

**CO-MANAGEMENT OF RANGELAND RESOURCES IN
THE HINDU KUSH-HIMALAYAN REGION**
**Nurturing the Eco-politics for Food Sovereignty, Environment
Security, Development, Peace and Sustainability**

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Many of the socio-economic, cultural and political problems the South Asian Region, including SAARC countries, is currently facing emanate from the ecological crises looming large on the Hindu Kush-Himalayan (HKH) Region. Extending into the boundaries of eight Asian countries – viz., Afghanistan, Pakistan, India, China, Nepal, Bhutan, Bangladesh and Myanmar – the mountain chain of the Hindu Kush-Himalayas contributes significantly to the maintenance of water bodies and building up an environment conducive to the food production systems. Out of the six SAARC countries, four (Bangladesh, Bhutan, Nepal and India) are wholly or partially nestled in the Himalayan Region. There is sizeable area under mountains in Maldives and Sri Lanka also and hence these countries share common problems with the others. A safe environment, drinking water supplies and sustenance of food flows from the land are essential ingredients for development and sustainability of a Region. And these essential conditions are met or can be met by the largest components of the nature on land, the rangeland ecosystems.

Rangelands comprise the largest ecosystems on the land portion of the Earth. Their phenomenal impact on the overall economy thus is obvious. Before further going deeper into the various issues relating to rangelands, let us define the rangelands. Rangelands, owing to insufficient and unreliable rainfall, rugged terrain and other unfavourable conditions, cannot be maintained for cropping activities. An overwhelming proportion of such areas are under the landscape referred to as rangelands. Rangelands, according to the Society for Range Management, are the lands on which the native vegetation – predominantly grasses, grass-like plants, forage or shrubs – is suitable for use by grazing and browsing. Earlier, Stoddart *et al.* (1975) described rangelands as those areas of the world which by reason of physical limitations, low and erratic precipitation, rough topography, poor drainage and extreme temperatures are unsuited to cultivation and which are a source of forage for free ranging native and domestic animals, as well as a source of wood products, water and wildlife. There are several other loose definitions of the rangeland ecosystems. In the Hindu Kush-Himalayan context, I propose the following holistic definition: Rangelands are the uncultivated areas or abandoned cultivated areas and occasionally fallow lands that harbour natural or seeded/ planted vegetation of herbaceous and woody species and that serve as habitats of a variety of wild animals, support domesticated animals, provide unique products and ecosystem services especially vital for the livelihoods of livestock-dependent communities.

Rangelands occupy the largest area encompassing approximately half of Earth's land surface (Sidahmed and Rota 2004). According to some estimates, the rangelands make 70 percent of the world's total area (Zhaoli 2004). In the Himalayan Region, the rangelands make the dominant geo-ecological landscapes covering more than 60 percent land area (Singh and Gaur 2004).

Despite the largest spread on the landmass of the Earth and critical role in the socioeconomic setup of the mountains, the rangelands continue to be the most neglected ecosystems and are often subjected to unthoughtful cultivation and construction works that further deteriorate the natural landscapes leading to significant curtailment in the ecosystem services they ought to provide. Even the natural resource policies ignore the uncultivated rangelands and often regard them 'wastelands'.

Nevertheless, a fresh wave of thinking about the rangeland resources and their management the world over has been witnessed in recent years. Biomass and functional attributes of a natural or well-managed ecosystem are inseparable. Ecologically sound natural resource management is a precondition to maintain essential ecological integrity of any system. Ecological integrity is of critical value serving as the strongest foundation for the sustainability of the natural resources and systems on the living planet. Ecological integrity actually is the real substance of human happiness. Thus, there is, as it should be, a definite relationship between natural resource management, peace and sustainable socioeconomic development. Focussing on the mountain rangelands, this paper attempts to analyse these vital links in the context of the Hindu Kush-Himalayan Region.

The current dismal state of the Hindu Kush-Himalayan Region – in many areas full of chaos, turmoil and instability – could be transformed into a state springing hope, peace and development. The HKH mountains can serve the world through what is omnipotent for the life to keep imbibing: their vital ecosystem services, let alone the unique products of great human use growing in the pristine and unique habitats.

