

Protection of Himalayan Biodiversity: Why a Regional Legal Framework?

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May I begin by thanking Prof. Hutt, Prof Subedi, Dr. Mara Malagodi, and other BNAC members for inviting me to deliver a lecture at the program organized at London School of Economics. It is really an honour for me to discuss the subject so dear to my heart on which I have been engaged for quite some time now. Your presence here is a testimony to academic, social and emotional linkage that you have with the Himalaya and its people.

In my presentation I will first introduce the Himalaya and the environmental and livelihood challenges that its people are facing. Then I will try to present how conservation of biodiversity could be a strategy for livelihood rejuvenation, and why a regional legal framework is necessary to protect the biodiversity as well as the people of the Himalaya. I will also quickly discuss about scope and coverage, the principles that it should adopt, and possible challenges that may be encountered and strategies to be followed.

The Himalaya

All of us know that the Himalaya is an area comprising the highest and longest mountain range in the world.¹ The region now covers an area nearly 594,400 sq km or about 230,000 sq miles. It extends in an arc form for about 2410 km (about 1500 miles)

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¹ Himalaya is one of the vast areas representing this group. The term 'Himalaya' is both taken as singular "Himalaya" and the plural "Himalayas". The author agrees with Dr. Gurung who argues; "the mountain range deserves to be treated as a singular entity owing to its emphatic physiographic expression of elevation.... Its homogenous personality conjures up the image of the Himalaya as an earthly phenomenon with ethereal aura... the power place[d] there have element of unity - be it Shaministic, Buddhistic or Hinduistic. See Harka Gurung, *Physical and Cultural Patterns in the Himalaya*, Kathmandu, New Era 2002, in <http://www.mtnforum.org/rs/ol/searchft.cfm?step=vd&docid=89>, accessed on 15.12.08

in east west dimension with varying width from 150 to 300 km.² In the west it begins at Nanga Parbat (8125m) above the Indus gorge, and ends in the east at Namche Barwa (7755m), above the Bramhaputra gorge. Though not firmly fixed the Himalayan region in the north is separated from most of the Tibetan plateau by Indus and Bramhaputra rivers that flow to west and east respectively draining water of the northward sloping trans-Himalaya region. Indo- Gangetic flood plain marks the southern boundary.³

The Himalaya is a complex chain of mountain peaks, deep river gorges and fertile alluvial valleys. The region has been structurally divided into the following four latitudinal belts.

- Theyan or trans-Himalaya
- Main or Greater Himalaya
- Lower or lesser Himalaya/middle mountains
- Outer Himalaya or Siwalik hills.

The Himalaya system is the home of around 80-90 million people and 600millions others depend on the resources of the Himalaya.⁴ It is the home to subsistence farmers and pastoralists who have been living in the region since time immemorial. Life in the Himalaya has been possible because of the rich bio-resources available in the region.

Generally speaking the system is exceptionally rich in biodiversity. Many macro and micro habitats exist in the region owing to vast expanse of the land, diversity of geology, geography, soil, rainfall, winds, humidity and aspect. However, the region defies any perception of homogeneity in terms of expanse and richness of

² While Ives gives the horizontal distance of the Himalaya in Nepal cross-section as 100-150km other authors taking note of the wider canvas of the western Himalaya and state the width as 150-300km. See Jack Ives Jack Ives, HIMALAYAN PERCEPTIONS (London, Routledge 2004) at p 3 (figure 2.3); see also S.S. Negi, A HANDBOOK OF THE HIMALAYA, (New Delhi, Indus Publishing Co. 1990) at p 13

³ David Zurick and P.P.Karan, HIMALAYA, (Baltimore, John Hopkins Univ. Press 1999) at pp 20-21. However, regions falling in the north of Indus in India e.g. Laddakh region and some part of Tibet are also included in the Himalaya region.

⁴ Ananda M Bhattarai, PROTECTION OF HIMALAYAN BIODIVERSITY (New Delhi, Sage,2010) at p 31 citing different sources.

biodiversity. Three major factors, namely, longitude (east-west), latitude (north-south) and altitude (lower to higher) along with rainfall and aspect influence it. The following three considerations help to explain the diversity, especially the flora, in the Himalaya.

- Transition from the cold desert conditions in the western sector in Laddakh to cool and moist conditions prevailing in Arunachal Pradesh in the eastern sector.
- Transition from near tropical/sub-tropical condition in the Gangetic plain to the cold dry Tibetan plateau in the north.
- Transition along the vertical gradient from tropical/sub-tropical conditions at the lower altitude to alpine vegetation and arctic conditions in the high altitude.

The diversity of resources in the Himalaya region typically reflects both vertical and horizontal differences bringing a degree of complexity in distributional pattern. A variation of species from east to west, resonating to the east-to-west flow of monsoon, can be witnessed in the Himalaya. While the west is characterised as species deficient, the eastern Himalayan region is species-rich.⁵ The blockage of the flow of eastern monsoon to most of the trans-Himalayan region gives rise to cold and dry climatic condition in most of Tibet except the north-eastern part that experiences the escape of monsoon from the south through the Brahmaputra gorge at Namche Barwa. The eastern Himalaya (Nepal, Bhutan and India) contains all or part of four of the 34 biodiversity hotspots- a treasure house of genetic diversity and associated traditional knowledge.⁶

⁵ See Jack Ives, *supra* note 2 at p. 32.

