

Landscapes, A scenario of humanized meanings A Case study of the Eastern Himalayan region.

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Introduction:

The story of modern Western conservation efforts probably began in the late 19th century in the American west with an ecosystem or a landscape perspective but the subsequent European obsession with big game meant that the conservation perspectives primarily remained concentrated on the conservation of game species. The birth of Forestry also as a science was essentially very strongly timber oriented and looked at managing the forested Landscapes only through the eyes of timber production. (Gadgil et al. 1992). The transition to an eco-system management started to take place much later in the 80s and the 90s and Ideas like Landscape level management and Ecosystem management started getting discussed primarily in the United States.(Schlaepfer 2000). It is also during this time only that locating forestry and biodiversity conservation in a wider context was given primacy and national and international conventions started to contextualize these actions within a wider domain of natural resource management.(ibid). Though Landscape considerations became accepted as a management tool with the emergence of new sciences of Landscape Ecology and Remote Sensing, Human Communities especially in the developing countries were still not considered to be part of the system. (ibid).

The scenario probably started changing in the late 20th century with the conduct and the publication of research by renowned anthropologists and other scholars which brought to the fore the fact that human communities do create and manage landscapes in a manner that enables the maintenance of a substantial amount of biological diversity. The story of the Kayapo in the Brazilian Amazon and the Sikkimese Landscape of Demajong are good examples in this regard. Thus the notions of human associations and meanings of the Landscape are slowly emerging as new paradigms of research and understanding as to how we need to

manage the natural world. These were defined way back in the 1890' s as "Cultural Landscapes" in fact it was in 1895 that the concept was first used by the German Geographer F.Ratzel, to Landscape formed and influenced by human activity. A more modern definition is, a cultural Landscape is any area of Land that has responded to the interaction of cultural and natural forces and thus , resulted in the emergence of a very different Landscape spatially, visually and emotionally. This is valid for the Landscape prior to human habitation or that created by a previous culture, but it took probably over a century to actually revive this concept and bring it forth to the formal conservation spheres (Saleh 2000). In the Indian scenario the level of diversity both cultural and biological and the long history of human occupation implies that there are a host of human influenced/managed Landscapes.

Thus today as the formal conservation paradigm shifts to more of an ecosystem perspective, ideas like Biosphere Reserves/ Conservation Reserves are more and more finding their way into the mainstream conservation discourse and we are becoming more and more fascinated by local/"vernacular" visions of Landscape management. In fact one of the most inclusive Conservation categories has been Biosphere Reserves as the following Definition shows. a conservation function - to contribute to the conservation of landscapes, ecosystems, species and genetic variation. A development function – to foster economic and human development, which is socio-culturally and ecologically sustainable. A logistic function , to provide support for research, monitoring, education and information exchange related to local, national and global issues of conservation and development.(Rossler 1998). India has Designated 12 Biosphere reserves Since 1986 under the Man and Biosphere Programme covering a total Geographical area of around 53,400 Sqkm. There are another 14 sites proposed to be added to the list.(Rai 2002.) There are in fact 3 Biosphere reserves in the eastern Himalayan region, Tura- Nokrek and Dibang Dehang and Dibru Saikhowa.

There is another very good example of an inclusive conservation planning exercise, which does seek to promote the conservation of Landscapes while taking into consideration human dependence & livelihood requirements is the Global 200

programme of the Worldwide Fund for nature, an exercise which seeks to identify the 200 most ecologically important regions and also classifies them according to their conservation status. It is comprehensive in its scope - it encompasses all major habitat types including freshwater and marine systems as well as land-based habitats. It ranges from arctic tundra to tropical reefs, from mangroves to deserts, to include species from every major habitat type on Earth.