The Eco-crises Looming Large on the HKH Region

Management of the rangeland resources in the HKH Region should be regarded not only essential but an imperative for restoring delicate ecological balance which at present is in doldrums. Since rangelands comprise the largest geographical area in the fragile HKH mountains, their continuing negligence, lack of appropriate policies and mismanagement is bound to further accentuate the ecological crises to the detriment of environment quality, food production systems, water sources, ecosystem services and highland-lowland linkages.

Despite their vast dimensions in the HKH mountains, the rangelands are the most neglected ones. Encompassing most of the biodiversity – both endemic and introduced – these ecosystems are exhibiting the most somber picture today. They are under severe stresses of various sorts. Many of the negative trends steadily culminating into ominous climatic changes being experienced as global warming are attributable to the ecological crises looming large on the vast mountain stretches under rangelands. These eco-crises are not only breaking down the livelihood systems

based on pastoralism but are also impairing the natural highland-lowland interactive system having serious implications for vast plain areas too.

Rangeland ecosystems in the HKH and Tibet region provide origin for most of the rivers and streams in Asia. Water systems in South Asia are under stress. This situation – directly and indirectly – is attributable to the current ecological plight of the mountain rangelands.

Eco-crises are being further intensified by the high level poverty the whole HKH Region is in the grips of. The current pattern of rampant economic development and burgeoning population in the fragile habitats are adding fuel to fire. The way future strategies marked by implementation of mega projects imminently requiring use of heavy machinery and dynamiting leading to uncontrollable damage of the extremely sensitive geological structures are evolving at national, regional and international level, it appears that the most neglected rangeland ecosystems would face stresses of greater magnitude. The strategic importance of mountains for the countries in the HKH Region has given way to these countries to strengthen their military bases and activities turning the border areas into virtual ecological graveyard. Border areas of Afghanistan, Pakistan, India, China and Bangladesh depict an extremely dismal picture of ecology.

Ecological Integrity and Sustainability

An ecosystem is a self-sufficient unit of nature in which there is a definite pattern of nutrient and energy flows vital for the sustenance of the three organisational levels of life, viz., producers, consumers and decomposers. For that matter, agro-ecosystems in the mountains of the HKH Region are also self-sufficient and an independent functional unit of nature. Mountain agro-ecosystems incorporate rangelands, livestock and cropland as their integral components. Livestock consume the biomass growing in rangelands a part of which is used to manure croplands. Plant biomass for use as mulch and bedding material extracted from rangeland components also ends up as manure in the croplands. Much of the manuring of the cropland areas is thus done by the nutrients contained in the biomass produced in the rangelands.

Comprising a variety of deep-rooted trees and shrubs along with herbaceous plants and a variety of other wild life forms, a rangeland ecosystem is ecologically more stable than the cultivated land. A thin layer of fertile soil supports shallow-rooted (sometimes deep-rooted) food crop annuals. This soil requires to be constantly fed for fertility maintenance. The cultivated land therefore is ecologically more fragile and vulnerable. Management of this fragility and vulnerability requires constant replenishment of the thin layer of soil in a cropland subsystem. The cropland soils are fed with the nutrients contained in the biomass produced in a rangeland ecosystem. Crop residues produced in the cropland are also fed to the livestock a part of which also ends up as manure.

Livestock constitute the dynamic component of a farming system helping nutrient flows in two ways: transfer of nutrients from ecologically more stable rangelands to the more fragile croplands and recycling of nutrients into the cropland. Livestock thus serve as the living agency to mediate nutrient flows in mountain agro-ecosystems. A

part of the energy consumed is retained in their bodies to be used for maintenance and production.

Ecosystem services rendered by an ecologically sound ecosystem are more intense and more useful. Emanating from well-managed rangelands, these services help maintaining an environment congenial for the productive services of a cropland. Conservation of myriad life forms in its own boundaries, moisture circulation in the whole farming system, and maintenance of appropriate micro-climate are the other intangible attributes of the rangeland ecosystems in the mountain agro-ecosystems. The intangible ecosystem services are often not taken into consideration but are very vital for the efficient functioning and performance of the whole agro-ecosystem on which livelihood systems of rural communities are dependent.

