



Impact Assessment for World Heritage Conservation

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UNITAR Workshop 'Conservation for Peace: World Heritage Impact Assessment'. 19 – 24 April 2009, Hiroshima, Japan

Presentation Outline...

- ◆ **Definitions and Concepts**
- ◆ **Statement of Heritage Impact**
- ◆ **Impact Assessment and Cultural World Heritage**
- ◆ **Impact Assessment and Natural World Heritage**
- ◆ **Impact Assessment Case Study: Nanda Devi WHS, India**
- ◆ **Key Messages**

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World Heritage Convention: The spirit

- ◆ **Human beings have a shared responsibility to take care of the planet, the environment, flora, fauna as well as cultures**
- ◆ **Acceptance of the idea that we all are responsible for everyone's heritage, promoting peace and shared responsibility for the total human environment – both natural and cultural.**

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What is Value... ?

“The positive characteristics attributed to cultural and natural heritage place and objects by legislation, governing authorities and other stakeholders”

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What is an Impact Assessment?

- ◆ A tool to enable the decision-maker to weigh and present the relevant evidence on the positive and negative effects of an intervention including a review of the impact of policies/ activities after they have been implemented.
- ◆ A continuous process to help the policy/ decision-maker to fully think through and understand the consequences of the possible and actual interventions.

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What is an Impact Assessment?

- ◆ IAs ensure that those with ***'stake'/'interest'*** understand and can challenge:
 - ***how and to what extent the intervention is going to have an impact on them***
 - ***the estimated costs and benefits of proposed and actual measures.***
- ◆ IAs also provide an opportunity to identify potential and unintended consequences of a development

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What is Significance... ?

“The overall importance of a place or site, determined through an analysis of all of the values attributed to it”

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What is a Significant Impact?

- ◆ A **'Significant Impact'** is an impact which is important, notable or of consequence, having regard to its context or intensity.
- ◆ The significance of an impact depends upon the sensitivity, value and quality of the environment which is impacted and upon the intensity, duration, magnitude and geographic extent of impacts.

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What is a Significant Impact?

- ◆ If there is scientific uncertainty about the impacts and potential impacts are serious or irreversible, the **'precautionary principle'** should be applied.
- ◆ A lack of scientific certainty about the potential impacts of an action will not itself justify a decision that the action is not likely to have a significant impact on the environment.

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Statement of Heritage Impact...

- ◆ A statement of heritage impact is an expression of what the impact or impacts of a proposal would be.
- ◆ When considered along with a policy or plan for conservation and management, it facilitates an informed decision – whether or not to proceed with a development.

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What does a Statement of Heritage Impact Address?

The Statement of Heritage Impact (SoHI) along with supporting information addresses:

- ◆ Why the property is of heritage significance?
- ◆ What impact the proposed work/ development/ activity will have on that significance?
- ◆ What measures are proposed to mitigate the negative impacts?
- ◆ Why are other 'solutions' not viable?

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What needs to be explained by SoHI?

- ◆ A SoHI needs to explain how the heritage value of a site is to be conserved or preferably enhanced by the proposed development.
- ◆ This could be established by repair, restoration, reconstruction or re-development.

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Impact Assessment and Cultural World Heritage

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Proposed Change to Heritage Item	Questions to be addressed in a Statement of Heritage Impact
Demolition of a building or structure	<ul style="list-style-type: none"> ▪ Have all options for retention and adaptive re-use been explored? ▪ Can all of the significant elements of the heritage item be kept and any new development be located elsewhere on the site? ▪ Is demolition essential at this time or can it be postponed in case future circumstances make its retention and conservation more feasible? ▪ Has the advice of a heritage consultant been sought? Have the consultant's recommendations been implemented? If not, why not?

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Proposed Change to Heritage Item	Questions to be addressed in a Statement of Heritage Impact
Minor partial/ Major partial demolition (including internal elements)	<ul style="list-style-type: none"> ▪ Is the demolition essential for the heritage item to function? ▪ Are important features of the item affected by the demolition (e.g. fireplaces in buildings)? ▪ Is the resolution to partially demolish sympathetic to the heritage significance of the item? ▪ If the partial demolition is a result of the condition of the fabric, is it certain that the fabric cannot be repaired?