⁶ The concept of hotspots was first introduced by Norman Myers, through two groundbreaking scientific articles published in 1988 and 1990. The core concept of hotspot is that there are certain eco-regions that contain "exceptional concentrations of species with exceptional level of Endemism" and that "face exceptional degree of threat." See John Charles Kunich, *Fiddling Around While the Hotspots Burnout*, 14 GEO.INT'L ENVTL.L.REV 179,181-2 (2001) citing Myers. The Hindu Kush-Himalayan (HKH), the region which includes the Himalaya contains all or part of four of the world's 34 'Biodiversity Hotspots' See BIODIVERSITY CONSERVATION IN KANCHANJUNGA LANDSCAPE, p. 4 (Nahakul Chhetri et. al. eds. 2008) <http://books.icimod.org/index.php/search/subject/1>, accessed on 18.10.08.

The Himalayan region is a unique confluence of Hindu, Buddhist and Islamic civilization. It is the part of the world cultural heritage. It is also called a Dharmakshetra. Places like Mansarovar, Potala palace and other Buddhist Ghompas (Tibet), Amarnath, Vsishnodevi (in Jammu Kashmir), Badrinath and Kedarnath (in Uttaranchal, India) Muktinath and Goshainkunda (Nepal) draw million of pilgrims every year. Today, however, the rich repository of biodiversity, the abode of around 100 million people, the confluence of civilization is disturbed.

The environmental and Livelihood challenges

The challenges created by her geo-morphological configuration such as tectonically disturbed bedrocks, steep slopes, high altitudinal variation over short horizontal distance, very heavy monsoon precipitation, mass wasting due to continuous rise have their own impacts. The Himalaya region today is facing a number of human induced environmental challenges.

For instance, in the Nival region,(i.e. high mountain and Trans-Himalayan region) the pastoral life has been disturbed in a much exacerbated pace by activities such as fencing, land reclamation, forceful establishment of communes, creation of natural parks and reserves imposing severe restriction and human and cattle movement.⁷ The heavy influx of outsiders in some places for touristic purposes (e.g. Namche and Kulu Manali) have taken their own toll.

Similarly the temperate and subtropical middle mountains are affected by surging population throughout the region from northern Pakistan to Assam.⁸ The most notable effect of population surge is the per capita shrinkage in the availability of land leading to lowering of income.⁹ The middle mountains, foothills and adjoining plains have also suffered because of the wrong policy adopted by respective governments in sectors such as forest, water uses, and distribution and tenurial rights. The extension of policies developed for the plains blindly to the mountain has been a characteristic of almost all

⁷ See Jack Ives, *supra* note 2 at p. 69-70

⁸ Jack Ives, *supra* note 3 at p. 204 Another study maintains that the number of people living in the Himalaya has trebled since 1950s. See David Zurick and P.P.Karan, HIMALAYA, (Baltimore, John Hopkins Univ. Press 1999) at p 9.

⁹ For instance, today in Nepal the possession of land by individual families has dropped from an average 0.96ha. in 1981 to 0.80 ha. in 2001, see Jagat Basnet, *Land Reform and Exclusion of Poor People* in NEPAL:TRANSITION TO TRANSFORMATION (K.N. Pyakuryal, B. Upreti and SR Sharma eds. Kathmandu, 2008) at p 149.

the big and small countries.¹⁰ This has led to growing alienation of the people from the natural resource base, often times resulting in conflict. Faulty land ownership, unplanned urbanization and inappropriate tenurial rights have led to fragmentation of land. And weak laws against expropriation and requisition have added woes of the people. A related outcome of wrong policies witnessed in recent times is land abandonment in the mountain, growingly witnessed in Nepali mountains now-a-days.- due to low returns, shortage of labour owing to rural out-migration, and highly unequal and iniquitous land distribution, lack of land ownership by the tenant.¹¹ The recurrent internal wars, government repression, and conflict and haphazard urbanization have also contributed to land abandonment in the rural and mountainous areas of the region. In the Churia and adjoining flood plains heavy influx of people has affected both agricultural and forest environment.

While the Himalaya region has been experiencing climatic extremes such as cloud burst, hailstorms, floods, draughts, bursting of glacial lakes and so on, another challenge witnessed in recent times is the desperate impact of global climate change in the Himalaya region. Very visible impacts are now recorded in all regions of the Himalaya in terms of melting and thinning of glaciers¹², shifting of vegetation and habitats of mammals and insects.¹³

¹⁰ For instance, Nepali laws on forest, protected areas, on common property resources borrowed from Indian laws in these areas. Extension of agricultural policies developed for plain areas to the mountain is another aspect. For instance Nepal's 20 Year Agricultural Perspective Plan (1995-2015) is dominated by the green revolution technology developed for plain areas. See Goolam Rasool & Madhav Karki, A PRO-POOR POLICY AGENDA FOR SUSTAINABLE AGRICULTURAL DEVELOPMENT IN THE HINDU KUSH HIMALAY REGION, (Kathmandu, ICIMOD 2007) at p. 6.

¹¹ In Nepal more than 30% of total cultivated land has been abandoned. See ICIMOD Position Paper "Food Security in the Hindu Kush-Himalaya Region, Aug 2008 at p. 4.

¹² See Xu Jianchu et. al. THE MELTING HIMALAYAS: REGIONAL CHALLENGES AND LOCAL IMPACTS OF THE CLIMATE CHANGE ON MOUNTAIN ECOSYSTEMS AND LIVELIHOOD, ICIMOD Technical Paper 2001 at http://books.icimpd.org/uploads/tem/icimod_865adee7b5339bbf36a1f1ad9ee70e7.pdf, accessed 19.11.08, documenting the retreat of glaciers by 0.31m/yr. It further states, the retreat of Gangotri Glaciers over the last three decades was more than three times the rate during the preceding 200 years. Most glaciers studies in Nepal are undergoing rapid de-glaciation for up to 20m/yr. Similarly in the last half century 82% of the glaciers in Western China have retreated and in Tibet the glacial area has decreased by 4.5% over the last 20 years and by 7% over the last 40 years. See id at p. 5.