A rangeland is a solar-powered ecosystem. The upland terrestrial solar-powered ecosystems are independent (those in the lower areas often receive natural subsidies). These forms of ecosystems – unlike the fossil fuel-powered ecosystems of the cities and industrial areas – demonstrate considerable resilience and are self-sufficient and sustainable. The cropland, on the contrary, can only be sustainable only when it constantly receives natural subsidy (nutrients in organic matter). Referred to as nature-subsidised solar-powered ecosystem, the cropland in a mountain agro-ecosystem is less resilient, more vulnerable and often attaining the very high degree of fragility.

Ecological integrity, in essence, is function of the ecosystem services, such as conservation of biodiversity, soil and water, energy and nutrient flows through food chains and food web, etc. Ecosystem services are the inevitable products of ecological integrity. Integrated, cropland and rangeland ecosystems function as a single independent functional unit, the agro-ecosystem. Livestock provide a crucial dimension to this integrity. Isolated, the cultivated land would require inputs from the market system, as would be revealed in case of the food production systems under the umbrella of Green Revolution. Sustainability, in essence, is the function of this ecological integrity.

Co-management for Regional Cooperation

Co-management of the natural resources in the HKH mountains should be regarded not only essential but an imperative for restoring ecological balance and promoting peace and sustainable development in the Region. Rangeland ecosystems also serve as Biological Corridors making continuous or near continuous link to a suitable habitat through an inhospitable environment. These ecosystems further serve as Biological Corridors linking the unique biodiversity-laden habitats between two or amongst many countries in the Region. Zhaoli (2004) at the International Centre for Integrated Mountain Development (ICIMOD) based in Kathmandu has given many ideas about the co-management.

Mount Everest Ecosystem in Nepal – declared as Sagarmatha National Park – is a crucial transboundary area along the Nepal-Tibet Autonomous Region (TAR) border and represents unique biodiversity with natural corridors and essential linkages with other protected areas in the adjoining landscapes in both the countries. This is an

example of the co-management of natural resources for the benefit of both the countries.

There is considerable sharing of the range resources between two different areas and/or state borders in India. For instance, Nomads would seasonally migrate with large number of domestic animals from Terai area to the alpine meadows in Uttarakhand. Nomads of Jammu and Kashmir would migrate to Himachal Pradesh and those of Himachal Pradesh to Uttarakhand for the purpose of resource utilisation. This migration is very natural and people involved do not face any legal barriers. Local communities in the Region accept the seasonal migrants and also often facilitate their movements along with their livestock. Management of natural resources by local communities thus also contributes to enhancing social-cultural cohesion amongst different tribes, nomads and transhumant communities.

One remarkable way of sharing resources can be witnessed between the range communities of Afghanistan and Pakistan. As many as five lac nomadic Afghans along with their livestock migrate to Pakistani rangelands every summer. These nomads are welcomed there by the local community. Such an arrangement of resource usage contributes to promote some commonalities between different nations and cultures. More attention on the co-management of the range resources that two nations share would further help promote an environment of harmony, understanding and fraternity between peoples of two or more countries.

Co-managed by concerned nations, the rangeland resources in the Region would flourish with some of the rare species of vital use, such as valuable medicinal and aromatic plants, ornamental plants, wild animals. The concerned nations through mutual approach might utilise the rare resources for the benefit of humanity everywhere. This can, in turn, fetch income to the local communities and revenues to the concerned governments. Co-managed ranges would present to the world some of the most beautiful landscapes splashing their aesthetic values. Serene and captivating landscapes and beautiful and enchanting panoramas would attract attention of the people from all corners of the world. Such well-managed landscapes can even be used for what is emerging as the world's industry No. 1 – the eco-tourism – which would substantially help improve the lot of the people inhabiting mountain areas. Eco-development of the border areas won't require any investment of money. What it would require is only goodwill, mutual trust and lasting peace.