It is representative in its final selection. The most outstanding examples of each major habitat type are included from every continent and ocean basin. Thus it includes, for example, the most important tropical and temperate forests from each continent, and the most important coral reefs from each ocean. . It uses ecoregions as the unit of scale for comparison and analysis. Ecoregions are large areas of relatively uniform climate that harbour a characteristic set of species and ecological communities. By focusing on large, biologically distinct areas of land and water, the Global 200 sets the stage for conserving biodiversity on the broadest scale at which natural systems operate. In fact this process categorizes the Eastern Himalayas as a Distinct eco-region and classifies it as Vulnerable. (WWF.Org)

Thus keeping all these factors in mind one would like to introduce the Eastern Himalayas, an area of great diversity both Cultural & Biological along with numerous Landscapes maintained by a host of different land use perspectives with shifting cultivation being the dominant land use paradigm. The entire region is possibly unique not only in terms of the land use paradigms it also has the largest amount of community controlled forest areas in south Asia. A scenario inherently different from many other parts of the region. Thus it is against such a background one would like to document the existence of humanized Landscapes. The aim of this paper is to identify these human Landscapes and the factors that make it inherently a mosaic of humanized Landscapes.

A good example is probably the Demajong Sacred Landscape In Western Sikkim where one can incorporate the notions of a Conservation Area (CA'S) or a National Natural Heritage site/ Cultural Landscape. It is extremely important to focus on this

region not only due to the diversity existing in this region but also because that the institutions are relatively intact in terms of management of these landscapes, a fact which makes it relatively easier to plan interventions than in other areas.

Objectives:

To document the existing knowledge about local management paradigms of Landscapes supplemented with notions and insights from related primary sources of information with a special focus on the Eastern Himalayas.

To identify the formal notions of landscape management in this region and the probable conflicts that they may have with the more informal notions of landscape management.

The overarching objective is to start a process of identifying the potential Landscapes that could become part of such conservation paradigms like CA'S or Biosphere reserves/ Cultural Landscapes in the future.

Methodology: The mode primarily was to conduct a literature survey and rely on secondary sources of information coupled with interviews with some selected actors in these areas.

Study Area: The Eastern Himalayan Region stretches from the Indian state of Sikkim across Bhutan & Arunachal Pradesh into the southwestern China. The associated hill ranges of much of Northeastern India along with northern Myanmar are a part of this complex. This area in terms of altitudinal gradient is lower compared to the western Himalayas given the fact that there are very few peaks over 8000 metres above sea Level and the average gradient is also lower. The area also experiences much higher level of rainfall, which is primarily orographic in nature. The fact that the area lies at the conjunction of the Indian and Malayan realms along with the high rainfall and the altitudinal gradient makes it one of the eight hottest Biodiversity Hotspots in the World. (www.teri.org.) Thus it is an area that assumes extreme importance as a conservation Hotspot and policy measures to conserve it are Imperative. The scope of this paper is restricted primarily to the Indian portion of the Eastern Himalayas along with the Indian part of the Indo-

Burma realm, an area which for the purpose of this paper is treated as a single unit.

A Social & Ecological Profile Of this Region:

This region is inhabited by over a hundred mongoloid Tribes & sub-tribes belonging to the Tibeto – Burman stock. Ref. They also have a long history of occupation of this region stretching back in some cases to over two thousand Years. Ref The primary mode of subsistence is shifting cultivation, a Land use practice that is in many ways one of the major reason for the maintenance of these Landscapes. Forests occupy over 50% of the land area in virtually all the states of the Indian part of the region and in some of the states like Arunachal Pradesh cover 94% of the Land area thus underscoring the importance of forests for this region. REF The forest composition is primarily Tropical evergreen – to semi evergreen in the lowlands rising to Broad-leaved Temperate & coniferous forests ending with the Alpine grasslands. Though ideally in terms of edaphic conditions this sort of forest composition should theoretically be the ideal one but in many cases there are major exceptions for example in some areas like the state of Mizoram bamboos cover a substantial area & there are 26 species of bamboo in this state. (Prof L.K Jha pers comm.). There are also plantations of numerous exotic Species like Teak, Pine, and Eucalyptus in many of these areas. The area also is extremely rich in faunal resources and houses representative fauna from the Indian, Malayan & the Palearctic realms, many of which like the Snow Leopard (*Panthera Uncia*) Takin, Manipur Brow Antlered deer are critically endangered, along with a host of rare bird species that are also critically endangered or rare in some of the cases.