¹³ A study conducted by WWF in the Langtang region of Nepal Himalaya in 2009 found the shifting of butterflies such as Apollo, Pancy and Crow and Pika hareto higher elevation by 100m to 500m. The study also found the shifting lifecycle of some other types of butterflies such as Pieris, Urema and Papillion generally visible from April

In a nutshell the Himalaya region, which till a few decade back was considered a repository of rich biodiversity and associated traditional knowledge, a land of abundance and eco-attraction, is mired in a multitude of nature and human-induced challenges.

One also witnesses pervasive discrimination, exploitation, exclusion, displacement, marginalization and repression of the mountain people especially the minorities, resulting from the lack of their authority on the use of local resources.

The serious lack of local people's perspective, non-involvement of the local people in national policy making, the lack of understanding of the mountain ecosystem, its integrity and connectivity and attendant challenges among the policy makers at the local, national, regional and international level have further complicated the efforts to bring about sustainable development in the Himalaya.

Why Himalaya ? Why Biodiversity?

For long I have been grappling with the questions such as "does the Himalaya deserve special treatment' or "does the Himalaya make a case for a regional legal response for the conservation of biodiversity? "Given the multitude of challenges that the region and its people are facing, does such a framework address these challenges?

It is no doubt that owing to the vast expanse of the Himalaya, the population inhabiting in and around the region, the geo-physical and environmental challenges or socio-economic problems a focused and comprehensive treatment, a multi-pronged strategy is required for addressing the challenges. However, biodiversity being inextricably connected with the life of the people, a thread that links people with the nature, deserves special attention.

Secondly, the Himalaya is a unique natural treasure of great beauty and ecological value. The two mega-diverse countries of Asia- china and India- and many other bio-rich countries share the biological hotspots of the Himalayas. Due to its long stretch, vertical dimension and gradient variation, the Himalaya region includes several climatic systems such as tropical, subtropical, temperate and alpine- each of these areas

to October-November are now found in the wild in March. See "Why are butterflies soaring higher?" report in *The Himalayan Times*, April 9, 2009.

representing a microcosm of larger habitat diversity, and therefore deserves special attention.

Thirdly, many areas in the Himalaya region are still out of the reach of modern industrial farming system, and so are not influenced by the use of hybrid and transgenic crops, pesticides and insecticides. The farmers still crop diverse traditional crop varieties. An early intervention may save these species which are under threat. Conservation of biodiversity of the Himalaya will have a spiralling impact on national efforts not only in the countries in the core areas but also in the whole south Asia and south east Asia. After all what takes places in the Himalaya impacts the global biodiversity.

Fourthly, the protection of biodiversity means the protection of resource base of more than 80-90 million people living in the core areas and millions others in the periphery. While eking out a living in a hostile environment they have acquired and accumulated wealth of experience and knowledge on the use of local bio-resources. Now, time has come to learn from their knowledge, use their accumulated wisdom for the benefit of the present and future generation.

Finally, the Himalaya region is the home of two of the world's rich system of traditional medicines namely Ayurveda and Tibetan medicines. Trading in both these resources brings millions of dollars. But none of this is ploughed back to the communities which are preserving the resources and associated knowledge. The stewards of the bio resources are neglected by their own respective governments. There are genuine fears that they will be in the margin of development in the future as well. This is another area which cries for immediate intervention.

What needs to be done in this respect?

The conservation of biodiversity in the Himalaya demands at least the following three approaches:

- Harmonization of national legal and policy regime with specific prioritization of the conservation of the Himalayan biodiversity;

- Development of a regional legal regime for the conservation of biodiversity of Himalayan region and associated knowledge of the people, address access and benefit-sharing issues, and usher meaningful cooperation among countries;
- Development of a common approach to unresolved international issue on biodiversity and other cognate issues in the Himalaya region.

Existing Initiatives and Gaps in National Legal and Policy Regimes

Existing initiatives

Almost all the countries have Biodiversity Action Plan.¹⁴ Besides, countries of the region are inching towards enacting laws on the protection of biodiversity. For instance, Pakistan has enacted Plant Breeders Ordinance 2000, She has also drafted an act on Access on Biological Resources and Community Rights, 2004, Similarly India has enacted Plant Varieties and Farmers' Rights Act 201, Biodiversity Act 2002, Rule 2004, India also amended the Patent Act in 2002 and in 2005. She has also revised her Patent Rule 2003. Similarly, Bhutan has enacted Biodiversity Act 2002. Bangladesh has a Draft Act titled "Biodiversity and Community Knowledge Protection Act". Another South Asian country Nepal amended Patent Act, and has drafted Act on Access to Genetic Resources and Benefit Sharing. These being the developments in the Southern watershed of the Himalaya, China which commands the northern watershed, has enacted Rules and regulations to cover the rights of innovators on agricultural, forest and other types of plant varieties. She has also enacted regulation to protect traditional Chinese medicine with graded protection.

Gap Analysis

The laws and policies of these countries lack coherence and run into different direction. Some of them are highlighted below.

