say abstraction of water, because many structures could have sort of been there were initially there was no human settlement, may be outside and because of the increase in the density and the extraction of water from the ground, with many times causes a change in the substrate water level and which may cause a problem later on.

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**Processes / Degrees of intervention**  
**Indirect conservation/ prevention of deterioration**

Regular inspection , maintenance ,  
cleaning schedules , good housekeeping  
and proper management



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So, one has to see that how to take care of. So, this first I talks about regular inspection, the maintenance, cleaning schedules, good housekeeping and proper management. For example, this is again it is not any stress structure, it is a small temple, a household temple near Bakura in Bishnupur or Bishnupur in Bakura. Sorry and then if you can see that it is very unique, because, not because of the style there are many such temples, there it actually A Giri Govardhan temple. So, what the artist thought that they actually made the clay look like stones, and they made it look like a hillock, and it is quite unique in his sort of a conception the design and the structure.

Now, you see that there minimum things, the trees are coming up and which I mean because of this rain water and the monsoon climate. So, these trees are coming up and. So, these actually they are allowed to remain like that they will grow and cause a further damage to their. So, this regular inspection could have saved or could prevent the damage and decay of this temple. So, this is what we call a good housekeeping of the structures.

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**Processes / Degrees of intervention**

**Indirect conservation/ prevention of deterioration**

**Maintenance**

- The continuous protective care of a place, and its setting.
- Maintenance is to be distinguished from repair which involves restoration or reconstruction.

*The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance. Retrieved from <http://australia.icomos.org/>*



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So, once we are talking about this measure we should understand that what we are talking about is controlling the environment, the agents which can cause a damage to the structure and. So, the maintenance is very important part of that. At the Burra charter the Australian ICOMOS charter for the places of cultural significance, how it defines maintenance is the continuous protective care of a place and its setting. So, the setting is

also very important, and the maintenance is to be distinguished from a repair and which involves the restoration or reconstruction. So, here maintenance is not reconstruction or restoration, these two are very different things.

So, when he was talking about maintenance. Like again this is a very small temple, we see that there are it is not as it has not been restored or it has not been reconstructed, but it is a simple cleaning process which is very different from the earlier temple what we have seen; that is setting has been clean, the bricks have been clean, some pointing has been done, something just minimum maintenance has been done and that is why this temple is likely to survive for a longer period.

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Now, let us talk about the next stage which is the preservation. Now preservation which is different from the first indirect conservation, preservation means maintaining a place in its existing state and returning the deterioration. So, its maintaining a place in its existing state, this is very important to understand and returning the deterioration. So, its actually directly deals with the cultural property. Let us take this example, this is Pompeii in Italy you know this again a world heritage site very important, because it was (Refer Time: 21:18) devastated by an earthquake and the entire city got buried under the ashes of the volcano, and this has been taken and we have can go to that city and see what it was like.

In this case what you can see that, this colonnade which was there on the side of the road and here you can see that the plasters, which are original plaster, they have been kept like that, where the plasters were not there, they have been just the big bricks have been exposed and only that portion of the colonnade which has been there they are kept, no restoration, no reconstruction nothing has been done; whatever has been remaining they have been preserved in his original existing state. So, this is a different. Now of course, the taking care of the environmental and causes of decay and damage is also has to be understood, but here we are actually directly dealing with the cultural property.

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**Processes /**  
**Degrees of intervention**  
**Preservation**

- Preservation deals directly with cultural property
- Repairs must be carried out when necessary to prevent further decay

Pompeii , Italy


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So, preservation deals directly with the cultural property and repairs must be carried out when necessary to prevent further decay. So, in this case definitely this brick which is an expose brick, and very difficult to maintain that, some sort of repair must have been done to keep it like that, but not plastering. So, it is the minimum intervention which has been done. So, that it can remain, or it continues to remain in this existing state. So, these are very important to understand.

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Processes / Degrees of intervention


**Preservation**



Taj Mahal , a world heritage site

Pollution turning Taj Mahal yellow:  
Study

And Bhatnagar TVN Jan 2, 2015, 04:34 AM IST



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We will now talk about another case which is very, even now we are talking very recently this has been has come up in the newspaper of Taj Mahal; a world heritage sites people from all over the world come to see this Taj Mahal and its very close to our heart also. Now, we know that it is a long story, because for years for decades we know that how the Taj Mahal is been affected by the pollution, and there are some damages which are causing. The main damage which is can see that pollution is just the article which has published the pollution turning Taj Mahal yellow. So, some study has been done. So, the original color of the marble is getting lost, because of the pollution factor.


So, there are different measures which has been taken by Agra, the authority and the state government and ESI, to take care that how the pollution level can be reduced, whether they are trying to not to allow the cars in the near vicinity and also they are trying to see that if there are the Mathura refinery case is very important, to prevent those refinery to be there or to say that they do not the smoke is not so, does not have that much of pollutant which is damaging the marble. But now the problem has already happened that the model is becoming yellow. So, what to do about that, this they are what we call about the preservation.