Demographic Profile: This area is comparatively much less densely populated than the rest of India with the population density as per the Census of 2001 varying from a low of 13 persons per sq km in the case of Arunachal Pradesh to a high of over 300 persons per sqkm in the case of Tripura. Though in the case of most of the other States the density ranged mainly around 104-125 persons per Sqkm Ref, though this gives an over all picture for the entire region there are lot of variations within the region itself given the sharp topographical and other geographical

differences that are prevalent in the region. Infact most of the populations are concentrated in the valleys, for example, the Brahmaputra, Surma & Imphal Valleys. REF A classic example being probably the Dibang Dehang Biosphere reserve in northern Arunachal Pradesh where the population density is probably less than 2 persons per sq km much lower than the average in the State as a whole. REF

Factors influencing the formation of Landscapes in this region:

The over arching defining factor that affects the formation and the maintenance of forested landscapes is probably the system of shifting cultivation which is the main mode of subsistence throughout the hills of the region. This system of extensive cultivation primarily know by the term *Jhum* works through the medium of fire as the main mode of clearing forest patches and with the cultivation in such areas for upto two to three years then the cultivators moving onto another patch. The system is sustainable so long as the fallow period remains substantially long enough for the forest to recover. The net result is a creation of a mosaic Landscape in various stages of secondary growth. A phenomenon visible virtually everywhere in the north east. The second most Important factor that probably influences the creation & maintenance of Landscapes in this region is the will of the local communities to maintain parts of their landscapes for a variety of reasons including ecosystem services. It must be remembered that in most of these states local communities either in a dejure or a defacto fashion controls a large part of the forested landscape. This has given them the freedom to maintain these Landscapes unlike in other parts of India. The role-played by religion both formal systems like Buddhism or Hinduism or more informal animistic ones have proved to be a very powerful influence for the maintenance of these Landscapes. In the colonial & post colonial era reservation of forests in some of these areas along with protected areas established for Wildlife are in the process of creating major Landscapes, a very good example being the Manas – Buxa Landscape spread across the Indian states of Assam & West Bengal along with Bhutan. In the coming paragraphs an attempt will be made to answer many of these questions and carve out probable

models that we may adopt in order to successfully manage & conserve these Landscapes.

Perceptions of Landscapes:

In much of the Eastern Himalayas as in other areas the over – riding influence in formulating Landscapes is the degree & nature of human influence. The most anthropogenic factor in this region which influences the formation of Landscapes is shifting agriculture, which through its very nature creates a mosaic Landscape comprising of a host of different habitats. The second most important factor primarily in organizational & conservation terms is the question of the perception of the landscapes and the scales at which these landscapes occur. These are some of the questions that we will try to address in the following paragraphs.

In much of the Eastern Himalayan region the landscapes in terms of perception may be very broadly divided into two categories, which may or may not overlap. Thus we can divide them into “Vernacular” landscapes essentially meaning Landscapes, which form a part and parcel of a community & its cultural Life; conversely we may define them also as Cultural Landscapes as defined earlier. These boundaries & the management practices of such Landscapes are very strongly influenced by the cultural traditions of the community/communities involved that maintain & manage such Landscapes. (Ramakrishnan 1998). The best examples of the occurrence & management of two such Landscapes are probably the Sacred landscape of Western Sikkim & the Apatani landscape of central Arunachal Pradesh. Another good example being the Balpakram National Park in the Garo hills of Meghalaya which is an integral part of the Sacred landscape of the Garos. (Ashish Kumar pers Comm.). These are examples of large landscapes spatially occupying substantial areas covering one or more eco-systems but throughout this region there exists a host of village level landscapes in terms of forest usage & conservation epitomized by the *Law Shnongs* & *Law Kyntangs* of the *Khasis* along with their *Raid* & *Ilaka* Forests the latter two part of larger social conglomerations than a Village. (Dr H.J.SymLieh pers comm.). In fact there are numerous reports about the existence of Village level Landscapes from all over this region. (Singh 1994), Mishra (2001), Tiwari (1999).

These Landscapes that have been mentioned before have been managed since a long time and though there is very little written evidence in terms of their antiquity. The focus of the discussion now shifts to the orientation & perception of the state. Vis a vi the landscapes prevalent in this region. As has been stated before, in formal or the so-called mainstream conservation circles the notion of landscape conservation has been quite a recent phenomenon. Thus only in the late 1980's onwards has there been an effort to survey & document the Biodiversity & conservation importance of many of the forested landscapes of this region. The end result can be seen in the form of the gradation of tiger habitat by the World Wide Fund for Nature into different Tiger conservation units (TCU'S). (Ref). Thus till now we have referred to the different perceptions & differing terms of reference in terms of managing the Landscapes, in the following paragraphs we shall explore probably a little more in depth this whole story and explore the contradictions & conflicts that are there between these two different perceptions.