¹⁴ E.g. see Nepal & Bhutan 2002, Pakistan 2006, India draft 2007, Bangladesh second draft 2004, China 1994

Approach to biodiversity and access: The countries of the Himalaya region have taken diverse approach to biodiversity and access. India and, to a certain extent, other countries such as Bangladesh and Bhutan have comprehensive laws on Biodiversity where access and benefit sharing is just one component covered by these Acts.¹⁵ Nepal and Pakistan on the other, propose stand alone laws on access and benefit sharing leaving out other issues which require domestic legislation or policies to implement the obligations of the CBD. Nepal seems to be working through Biodiversity Strategy (2002)¹⁶ and Action Plan (2007). Pakistan also seems to be devising actions through the Biodiversity Action Plan.¹⁷

Sovereignty and ownership: Laws of all the countries in the Himalaya region assert sovereign rights. Besides, Bangladesh and Pakistan declare communities as the co-owner of the resources.¹⁸ Similarly Indian law recognizes private ownership as a factor when it comes to sharing of benefit. Nepali law makes a clear distinction between sovereignty and ownership. It says sovereignty over genetic resources lies with Nepali state but the ownership is distributed as follows:

- Genetic resources genetic materials lying in private land, forests and water resources shall be that of the person owning the land in which such object exists.
- The other generic resources and materials except as mentioned above shall lie with the government

Terminologies: There is no unanimity in approach in using terminologies. For instance, India uses the term "biological resource" in the context of access and

¹⁵ Despite the name however, the Draft Biodiversity and Community Knowledge Protection Act of Bangladesh (1998) (henceforth Bangladeshi Act) largely covers only the access and benefit sharing issue, see Preamble and section 2 (objectives), the Biodiversity Act of Bhutan 2003 (henceforth Bhutani Act) on the other inscribes provisions on plant breeders and farmer's rights also. See Chapter 3 of the Bhutan Act.

¹⁶ See http://ekh.unep.org/files/Nepal_NationalBiodiversityAP.pdf, accessed on 27.11.08.

¹⁷ See www.cbd.int/doc/world/pk/-nbsap-01-en.pdf, accessed on 27.11.08.

¹⁸ For instance, Biodiversity and Community Knowledge Protection Act (henceforth Bangladesh Act), Art 8, has a concept of co-ownership of the community and the state, each co-owner having the same rights, duties and obligation co-terminus. This co-ownership extends to owners in other countries if the resource is spread into two countries. Similarly, Draft Legislation on Access to Biological Resources and Community Rights of Pakistan 2004 (henceforth Pakistani Act) typically, in its preamble states that Pakistan and Civil society share the sovereignty over resources.

benefit sharing. According to the Act, biological resource "means plants, animals and micro-organisms or parts thereof and their genetic materials and by-products" If the applicant (non-Indian) intends to use "biological resource" for whatever purpose, whether it is for characterization, inventorization or bioassay or commercial utilization¹⁹ he/she is subject to the procedures of access and benefit sharing outlined by the Act.²⁰ Thus, under the Indian Act, the access process is not limited to genetic resources but cover non-genetic bio resources. Other countries use the term "genetic resources" in line with the CBD.

The Indian Act uses expressions "associated traditional and contemporary knowledge" in the preamble and uses the term "associated knowledge" in other places in the text to imply what is loosely called "traditional knowledge" driving home the point that the knowledge is not cribbed and cabined into dead habits of tradition but vibrant, contemporary and ever-growing. The expression also indicates that it is not all types of knowledge but bio-based knowledge, which is the concern of the Act. The same type of caution is taken by the Pakistani Act when it uses the term biological resources and related knowledge.²¹ Bhutan though uses terms "biochemical and genetic resources" for the purpose of access she appears rather casual in the use of much popular term "traditional knowledge." Bangladesh uses terms such as biological and genetic material and knowledge, intellectual practices and community knowledge in the Act.

Indigenous and local community: No common approach exists among countries with regard to the use of terminology "indigenous and local communities". Nepal, Bhutan and Pakistan use the term "local community". This might be in view of the fact that the term "indigenous community" in the CBD was used in the context of colonization and influx of foreigners/colonizers vis-à-vis indigenous community.

¹⁹ Such as drug, industrial enzymes, food flavors, fragrance, cosmetics, emulsifiers, oleoresins, colors, extracts and genes used for improving crops and livestock through genetic intervention.

²⁰ See. Indian Act, S.2 read with S. 19.

²¹ See Pakistani Act, S 1 & 2 (d)

Among the South Asian countries only Bangladesh uses the term “indigenous community”.²²

Community rights and prior informed consent:

Bangladesh goes to the communitarian extreme and regards Indigenous Communities as “primary owner”, and holders of residual title on usufruct and genetic and bio resources. Their prior informed consent (PIC) is a precondition to access to bio-resources. They can block and refuse any access deal.²³ The Pakistani law also requires “participation and agreement of the concerned communities in making decision” on genetic resources.²⁴ Nepali draft law accords due regard to local community in the ABS process but does not give local community the power to make or break the deal.²⁵ On the other, Bhutan and India give limited rights of the owner of traditional knowledge.²⁶ They should submit the proposal of access deal with the government for approval, which has the final power to say yes or no on the matter. India terms local communities only as “benefit claimers.” However, the National Biodiversity Authority(NBA) and/or the State Biodiversity Board are required to consult the Biodiversity Management Committee under whose jurisdiction the biodiversity or the knowledge is occurring.²⁷

Access: In all the countries access is based on PIC. Laws are liberal on nationals than non-nationals on access. For instance in India, a national is only required to give prior intimation to the state biodiversity board, while a non-citizen cannot obtain biological resource occurring in India or associated knowledge without the approval of National

²² Indigenous community implies a community where local history of a community can be traced back at least 100 years, or a group of individuals who have distinct cultural and linguistic identities See Bangladesh Act, Art 4.4(b).