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**Processes / Degrees of intervention**  
**Preservation**

Taj is changing colour due to deposition of dust and carbon-containing particles emitted in the burning of fossil fuels, biomass and garbage.

Pollution turning Taj Mahal yellow: Study  
And Bhatnagar TARI Jan 2, 2015, 04:34 AM IST




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So, let us see what is done the Taj is changing color due to deposition of dust this is one, because and are the carbon containing particles emitted in the burning of fossil fuels, biomass and garbage. So, these are the major cause which is causing the discoloration of the marble of Taj Mahal. So, what has been done is that these are face lifted and slaps on a mudpack.

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**Processes / Degrees of intervention**  
**Preservation**

Taj Mahal gets a facelift - and slaps on a mudpack



- Treatment consists of applying Fuller's earth to the entire structure of the Taj.
- The clay forms a thick paste that absorbs dirt, grease and animal droppings, and is washed off with distilled water, leaving the surface relatively pristine.

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So, what is a mudpack, it is almost a fullers earth which they call it and this treatment consists of applying the fuller earth to the entire structure of the Taj and this sort of put in

different portions one by one; that is being applied and then the clay forms a thick paste and that absorbed the dirt, grease and the animal droppings and its washed off with distilled water, leaving the surface relatively pristine.

So, here we are not really changing the marble or because it is discolored, we are trying to clean it by applying something externally. So, we must understand this difference, we are now directly dealing with the cultural property, apart from trying to remove or mitigate the causes, which are causing this pollution or causing this problem. So, these are the things which are very important to understand.

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Processes / Degrees of intervention

**Preservation**

Damage and decay caused by

- water in all its forms

*Fielden, Bernard (1989). Guidelines for Conservation :a technical manual. New D*

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So, preservation, we have to understand it is the damage and decay caused by we have to understand water in all its form, what are the problem as we can see the, it can be the rainwater, the groundwater, the seepage many types of water problems, the snow water in various forms can cause the problem, as we can see the it is the seepage and also the ground water rising dampness is causing the problem to this structure, because of that there is a moss and fungus.




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Processes / Degrees of intervention  
**Preservation**

Damage and decay caused by

- water in all its forms



*Fielden, Bernard (1989). Guidelines for Conservation :a technical manual. New Delhi: INTACH*


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Processes / Degrees of intervention  
**Preservation**

Damage and decay caused by

- water in all its forms
- chemical agents
- all types of micro- organisms



*Fielden, Bernard (1989). Guidelines for Conservation :a technical manual. New Delhi: INTACH*

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The chemical agents may cause as we have seen in the case of Taj Mahal, and all types of microorganism, and there are so many varieties of microorganism the fungus, the lichens and algae there are different types, and different types of this microorganism have a different relationship with the different material. So, one has to understand with the proper experts that what are the problem and has to take and there also that, there are the different environmental condition which enhance or which sort of deterred the growth of this microorganism. So, it is very important to understand that what are these



causes, there is a break and you can see the different types of fungus, which has grown on the break and this has to be clean.

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**Processes / Degrees of intervention**  
**Preservation**

Damage and decay caused by

- water in all its forms
- chemical agents
- all types of micro- organisms

must be stopped in order to preserve the structure


*Fielden, Bernard (1989). Guidelines for Conservation :a technical manual. New Delhi: INTACH*

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So, this must be stopped in order to preserve the structure. So, preservation is that it can involve cleaning, it can involve some sort of a treatment as we can see in Taj Mahal's case, but its major objective is to keep it in the existing state. And this kept that always Taj Mahal is not that we are concerned about, there are also everyday structures which are also important and which are important.

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**Processes / Degrees of intervention**  
**Preservation**



Before After

*Kelomal Ghosh Bari, East Midnapore , West Bengal by Indrani Sarkar  
Ghosh and Sreekumar Ghosh*

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So, I am just talking about one of the structure which is a family place of worship in East Midnapore Kelomal Ghosh Bari is more than hundred years old, and there is the place where, if you see that what it was before and now, because of the direct participation of the owner is and also an architect in the an Sreekumar Ghosh, the owners have taken care to preserve it in the existing state and done the minimal inward intervention and they still continue to celebrate all the festivals in that.

So, this is what we will call it the preservation, the second stage where we are directly dealing with the cultural property, and trying to understand what causes the damage and decay and if record it has to be clean, the minimum ripper, minimum intervention it can be maintained and it can continue to live his life and extend his life. So, this is what we call the second stage the preservation thank you. We will later on in the next stage we will call that what happens when you go we have to do something, but it is not enough to just talk about the external treatment we have to talk something about or we have to intervene within the structure. So, that will be the third stage of these intervention measures and we will talk about that in our next lecture.

Thank you.