The basic difference lies in the definition and the management objectives between these two systems, while in the vernacular system the essential factor that denotes the definition & the management of the landscape is the cultural factor and the management prescriptions are customary legal prescriptions.

In the case of the formal perceptions of Landscapes the overriding factor is the biological importance of the landscape, that is of primary importance, any sort of cultural importance is of a lesser significance. The definition of boundaries takes the biological factor as the most important denominator. The entire approach is water tight and at some level highly exclusivist in nature. The management paradigm is also inherently different in the sense they are primarily managed through the Laws and policies of the state. A classic example of conflict between these two systems is probably Balpakram National Park, originally a part of the sacred Landscape of the Garos where their Spirits are supposed to reside, today it is a National Park with all the problems of access & restrictions that are inherent under such set ups due to the current Wildlife Laws. (Williams et al 1994).

In the next few pages we shall examine through a series of case studies the paradigms that have developed in terms of management both of the formal & the non-formal systems and the possible models of reconciliation's.

Case Study no 1. As has been mentioned before this region is replete with examples of managed Landscapes both of the formal and non-formal kind. One of the most fascinating and well-known example of a non- formal system in terms of perception and which can be termed as a Cultural landscape is the landscape of western Sikkim. An area, which revolves around the towering presence of Mt Kanchendzonga. This area revolving around the Kanchendzonga massif is referred to as the Demajong. It is the Landscape, which is sacred to the tenets of Sikkimese Buddhism. One of the manifestations of the sacredness of the area is the perceived presence of 109 hidden lakes. It is believed that any sort of perturbation with the elements of this Sacred landscape will affect the very cultural fabric of Sikkimese society. (Ramakrishnan 1998).

In fact one of the major points of contention or dissent vis a vi the proposed hydro-electric project on the Rathong Chu would defile and disturb this ethic and would both in real and figurative terms desecrate the Rathong Chu which is in itself a sacred river.

The entire area right from Kanchendzonga to the lowlands of Yuksam is considered Sacred and a rich abode of biodiversity in general and medicinal plants in particular. The very sharp altitudinal gradient ranging from around 1780 metres to 8598 metres encompassing a host of ecosystems and diverse habitats is one of the major reasons for this being a biodiversity Hotspot. (Ibid).

The single largest threat this Cultural landscape faces is that of tourism primarily in the Yuksam-Dzongri trekking corridor. (Chettri et al. 2002). In fact the total fuel wood consumption in this Trekking Corridor for community & tourism purposes has been estimated at 2433 tons/year.(Ibid). There is substantial evidence to show that this has resulted in forest degradation along with changes in the forest composition. (Ibid). A joint initiative of a local NGO called the Kanchendzonga Conservation Committee along with the state Forest department and the tourist

operators are in the process of reducing fuelwood consumption and replacement with other fuels. The response to many of these issues raised above has been to declare the entire Kanchendzonga area as a National Park and Biosphere reserve, but given the inadequacies of the Forest Department and the logistical difficulties that are there make it very difficult to enforce many of these regulations. (Ibid).

One of the major reasons as to why this landscape is of extreme importance is the interconnectedness of this landscape. Thus if one studies the map of this region a little more carefully then one can see that the Kanchendzonga NP & BR is bordered on the West with the Makalu – Barun National Park & Conservation area. In the south it shares a boundary with the proposed Dzungri Sanctuary along with the Barsey Rhododendron Sanctuary. This sanctuary is bordered in turn by the Singalila NP and forests of Darjeeling Forest Division in West Bengal. Thus in reality we are talking about a total area of around 4,000 odd sqkm. Thus while the sacredness of the Kanchendzonga Landscape may be confined to it's immediate surrounding, the larger Landscape needs to be taken into consideration while planning for the conservation of this area. There is also the need to address the transboundary nature of the Landscape while preparing a conservation action plan. The deep sense of reverence for nature that pervades this region along with cultural homogeneity should be the ideal building blocks for the long-term conservation of this landscape.

Case Study 2.