Co-management of natural resources would be a glaring example of regional cooperation for sharing benefits of improved ecology of the fragile and inhospitable border areas. Transformed into "Biological Corridors", the vast stretched of border areas in the HKH Region would impact the economies of the regional countries through the constant provision of valuable goods, water supplies and ecosystem services.

Ecological Wellbeing is Economic Wellbeing

Economy is rooted in ecology. Ecology is an indomitable source of economy. Ecology shrinks, economy shrinks proportionately. Ecology blossoms, economy is sure to boom. Ecological bankruptcy not only debases economy, but also leads to generating the conditions that unfavour further regeneration of resources as the means

for survival. Global warming and Earth's increasingly becoming uninhabitable are the result of that.

Economic wellbeing is ensured and sustained when our economic activities keep pace with the regeneration of resources. Globalisation processes have to capture this concept. Globalising civilisation, after all, cannot afford to see its own collapse in long term. We, therefore, need to ensure sustenance of economic growth. And we can do so through catalyzing ecological processes and thus creating the state of ecological affluence. Ecological affluence – as indicated by high degree of biodiversity of species, genetic resources and ecosystems – would stop species extinction rectify ominous global warming and climatic changes and would also ensure food security for the humanity. Education giving value to the sanctity of life and directing the minds towards promotion and augmentation of biosphere resources would be highly valuable in our times. This would take care of economic sustainability of the world.

Ecological wellbeing of the mountain ecosystems would cure many of the economic ills. Water cycle reflected in unceasingly flowing rivers and streams, timely precipitation, etc., maintenance of the soil fertility through organic manures, flourishing biodiversity providing variety of products of great economic uses and ecosystem services leading to the maintenance of weather patterns, appropriate climate and numerous intangible benefits are all rooted in ecology.

Eco-politics as a New Dimension of Unity

On the occasion of the Eco-philosophy Summit in New Delhi in 1995, I heard a Russian philosopher saying, "Politics divides, ecology unites". Politics in our times seems to have lost its substance. The very word now seems to carry a negative meaning. This is not a healthy sign. The situation perhaps emerges out of the parochial goals of politics. One of such goals is reaching economic targets. Perhaps what is concealed in the process of realizing the target is 'by hook or by crook' message. The conventional economic framework emerges from the conventional politics. The economic processes led by the current politics appear to be bent upon cutting the very roots from which the economy sprouts. Plunder of natural resources to an alarming stage, extinction of innumerable species, environment pollution, ominous climate change and global warming, economic inequity, disorder, turmoil, chaos, prevailing fear psychosis, unrest, and several other social-cultural ills are largely on account of the current political paradigm.

Politics, however, cannot be wished away. It is of omnipotent value to humanity. But not in its present form. Politics needs to reshape itself. And it has capability to reshape itself. Most of the crises are emerging out of the bleak future which is due to non-availability of the resources on which future of the young generation could flourish. Politics therefore must learn to care for the roots of the economy, which lie in the natural resources. Politics must learn to nourish the permanent base of economy, i.e., ecology. Ecology, in the words on widely acclaimed environmentalist Sunderlal Bahuguna, is permanent economy. The conventional politics must absorb elements of ecology. Conservation and enhancement of nature and natural resources, care for future, compassion, equity, justice and sustainability are the essential ingredients of such ecology-laden politics. We can call such politics, the eco-politics. Eco-politics is the meaningful fusion of ecology and politics. A shift in the economic paradigm

into eco-politics is a must in our times. Eco-politics would prevail to take care of and heal the planet Earth. Eco-politics would be a new dimension of unity.

Food Sovereignty, Environment Security, Development, Peace and Sustainability

Food security is a parochial concept. Food security can be ensured even to the populations that do not directly rely on natural resources for food production. Food sovereignty, on the other hand, takes into account the wellbeing of natural resources, including genetic resources providing variety of foods. This also speaks of right on and access of all to such resources, conservation and enhancement of food-providing resources, self dependence, sustainability, and the likes. Sustainability of food security is also inherent with food sovereignty. Food supplies from outside an area, a country or a region is not a permanent solution to ensure food security, but food sovereignty is. We, therefore, should rely upon the broader concept, the food sovereignty.