²³ *Id* Art 5.15

²⁴ See Pakistani Act Art. 2(d)

²⁵ Nepali Act S 2.

²⁶ Bhutani Act S 33, 38, 39

²⁷ See Indian Act S. 41.2.

Biodiversity Authority.²⁸ Almost all the Acts take a restrictive approach with regard to transfer of the resource to third parties.

Benefit sharing among co owners: Bhutan is silent on this point while Indian law takes note of the ownership of the resources in the distribution of benefit. In case where the biological resources was taken from specific individual or group of individual or organization, the NBA may cause the amount to be directly paid to such individuals, groups or organization.²⁹

The Pakistani Act provides that at least 10 percent of the benefit obtained from commercial use should be paid to the community concerned³⁰ while the Bangladeshi Act provides that no less than 50 percent should go to the community.³¹ Nepal makes a very neat division of the benefit according to which:

- 50% of the revenue generated from access goes to the local community/ individual, 30 percent to Biodiversity Authority and remaining 20 percent to government if the ownership of the resource lies with the local community individual or organization; and
- 50% to the government, 20 percent to local community and 30 percent to the Biodiversity Development Authority's fund if the resource is with the government.

Intellectual Property Rights

Intellectual property rights (IPR) is an issue that has gained a nationalistic tone in all the countries of the region though enactment on this is not equally comprehensive in all the countries. Indian law on the point is very exhaustive. In India any IPR claim with whatever name is subject to approval of the NBA.³² Besides the provisions in the biodiversity Act, India also amended her Patent Act in 1999, 2002, and 2005. In contrast

²⁸ This restriction applies to non-citizens, non-residents, foreign companies as well as domestic companies with foreign participation in share capital or management See Indian Act S. 3 & 7; Bangladesh Act, Art 13.14, 13.16.

²⁹ See Indian Act, S. 21.3

³⁰ See Pakistani Act, Art. 5.4

³¹ See Bangladeshi Act, Art. 7.5

³² See Indian Act, S. 6.

to the Western practice of patenting even “discoveries” under one pretext or the other the Indian Act provides that only “invention” can be patented.³³ The Act lists what are not inventions and thus not eligible for patenting such as the following:³⁴

- An invention, the primary or intended use or commercial exploitation of which would be contrary to public order or morality or which causes serious prejudice to human, animal or patent life or health or to the environment.
- Discovery of any living thing or non-living substance occurring in nature.
- Plants or animals in whole or any part thereof other than micro-organisms but including seeds, varieties or species or essentially biological process for production or propagation of plants and animals.
- An invention which, in effect is TK or which is an aggregation or duplication of known properties of traditionally known component or components;
- Mere discovery of a new form of a known substance which does not result in the enhancement of the known efficacy of that substance or the mere discovery of any new property or new use of a known substance or the mere use of a known process, machine or apparatus unless such known process results in a new product or employs at least one new reactant.

The Act now requires the applicant to disclose the source or geographical origin of the biological material used in invention. A patent can also be opposed or revoked *inter alia* under conditions such as non-disclosure or wrongly mentioning the source of geographical origin of biological material used for invention, and anticipation with regard to the oral knowledge being available within any local or indigenous community in India or elsewhere.³⁵

A corollary legal development witnessed in India is the promulgation of Plant Varieties and Farmers' Rights Act 2001.³⁶ The Act recognizes farmers' right to save, use, sow, re-

³³ See Indian Patent Act S. 6.

³⁴ See Indian Patent Act S. 3 as amended in 2002 & 2005.

³⁵ See Indian Patent Act Ss 25 and 64 as amended.

³⁶ For an analysis of the Act, see Srividhya Raghavan and Jamie Mayer O'shields, *Has India Addressed Its Farmers' Woes? A Story of Plant Protection Issues* 20 GEO INT'L ENVTL.L.REV.97, 112-27 (Fall 2007)

sow, exchange, share and sell his/her farm produce, including seed of a protected variety except branded seeds. The farmers are protected in the same manner as before the promulgation of the Act.³⁷ It protects against gene use restricting technology (GURT), or terminator technology.³⁸ It also protects them against bad seeds and innocent infringement of the breeders' rights.³⁹

Other countries of the region also have provisions on IPR. For instance, both Pakistan and Bangladesh envisage the concept of collective/ community intellectual achievement rights. Pakistan proposes to implement such rights through a process of consultation with and participation of the local communities.⁴⁰ Bangladesh on the other, proposes to establish a system of collective/ community intellectual rights and residual titles through a transparent process with effective participation of the communities.

Impression of the national laws

A cursory survey of the biodiversity and IPR laws of the region gives one the impression that the laws overemphasize sovereignty and are more restrictive than facilitative. Sweeping powers are given to the state in the implementation of the Act. These laws have varying scope and expanse. Whereas the Indian law is broader in scope other laws are not so broad. Not all laws draw a neat relation between PIC and mutually agreed terms. They do not seem to be very careful on subsequent use of genetic and non-genetic bio resources and benefit sharing.