One of the most remarkable examples of Customary or non-formal management of a Landscape is probably the case of the Apa Tanis and the remarkable system of rice cultivation & water-shed management. The Apa tanis inhabit the Plateau named after them at an altitude of around 1524 meters above sea Level with the highest point being 2438 m.s.l in the Lower Subansiri district of Arunachal Pradesh. The Apatanis live in around 20 villages with the Population density of around 554 persons per sq km. (Chatterjee et.al 2000).

There are a few very distinguishing features of Apatani life that make them in many ways quite unique. They are among the very few northeastern hill tribes who do

not practise shifting cultivation but practise sedentary rice cultivation. This is even more remarkable given the fact tribes like Hill Miris and Nishis who practise jhum or shifting Cultivation surround them. (Ibid). The mainstay of Apatani agriculture is their system of rice cultivation in which they cultivate, around six varieties of rice with the help of a very sophisticated system of irrigation by which they have wooden sluice gates to channelise the water from the hill streams to the fields. The most fascinating aspect of Apatani life along with their agricultural system is the management of the forests that surround their valley. In fact while the valley is given over entirely to rice cultivation, the hillsides however are covered with thick forests. They also plant groves of bamboo & pine trees for meeting their domestic needs. One of the salient features of this landscapes are the well-maintained bamboo & pine groves. (Ibid).

The natural forests are divided into clan & village forests both of which are used for significant religious ceremonies. (Ibid). In fact Apatani Sacred Groves are probably among the last strongholds of the Himalayan Yew (*Taxus Bacata*), which has been heavily exploited because of the medicinal value of its bark. (S. Chatterjee Pers comm.)

The biggest threat to this system today is probably a loss of indigenous knowledge manifested in the loss of local rice varieties and the younger generation not being in the know of many of these age-old knowledges. The community also fears that the state's attempt at creating *Anchal* reserve forests may deprive them of their forests something given their customary rights and long occupation, something they are not reconciled to. (Ibid). Thus there is a need to holistically plan for the conservation of the entire Apatani landscape with plans and programmes that build on their strengths rather than providing alternatives to them.

The fact remains that the Apatanis have managed to sustainably manage a Landscape yet they have had such high population densities to contend with, something which is truly remarkable. This sort of development model is truly something that from which we all have something to learn from, thus it is imperative to conserve this truly remarkable Cultural landscape.

Case study no 3.

This region has many examples of indigenous farming systems that manage the ecosystem in a holistic manner, one of which we have already seen in the form of the Apatani system. There is a similar system in Nagaland, which entails the management of the whole landscape. This system is called *Zabo* practised in the Phek district of Nagaland. This farming system has a combination of forest, agriculture, livestock and fisheries. *Zabo* means impounding of water. The area this farming system is followed falls in the rain shadow area. It is also believed that deforestation has caused decrease of rainfall. The tribal farmers of this area developed this system due to their ingenuity, skill and experience gathered over a long time. Forestry is an important component of the system. This system is followed on hill slopes with over 90% slope. (Mishra et. al 2001.). The *Zabo* system has forests at the top of the hill and up to some area below the top. This serves as a catchment area for rainwater harvesting. A little distance below the water is collected in ponds. These ponds are kept as desiltation tanks and the organic matter is used as fertilizer in the terraced rice fields. They get a yield of around 3-4 tonnes of rice yield per ha as sufficient amount of nutrients is added to the fields from organic Sources. (Ibid).

The *Zabo* farming system is such that a major portion of the top slope is kept as forest. The grasses from this part are also used for feeding the Livestock. The system has helped to maintain the ecological balance in this area and soil erosion is very low. Customary restrictions prevent people from cutting or destroying vegetation and proper care is taken for the protection of the forest. (Ibid).

The *Zabo* system like the alder system of the Angamis in other parts of Nagaland has appeared to solve many of the Land use questions but the biggest problem that occurs in this case is that of Government efforts in most of these cases to “improve” these systems end up in introducing changes that ultimately destabilizes these systems.

Case Study no 4. The previous few pages had been devoted to look at landscapes which either in terms of management or in terms of perception are non-formal Landscapes.