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Proposed Change to Heritage Item	Questions to be addressed in a Statement of Heritage Impact
Change of use	<ul style="list-style-type: none"> ▪ Has the advice of a heritage consultant or structural engineer been sought? Has the consultant's advice been implemented? If not, why not? ▪ Does the existing use contribute to the significance of the heritage item? ▪ Why does the use need to be changed? ▪ What changes to the fabric are required as a result of the change of use? ▪ What changes to the site are required as a result of the change of use?

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Proposed Change to Heritage Item	Questions to be addressed in a Statement of Heritage Impact
Minor/ Major additions	<ul style="list-style-type: none"> ▪ How is the impact of the addition on the heritage significance of the item to be minimised? ▪ Can the additional area be located within an existing structure? If no, why not? ▪ Will the additions visually dominate the heritage item? ▪ Is the addition sited on any known, or potentially significant archaeological deposits? If so, have alternative positions for the additions been considered? ▪ Are the additions sympathetic to the heritage item? In what way (e.g. form, proportions, design)?

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Proposed Change to Heritage Item	Questions to be addressed in a Statement of Heritage Impact
New development adjacent to a heritage item (including additional buildings and dual occupancies)	<ul style="list-style-type: none"> ▪ How is the impact of the new development on the heritage significance of the item or area to be minimised? ▪ Why is the new development required to be adjacent to a heritage item? ▪ How does the curtilage allowed around the heritage item contribute to the retention of its heritage significance? ▪ How does the new development affect views to, and from, the heritage item? What has been done to minimise negative effects? <p style="text-align: right;"><i>more...</i></p>

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Proposed Change to Heritage Item	Questions to be addressed in a Statement of Heritage Impact
New development adjacent to a heritage item (including additional buildings and dual occupancies)	<ul style="list-style-type: none"> ▪ Is the development sited on any known, or potentially significant archaeological deposits? If so, have alternative sites been considered? Why were they rejected? ▪ Is the new development sympathetic to the heritage item? ▪ In what way (e.g. form, siting, proportions, design)? ▪ Will the additions visually dominate the heritage item? ▪ How has this been minimised? ▪ Will the public, and users of the item, still be able to view and appreciate its significance?

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Proposed Change to Heritage Item	Questions to be addressed in a Statement of Heritage Impact
Subdivision	<ul style="list-style-type: none"> ▪ How is the proposed curtilage allowed around the heritage item appropriate? ▪ Could future development that results from this subdivision compromise the significance of the heritage item? How has this been minimised? ▪ Could future development that results from this subdivision affect views to, and from, the heritage item? How are negative impacts to be minimised?
Repainting	<ul style="list-style-type: none"> ▪ Have previous (including original) colour schemes been investigated? Are previous schemes being reinstated? ▪ Will the repainting effect the conservation of the fabric of the heritage item?

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Proposed Change to Heritage Item	Questions to be addressed in a Statement of Heritage Impact
Re-roofing/ re-cladding	<ul style="list-style-type: none"> ▪ Have previous (including original) roofing/cladding materials been investigated (through archival and physical research)? ▪ Is a previous material being reinstated? ▪ Will the re-cladding effect the conservation of the fabric of the heritage item? ▪ Are all details in keeping with the heritage significance of the item (e.g. guttering, cladding profiles)? ▪ Has the advice of a heritage consultant or skilled tradesperson (e.g. slate roofer) been sought?

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Proposed Change to Heritage Item	Questions to be addressed in a Statement of Heritage Impact
New services (e.g. air conditioning, plumbing)	<ul style="list-style-type: none"> ▪ How has the impact of the new services on the heritage significance of the item been minimised? ▪ Are any of the existing services of heritage significance? In what way? Are they affected by the new work? ▪ Has the advice of a conservation consultant (e.g. architect) been sought? Has the consultant's advice been implemented? ▪ Are any known or potential archaeological deposits (underground and under floor) affected by the proposed new services?

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Proposed Change to Heritage Item	Questions to be addressed in a Statement of Heritage Impact
Fire upgrading	<ul style="list-style-type: none"> ▪ How has the impact of the upgrading on the heritage significance of the item been minimised? ▪ Are any of the existing services of heritage significance? In what way? Are they affected by the new work? ▪ Has the advice of a conservation consultant (e.g. architect) been sought? Has their advice been implemented? ▪ Are any known or potential archaeological deposits (underground or under floor) affected by the proposed new services? ▪ Has the advice of a fire consultant been sought to look for options that would have less impact on the heritage item? Will this advice be implemented? How?