With regard to traditional knowledge of indigenous and local communities there is disparity in approach among the countries on matters such as consultation and involvement. No serious efforts are made in creation of enabling conditions through discrete measures such as information sharing, training and partnership. Ignoring local communities in access and benefit sharing and treating them only as “benefit claimers”,

³⁷ By recognizing the right to re-sow the breeder's variety the Act protects farmers from the assault by the mighty breeders. A "branded seed" is a seed put in package or any other container and labeled in a manner indicating that such seed is of a variety protected under the Act. See the Protection of Plant Varieties and Farmers' Rights Act 2001 S 39(1)(iv)

³⁸ *Id* S 18(1), 29

³⁹ *Id* S 42, 39(2)

⁴⁰The Act lays down process for the same, see Pakistani Act, Art. 5.5

as the Indian law does, is against the spirit of CBD. It is also against the people of the Himalaya region.

A term that needs to be carefully looked upon is “genetic resources v Biological resource”. Now the Nagoya protocol has settled this by requiring prior informed consent on both types of resources.

The laws under review do not have uniform approach on monitoring and compliance. Nor do they attach equal focus to research and development.

With regard to IPR protection on traditional medicine the two mega-diverse countries- India and China- seem taking divergent approach. While China accords graded protection to traditional Chinese medicine, India seems against giving IPR for Ayurveda products. Therefore countries should thrash out their policies and streamline local laws based on regional consensus.

A missing link in the domestic legislation is alleviation of poverty. Interestingly, this is also the basis of partnership among developed and developing countries in CBD. Given the huge economic promise of bio-resources of the Himalaya region, it is desirable that some of it is used for poverty reduction, public health and other activities in the social sector. However, none of the laws have any mention of how benefit sharing is linked to poverty alleviation, or conservation of threatened areas or communities or ushering sustainable development.

With regard to trans-boundary resources except the Bangladeshi draft Act, none of the laws speak a word. Though this issue has found entry in the Nagoya Protocol now, concrete measures need to be made on this between states and between local sub units of the state in the context of Himalaya.

Thus in a nutshell, the domestic initiatives suffer from parochial national approach. Harmonized policies and laws on biodiversity may help countries evolve in other areas on forest, water and land resources, infrastructure development, tourism and so on which need to be recast from resource management perspective of the Himalaya

Why a regional legal framework?

Biodiversity is essentially a regional issue rather than local or global, and therefore should be addressed regionally. Bio-resources and associated knowledge defy artificial political borders. Discordant policies and laws of the countries sharing the same biodiversity, by setting up different threshold level on use, create unwarranted dispute, and the race to the bottom. The regional legal framework is necessary because the CBD does not address the issue of trans-border bio-resources, let alone the specific issues of the margins and mountains. While the national legal frameworks are too narrow to address regional bio issue- the CBD is either too general or may offer too costly solution to regional problems. The regional legal framework can be more concrete on agenda as it is joined by countries facing similar problems, guided by similar interests and delineated by bio-eco reality. They will be in a better position to design special resource conservation and income generation package for vulnerable areas. The focus of the regional policy is not to replace the national legal framework but to establish a dialogic relation with it and the international legal framework, more specifically to the CBD, WTO and TRIPS.

How to go about it? Framework and General Outline

It is submitted that Convention on Biological Diversity can be a starting point for conservation of biodiversity in the Himalaya. It is true that mountain issues got only a passing reference in the CBD⁴¹ yet the CBD bears special significance to countries lying in the margins and mountains because it covers the whole biodiversity, not just wildlife or specific crops in specific areas and also creates hope of benefit sharing through sustainable use of bio resources and associated traditional knowledge.

⁴¹ The reference is made in Art 20(7) in the context of funding and technology transfer where it is said that “consideration shall also be given to the special situation of developing countries, including those that are most environmentally vulnerable, such as those arid and semi-arid zones, coastal and mountain areas” This is the case with other three Rio documents signed at Rio in 1992. The Mountain issues got special mention in the Agenda 21 (chapter 13)

Now the work of the institutions under the CBD in several thematic areas such as agriculture, forest, dry and sub-humid land biodiversity and inland waters, and in several cross cutting issues is relevant in the context of biodiversity conservation in the mountain areas. Of late, mountain biodiversity has evolved as an additional thematic area under the Convention. CBD is responsible for creating awareness among lawyers and policy makers in the international arena on mountain issues.

The sustainable use component accords CBD a pragmatic frame of trade and environment. It thereby rejects attempts to make it only a conservation agreement. Under the envisaged framework of CBD, benefits would accrue to the biodiversity rich countries through a regulated regime of access to genetic resources and benefit sharing supported by technology transfer and increased partnership between the biodiversity-rich South and the technology-rich North, which would in turn create sufficient resources and motivation for conservation of biodiversity.

CBD is important also because it is the first hard law instrument that recognizes ecological, scientific or medicinal knowledge of the indigenous and local communities and take their innovations, information, practices, skills into consideration while designing package on ABS. Now the CBD being in place no country or institution or individual can claim a right to exploit them. With the CBD coming into existence, a new normative structure that respects TK as a value, promotes wider application with the approval and involvement of the holders of knowledge and encourages equitable sharing of benefit is in place. In a nutshell all the three objectives of the CBD, viz., conservation of biodiversity, sustainable use of its components and equitable sharing of benefit in the spirit of cooperation and common but differentiated responsibilities, and the principles underlined therein provide broad guidance to the development of regional legal framework for the conservation of Himalayan biodiversity, and protection of livelihood of the people inhabiting in the region. It provides a common spring board for making collaborative endeavour for addressing environmental and livelihood challenges.