In the following few pages we shall be discussing two case studies of formal perceptions and management paradigm of landscapes. In this case it is the case of the “Wilderness” landscapes of this region where Tiger populations are present. They are referred to as Tiger conservation units. They are graded in terms of their importance they are graded on a scale of 1-4. This region has three TCU'S, one of which has been classified as a TCU –1 category one and the other two as TCU 3 category. They include forested Landscapes both under state & community control. The stress is on biological importance of the Landscape and the need to evolve a single management scenario for these areas. The thrust being on increasing state management of these areas. The primary premise being that state management is the only answer to the improper management by the community. Thus these three major Tiger conservation units, namely the Manas- Namdapha , Siju- Balpakram and the Barail units. The Manas–Namdapha is the largest unit with an area of around 60, 000 odd sq km covering a substantial part of sub-Himalayan Assam, Bhutan & Arunachal Pradesh. The other two units are much smaller with the Siju-Balprakam ara covering an Area of 2677 sq km and the Barail one covering 1622 sqkm. (Wickramanayake et. al.). The Interesting fact is that in the last two units a substantial area is under community control, and very little of the area is under protected area coverage. These units originally were propounded by Wildlife biologists who were working on Tiger conservation issues but this framework has subsequently been adopted by NGO's like the World wide Fund for Nature and in many cases the state also wishes to plan conservation efforts on the basis of the demarcation of landscapes in this manner.

Discussion: The case studies along with the other examples have probably made it very clear that there are two very clear realities in this region. On one hand we have in this region a mosaic of Landscapes and that in most of the cases are human influenced & maintained.

These two facts are the most important elements of the whole story. The current conservation paradigm especially in terms of existing legal framework provides very little scope of actually accommodating & providing incentives to the local

communities to sustainably manage these landscapes. The second important factor is that our forest & wildlife laws do not take into account another unique feature of this region in the sense that a very substantial part of the forested landscape is under the defacto control of the local communities. A factor that has to be taken into account while one tries to conserve wide-ranging species like Tigers & elephants. Thus formal notions of management like the TCU concept need to take this into consideration while planning conservation units.

A very good example in this regard is probably the scenario with reference to the elephant habitat in the Garo hills of western Meghalaya. The total area of potential elephant habitat is to the tune of around 8,000 sq km. In fact only around 700 Odd sq km is Government controlled forest, the rest being *Akhin* or Garo clan forests and *jhum* lands. (Williams et .al 1994). Thus in such scenarios possibly the best way to maintain such Landscapes is probably to evolve some sort of a framework of land use agreements between the state and the landowners.

In fact given the peculiarities of this region we should work towards evolving new categories of protected areas that are more in tune with the cultural & socio-political realities of this region. A new PA in the form of a category called the “Cultural / Managed Landscapes” which matches category 6 of the IUCN classification. The first 3 case studies do fit in as either Cultural or managed landscapes. In fact throughout the eastern Himalayan region there are a host of such landscapes to which these categories can be applied. The Annapurna Conservation area model of western Nepal is probably in many ways the ideal model to follow. There is another possibility as the cultural criteria of the World Heritage Site Convention were revised in 1992 to recognize

‘combined works of nature and man’ of universal value. The first inscription was Tongariro National Park in New Zealand, which was already registered due to its naturalvalue, and resubmitted because of its cultural and religious significance for the Maori. Other examples include the Uluru Kata-Tjuta National Park in Australia in respect of the Anangu aboriginal people, and the rice terraces of the Ifugao people in the Philippines. In short, the convention can be used to recognize the intimate relationship between landscapes and indigenous communities

internationally, creating a fundament to promote co-management to secure it. In the Lapponian World Heritage Area, this has given the Saami recognition of their indigenous identity and their traditional reindeer herding practices as an integral part of the cultural landscape (Blind 1998). The major threats to most of these landscapes in general are from the growth of tourism and the fast pace of infrastructural growth taking place in this region, mostly in this case primarily the construction of large dams. This threat is possibly much more serious in nature given the large number of dams already under construction or planned for this region, while it is beyond the scope of this paper to debate on the pros and cons of large dams it is definitely common knowledge that it is fraught with risks. The best way probably to preserve many of these landscapes under these circumstances is for members of the civil society to lobby and force the state to declare these areas as ecologically fragile areas under Section 3 of the Environment Protection Act 1986.

Thus it is probably only a series of very far reaching changes that need to be made in order to conserve these Landscapes. This coupled with local will and the understanding of the state that human influences are in reality the over riding influence that create and maintain these Landscapes will enable their conservation in the future.

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