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Proposed Change to Heritage Item	Questions to be addressed in a Statement of Heritage Impact
New landscape works and features (including carparks and fences)	<ul style="list-style-type: none"> ▪ How has the impact of the new work on the heritage significance of the existing landscape been minimised? ▪ Has evidence (archival and physical) of previous landscape work been investigated? Are previous works being reinstated? ▪ Has the advice of a consultant skilled in the conservation of heritage landscapes been sought? If so, have their recommendations been implemented? ▪ Are any known or potential archaeological deposits affected by the landscape works? If so, what alternatives have been considered? ▪ How does the work impact on views to, and from, adjacent heritage items?

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Proposed Change to Heritage Item	Questions to be addressed in a Statement of Heritage Impact
Tree removal or Replacement	<ul style="list-style-type: none"> ▪ Does the tree contribute to the heritage significance of the item or landscape? ▪ Why is the tree being removed? ▪ Has the advice of a tree surgeon or horticultural specialist been obtained? ▪ Is the tree being replaced? Why? With the same or a different species?

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Proposed Change to Heritage Item	Questions to be addressed in a Statement of Heritage Impact
New signage	<ul style="list-style-type: none"> ▪ How has the impact of the new signage on the heritage significance of the item been minimised? ▪ Have alternative signage forms been considered (e.g. free standing or shingle signs). Why were they rejected? ▪ Is the signage in accordance with 'Areas of Heritage Significance', in Outdoor Advertising: An Urban Design-Based Approach? ▪ Will the signage visually dominate the heritage item/ heritage conservation area or heritage streetscape? ▪ Can the sign be remotely illuminated rather than internally illuminated?

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Impact Assessment and Natural World Heritage

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World Heritage Values: Kakadu National Park

The Kakadu National Park World Heritage property, located in the far north of Australia's Northern Territory, has both natural and cultural World Heritage values.



These values include:

- ◆ diverse, expansive and relatively undisturbed natural landscapes, including coastal areas, river systems and floodplains, lowlands, wetlands, plateau complexes, escarpments and outliers;

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World Heritage Values: Kakadu National Park

- ◆ diverse and relatively unmodified vegetation types, including open mangrove swamps, forest and woodlands, lowland and sandstone rainforests, shrubland and heath, wetland, riverine, floodplain and coastal vegetation;
- ◆ diverse, endemic, relict and abundant plant and animal species;
- ◆ extensive and diverse habitats, including open forest and woodlands, monsoon rainforest areas, heaths and shrublands, freshwater wetlands, mangrove and estuarine areas, foreshore and beach areas;



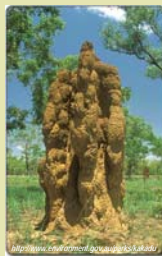
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World Heritage Values: Kakadu National Park

- ◆ significant plant associations and plants with conservation significance;
- ◆ animals with conservation significance, including mammals, reptiles, birds, invertebrates and fish;
- ◆ exceptional natural beauty;
- ◆ outstanding, diverse, unique and ancient Indigenous archaeological remains and rock art recording a continuous cultural development and environmental change; and
- ◆ a rich collection of Indigenous cultural sites with strong spiritual associations and connections to continuing practice of traditional beliefs.



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Application of Significant Impact Criteria

An action is likely to have a significant impact on the Natural World Heritage values, if there is a real chance or possibility that it will cause:

- ◆ One or more of the World Heritage Values to be lost
- ◆ One or more of the World Heritage Values to be degraded or damaged or
- ◆ One or more of the World Heritage Values to be notably altered, modified, obscured or diminished

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Natural World Heritage and Impact Assessment

An action is likely to have a significant impact on natural heritage values, if there is a real chance or possibility that the action will:

- ◆ *Values associated with geology or landscapes*
 - damage, modify, alter or obscure important geological formations in a World Heritage property;
 - damage, modify, alter or obscure landforms or landscape features, for example, by excavation or infilling of the land surface in a World Heritage property;
 - modify, alter or inhibit landscape processes, for example, by accelerating or increasing susceptibility to erosion, or stabilising mobile landforms, such as sand dunes, in a World Heritage property;
 - divert, impound or channelise a river, wetland or other water body in a World Heritage property;
 - substantially increase concentrations of suspended sediment, nutrients, heavy metals, hydrocarbons, or other pollutants or substances in a river, wetland or water body in a World Heritage property;

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Natural World Heritage and Impact Assessment

- ◆ *Biological and ecological values*
 - modify or inhibit ecological processes in a World Heritage property;
 - reduce the diversity or modify the composition of plant and animal species in all or part of a World Heritage property;
 - fragment, isolate or substantially damage habitat important for the conservation of biological diversity in a World Heritage property;
 - cause a long-term reduction in rare, endemic or unique plant or animal populations or species in a World Heritage property;
 - fragment, isolate or substantially damage habitat for rare, endemic or unique animal populations or species in a World Heritage property;
- ◆ *Wilderness, natural beauty or rare or unique environment values*
 - involve construction of buildings, roads, or other structures, vegetation clearance, or other actions with substantial, long-term or permanent impacts on relevant values;
 - introduce noise, odours, pollutants or other intrusive elements with substantial, long-term or permanent impacts on relevant values.

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Natural World Heritage and Impact Assessment

- **Historic heritage values**
 - permanently remove, destroy, damage or substantially alter the fabric* of a World Heritage property;
 - extend, renovate, refurbish or substantially alter a World Heritage property in a manner which is inconsistent with relevant values;
 - permanently remove, destroy, damage or substantially disturb archaeological deposits or artefacts in a World Heritage property;
 - involve activities in a World Heritage property with substantial and/or long-term impacts on its values;
 - involve construction of buildings or other structures within, adjacent to, or within important sight lines of, a World Heritage property which are inconsistent with relevant values;
 - make notable changes to the layout, spaces, form or species composition in a garden, landscape or setting of a World Heritage property which are inconsistent with relevant values;

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Natural World Heritage and Impact Assessment

- **Other cultural heritage values including Indigenous heritage values**
 - restrict or inhibit the existing use of a World Heritage property as a cultural or ceremonial site causing its values to notably diminish over time;
 - permanently diminish the cultural value of a World Heritage property for a community or group to which its values relate;
 - alter the setting of a World Heritage property in a manner which is inconsistent with relevant values;
 - remove, damage, or substantially disturb cultural artefacts, or ceremonial objects, in a World Heritage property;
 - permanently damage or obscure rock art or other cultural or ceremonial features with World Heritage values.

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Impact Assessment Case Study: Nanda Devi WHS, India



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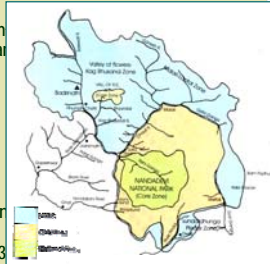
The Issue...

'Should peaks inside Nanda Devi World Heritage Site be opened for mountaineering expeditions and other adventure sports activities'?

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The Background...

- ◆ Nanda Devi Biosphere Reserve (NDBR): 5860 km² lies in the districts of Chamoli, Pithoragarh and Bageshwar in Uttarakhand State.
- ◆ Nanda Devi National Park (625 km²) and Valley of Flowers National Park (88 km²) are core zones of NDBR.
- ◆ Both core zones are 'World Heritage Natural Sites'
- ◆ In response to severe environmental degradation due to large-scale mountaineering activities between 1934 and 1982, NDNP was closed for all human activities since 1983



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Beneficial effects of the ban on mountaineering activities in NDNP since 1983...

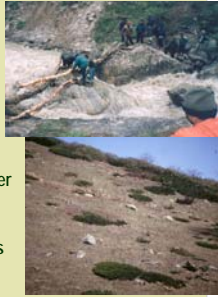
- ◆ Technical Reports of the Biodiversity Monitoring Expeditions carried out in 1993 and 2003 have reported substantial improvements in the status of flora, fauna and wildlife habitats.
- ◆ These expeditions included scientists from WII, GBPHIED, SACON, Garhwal University and managers from Uttarakhand Forest Department.
- ◆ An independent study by the Space Application Centre (SAC), Ahmedabad has confirmed positive changes in vegetation cover in NDNP since 1983.