Framework for Regional Cooperation in the Himalaya

The challenges facing the Himalaya region are varied in their expanse, intensity and impact, and therefore, defy every attempt to present a single solution. A comprehensive approach trying to address multitudes of challenges facing the Himalaya region across the board, though desirable, also does not seem very feasible. This leaves one to follow a segmental approach that starts with a single well defined issue but then move further on the basis of issue linkage.

For practical reasons, I argue that the segmental approach is more useful. A low profile but very pressing issue of biodiversity conservation and its sustainable use, intricately linked to rejuvenation of the livelihood of the people and sustainability of the Himalayan environment can bring countries together to face challenges which otherwise no single country can address. If successful, this may down the line prod countries to take up other more complex issues crying for solution in the Himalaya region.

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Proposed legal framework

Broadly, the regional legal framework beside following the CBD model on conservation, and sustainable use should be more concrete in thrashing out issues and in taking up cognate issues such as the impact of climate change, spiralling poverty, surging population on biodiversity and so on either through extrapolation of the CBD mandate or by logically linking issues that deserve immediate regional consideration in the context of Himalaya.

The regional legal framework should take into consideration the geo-morphological, ecological and environmental characteristic of the Himalaya region, its intrinsic and aesthetic value, services it provides to the people and the need to promote sustainable mountain development for the well being of the present and future generation of humanity within the Himalaya region and beyond.

The conservation of biodiversity should be a common concern of all but prioritized obligation of the states sharing the region. Mountain specificities such as inaccessibility, marginality, diversity, climatic variability, endemism and fragility should be taken into account in conservation and sustainable use of the component of biodiversity. The legal

regime should take note of the accelerated forest and habitat loss, soil erosion, resource degradation, genetic erosion and added vulnerability, loss of biodiversity and associated knowledge system, spiralling poverty and population surge.

The framework should adopt and promote a people-first approach. It should respect, preserve and maintain and further promote individual and collective knowledge on agriculture, animal husbandry, pasture and rangeland management, medicinal practices and associated cultural expressions and sustainable livelihood. It should strive to bring indigenous and local communities and people to the ABS regime of the biological resources, and associated knowledge, and improve their capacity to sustainably use biological resource and associated knowledge, enhance their opportunities for income generation by providing assistance in taking advantage of geographical niches and emerging technologies including biotechnologies.

It should take note of ecosystem connectivity and promote ecosystem integrity and upland-lowland interaction, and promote integrated management. The framework should also strive to reduce negative impact of biotechnology and climate change in the region.

Relevant principles and approaches

While all the principles developed in the domain of environmental law and justice should guide the policy makers, the following principles and approaches, many of which are already internalized by respective states and the courts of the region, should guide the policy makers at the national and regional level in the Himalaya region. Most of them are already accepted in the national system

- Principle of sustainable development
- Principle of intra and intergenerational equity
- Principle of public trust
- Precautionary principle
- Polluter pays principle
- Principle of common but differentiated responsibility

- Principle of regional cooperation
- Accounting for ecosystem services-

While most of the principles mentioned above are well established in international and comparative law, the principle emphasizing for ecosystem services is an emerging principle quite relevant in the context of the Himalaya. The Himalayan system besides providing sustenance to the people in the region also provides a very valuable service in the form of food, forest, water, power (hydropower) to the people downstream and adjoining region. It also modulates the flow of monsoon clouds and checks cold winds from flowing in from the Tibetan plateau in the winter. Now time has come to value these services, develop an incentive-base approach and pay for what the Himalaya and its people have provided. It is being increasingly realized that if services are left unacknowledged, they ultimately cease to exist. Accounting services that the Himalaya system provides such as maintenance of biodiversity, water quality, reduced effect to downstream life in well-maintained watersheds through sedimentation control, benefits that downstream gets through regulated flow of water or opportunity cost incurred by the people for being engaged in terraced farming or continuing with low-yielding variety or organic farming, and so on is necessary in this regard. The creation of local entitlement and prevention of economic leakage through suitable legal and institutional mechanism are attendant component of this process. Creative new management approaches that uses tools such as debt for sustainable development, microcredit, microfinance to farmers establishing small ventures or improving available technologies, micro-insurance to the products, and highland-lowland contract in the assurance and delivery of service should be tailored to the local needs of specific regions. Community level projects through eco-tourism, forestry, micro-hydro development and so on should be brought under the banner of payment for ecosystem service and generate funds for the promotion of SD in the region.

Scope:

The regional legal framework should be guided by CBD and the in International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and the emerging regime on animal genetic resources, and the aspiration to realize the objective set out in

those instruments. It should take conservation of biodiversity-wild, domesticated and agricultural plants and animal biological resources, their by products and derivatives and micro-organism and sustainable use of their component distributed across borders of two or more countries.

In terms of coverage, the framework should take into consideration both physical and biological coverage. Biological coverage should be determined based on the suggestion of the scientific committee set up for the purpose which looks into factors such as expanse of biodiversity, dispersal and speciation of species. Thus multiple layers of boundaries are possible under the framework.