Environment security has also to be a great concern. Environment security is about maintaining the quality of our environment. A healthy environment is a must for health security. A healthy environment is a pre-condition for development and for sustainability. Peace is a substance that is inherent with sovereignty, environment security, development and sustainability. All these, in fact, are inseparable and complementary to each other. All these indispensable conditions flourish on the fertile ground of ecology.

Conclusion

Natural resource management is one of the priority agendas of national development policies and programmes. Rangelands covering largest geographical area of the mountains of the HKH Region however, are not there in the folds of the current development strategies. Although comprising the core of the mountain agro-ecosystems, these uncultivated areas suffer from institutional negligence. Despite their critical contribution to the mountain livelihoods directly and to that of the far-flung plain areas indirectly, they are in the throes of vicious ecological crises.

What still adds woes to the HKH Region is the trampling of the fragile landscapes by intensive military patrolling and desperate use of defence artillery. Most of the border areas in the Region are under unprecedented pressure of such activities. Organisation of state-sponsored terrorist training camps and activities amidst the lofty mountains is also a major issue of our contemporary times. Such state of affairs is contributing to chaos, turmoil and unsustainability in the Region. Rampantly and unabatedly going on ecocide and genocide in the Region need be stopped before it is too late. Himalayan mountains had earned the acclaim of an oasis of peace. They now need to regain that repute.

Ecosystem services are the product of the ecological integrity of a system. Ecological integrity is a precondition to sustainability. Efficient management of the mountain rangelands aimed at ecological restoration would be pivotal towards rejuvenating ecosystem services critical to unleashing production potential of the natural resources. Eco-development is the fundamental approach to socio-economic development and

sustainability in the Region. There is a definite link amongst ecological integrity, peace and sustainability. While peace is a precondition for the holistic development of a society, it is also a product of the ecological integrity which is a prerequisite of sustainability. The “ecological integrity-peace-sustainability” link helps food sovereignty of a community/ country to prosper, which serves as a potential ingredient for the peace culture. Culture of peace is a dynamic process. It requires to be nurtured by the sustained situation of food sovereignty. Food security need not express an ecological dimension, but food sovereignty does. Food sovereignty, in addition to being the product of this linkage, is also a goal for the sustainable societies and systems to prosper. This vital link offers ecological solution to the Himalayan problems.

Augmentation of livelihood systems of the rangeland- and livestock-dependent communities in the HKH Region would prove to be a single largest welfare activity. Management of the Himalayan rangelands could be at the heart of the process strengthening the reversible ‘ecological integrity-peace-sustainability’ linkage. Will power, mutual trust, fraternity amongst HKH nations can help recover the lost paradise. The Hindu Kush-Himalayan Mountains are a single entity of nature. They are a common natural heritage of all the nations sharing it. Since their ecological services cross all boundaries of the Earth and since their ecology is essential to the survival of global ecosystems, they should be regarded with reverence as a pristine Heritage of the Earth. Devastating activities wounding, crippling and killing parts of the HKH Mountains would hamper the overall integrity of the nations particularly in South Asia. The current political paradigm gives way to ecocide and genocide. The eco-politics, which is directed by ecological principles, could help out the world come out of the impending natural catastrophes and economic crises.

The eco-politics can induce the member nations to undertake co-management of their natural resources in the border areas and share tangible benefit to be accrued through ecological affluence. Let the natural resources of the border areas protect and rejuvenate and serve as “Biological Corridors”. Intangible benefits that would infuse sustainability in the land-based production and livelihood systems will come the natural way. Resource conservation-based eco-politics, rather than the resource degradation-oriented conventional geopolitics, would give healing touch to the wounded mountains and their long-suffering people. Eco-politics with meaningful fusion of ecology and politics would also articulate into the welfare of the people and all living beings and the nourishing systems.

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