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Likely Environmental Impacts of mountaineering and other adventure sport activities on biodiversity of NDNP

- ◆ Opening up of NDNP for mountaineering and adventure sport activities would require construction of many temporary bridges across Rishi Ganga, requiring the use of local timber
- ◆ Mountaineering activities will also provide access to others (porters) for collection of fuel wood particularly Juniper scrub, a highly sort after fuel wood species in high altitudes. Juniper populations all along the approach routes and existing camping sites in NDNP have already been exterminated.



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Likely Environmental Impacts of mountaineering and other adventure sport activities on biodiversity of NDNP

- ◆ **Collection of medicinal and other economically useful plants may also increase due to better access through these bridges.**
- ◆ **Trail degradation; pollution of camping sites; pollution of soils and glaciers at high altitudes and contamination of rivers/streams are other likely impacts that may occur.**

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Likely Environmental Impacts of mountaineering and other adventure sport activities on biodiversity of NDNP

Faunal Disturbance

- ◆ Studies on response of Elk deer to cross-country skiers in Yellowstone National Park, USA, have shown that Elk were displaced from their preferred habitats for at least the duration of human presence and returned only in the absence of human activity (Casriner et al 1992)
- ◆ Studies on responses of mule deer to people on foot were longer in duration, involving running more frequently and greater energy expenditure (Freddy et al 1986)



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Likely Environmental Impacts of mountaineering and other adventure sport activities on biodiversity of NDNP

Faunal Disturbance

- ◆ Movement of helicopters that ferry in high altitude climbing equipment, food; other essentials to base camps at high altitudes and the rescue operations cause disturbance to wildlife to a large extent.
- ◆ Impact from mountaineering and recreational activities may lead to increase in 'flight distances' of animals such as blue sheep, musk deer, tahr forcing them to use sub-optimal habitats



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Likely Environmental Impacts of mountaineering and other adventure sport activities on biodiversity of NDNP

Faunal Disturbance

- ◆ Disturbances to nesting birds particularly the females of Himalayan monal pheasant and the Himalayan snow cock that are incubating their eggs during early spring is very likely during movement of hikers.
- ◆ Nest predation of Galliformes and poaching of musk deer using snares by porters are other likely impacts. In 2003, scientific expedition, six snares that were set out porters of the previous expeditions (2000-01) were encountered and removed in NDNP.

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Likely Environmental Impacts of mountaineering and other adventure sport activities on biodiversity of NDNP

Garbage Accumulation

- ◆ Disposal of non-biodegradable wastes mainly mountaineering equipment, climbing ropes, oxygen cylinders, gas cylinders, food cans etc resulting from mountaineering expeditions is a serious issue.
- ◆ In the 1993 scientific expedition to NDNP, over 1000 kg of garbage was removed that was left behind by previous expeditions.



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Likely Environmental Impacts of mountaineering and other adventure sport activities on biodiversity of NDNP

Garbage Accumulation

- ◆ In Sagarmatha NP, Nepal where large scale mountaineering expeditions are conducted every year, 2 tonnes of disposable and 1.5 tonnes of non-disposable garbage is generated every year.
- ◆ In addition, about 200 gas cylinders, 500 oxygen cylinders and over 600 kg of batteries are also generated every year.
- ◆ Garbage in the everest region also includes over 100 human bodies and numerous abandoned helicopters



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Conclusion...

- ◆ Continue the ban on mountaineering and adventure sports activities inside NDNP as has also been recommended by the scientific expeditions to NDNP in 1993 and 2003
- ◆ NDNP is the only NP in the entire Western Himalayan Range that has no human and livestock use since 1983. It acts as 'Strict Nature Reserve' corresponding to IUCN Category 1a. It serves to monitor climate change, global warming and vegetation succession and this status must be maintained.



World Bank and World Heritage (1993-2003)

Key Message...

- ◆ **Impact Assessment (IA) is a very potent tool for regulating developments in and around the world heritage**
- ◆ **Public trust and participation in the IA process are key ingredients for its success**
- ◆ **Good science and meaningful dialogue between scientists, managers and decision-makers is needed for successful IA**
- ◆ **There is a need to further build the capacity of all concerned with the IA process**

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Thank you...

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