Conservation of Bio Diversity:

The regional legal framework should take specific characteristics of the Himalaya, aggravated pressure brought about by surging population and spiralling poverty in the high and middle mountains and also the unintended pressure put by industrial activities on already fragile environment including challenges brought about climate change into consideration. Integrative and adaptive management emphasizing on ecosystem integrity and eco-sociological connectivity should be the focus of conservation of BD

It should stress on learning from local people, farmers, herders, breeders, artisans and women especially their knowledge, experience, innovation and practices on conservation of forest, rangelands, pastures, agricultural lands, soil conservation, flood control and gully erosion and so on, encourage landscape and river basin planning at the local level,

Activities that give rise to social fragmentation such as forced population transfer, assimilation and displacement and so on should be discouraged. The regional legal regime should try to arrest, and where possible reverse biodiversity loss within an agreed time framework. Establishment of special biodiversity zone and protected areas

Regulation and diversification of agriculture practices should find a place in the regional framework. Creation of baseline data on biodiversity and other related issues, socio-

economic life of the people and their changing pattern of life, practices impinging on regenerative capacity of bio resources should be made part of conservation efforts.

Focused studies in most affected and ecologically hyper-sensitive areas such as high mountain and alpine regions, and Churia foothills, should find due attention.

Local people who are required to grow local plant and animal varieties, practice organic farming and implement land and soil conservation programmes should be supported through suitable insurance and compensation package for economic loss and opportunity cost. Package for paying vulnerable mountain community in order to engage them in conservation is also called for.

Access and Benefit Sharing: The availability and continuous existence of resource should be the basis for determining ABS. The existence and expanse of trans-boundary resource, its core and penumbral circle should be determined by scientific committee. Capacity building, value addition should find due attention in the legal framework.

Protection of Traditional Knowledge: The documentation of TK should be prioritized. The framework should consolidate existing practices of documentation. Enhancement of capacity, capital, and development of network for possible commercialization of knowledge are crucial. Respective state should act as capacity builder, empowerment agent and catalyst in dealing with external actors.

Intellectual Property Rights: The proposed regional legal framework should follow disclosure model. The determination of country of origin should be left to scientific committee. In case of trans-boundary resources the certificate of origin and legal provenance should be issued by regional institution. Narrowing down areas of patentability and expanding the public domain better ensures the interest of farmers.. Efforts should be made to explore the possibility of protecting geographical indicators, trade secrets. The capacity building of the state and communities on IPR issues is essential

Other matters to be included: The proposed legal framework should emphasize the development, improvement and import of suitable technology. It should focus on sharing

of information on matters such as impact of climate change, penetration of alien invasive species, key pressures such as forest fires, overgrazing, inappropriate mining, urban expansion, disruption of water flow, over use of fertilizers and pesticide, glacial water outburst, local and long range pollution, migration of species, negative impact of tourism and so on.

Avenues should also be kept open for states in the federated units and autonomous region in relation to other adjacent regions to forge agreements on specific issues relating to biodiversity and nature conservation such as designation, inclusion exclusion of areas in the Himalaya in a particular program. Emphasis on decentralized management is a must for the proposed legal framework.

Creation of Himalaya Biodiversity fund: The framework should establish a fund that funnels fund from ABS, royalties from Ayurveda and Chinese medicine, royalties from the use of NTFP, eco-tourism, expeditions, carbon trading and hydro-power development and mining, downstream benefit from regulated water flow, contribution from GEF, Forest Carbon Partnership facility,

Institutional and Non-Institutional Challenges

There are a number of institutional and non-institutional challenges which may act as hindrances in reaching a regional agreement on biological diversity among the countries of the Himalaya region. The most notable among them are as follows:

- Hostility between India and Pakistan-has dampened regional cooperation
- India, Nepal and Bhutan share an open and porous border, - may hinder efforts to control bio-piracy.
- The difference in size may act as a disincentive for countries to form a regional treaty.
- The growth of pharmaceutical industries and research institutes may create varied incentives in matters of IPR.
- Small countries may be reluctant for the fear of insecurity –fear that they might be bullied by big countries- water treaties are examples in this regard.

Strategies for overcoming challenges

Given the vexing bilateral relations in South Asia the proposal of evolving a regional legal framework seems ambitious at the first glance. However, it is not unachievable if concerted efforts are made by state and non-state actors who see benefits in collaboration.

Such actors should first be able to define the problem and identify the merit in such a treaty. Currently the greatest motivating factor is the awareness that the resources are dwindling and that the life of the people in mountain is deteriorating may motivate countries to seek alliance. The awareness may motivate relevant stakeholders to come forward in evolving the framework. This said, it is possible that in the initial stage, all the countries may not join, but a treaty between the two countries sharing the ecosystem may be a starter.

The fear of small countries can be removed if provisions for sharing benefits are neatly drawn on contentious issues such as the use of knowledge, the use of biomass and the use of genetic resources based on the origin and expanse of the resources.

Concluding observations

The regional treaty for the conservation of Himalayan biodiversity is possible if the states in the Himalaya region behave not as indolent leviathan but as trustee of community and individual rights and to work in good faith for projects of public concerns.

It is clearly seen that the Himalaya is much more threatened today in all its aspects than ever before. If its geo-ecosystem, its biodiversity and the cultural diversity of its people are to be conserved and prosperity of the larger region is to be ensured, a regional collaboration is the only road ahead for us that leads to meeting aspiration of the present generation and securing the posterity an equally secure environment.

I repeat what Jack Ives and Bruno Messrli said: the Himalaya seeks plural problem definitions and enumeration of plural solutions. Yet, bio-diversity is the link between human and the nature- it is threatened today. No single country can save the Himalaya, but a regional coalition can. The regional legal framework that encourages the

development of harmonious law at the national level, evolves focused initiatives at the regional level and also brings countries at one front on unresolved international legal issues to my mind is a good move that all of us should seriously consider. After all what takes place in the Himalaya affects the whole world. Therefore saving Himalayan biodiversity is a right step towards saving our mother earth and her people.

I thank you for your kind attention.