

Himalayan Biodiversity and conservation

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Executive summary

Himalayan Biodiversity and management is an important issue in India and across India. Management of Himalayan Biodiversity is very important aspect regarding environment conditions in India. I.H.R (Indian Himalayan region) are boundaries for north and north eastern part of the country and provide administrative cover to 10 States. Apart from Numerous goods provided by IHR (Indian Himalayan region). It Provide Plethora of service to resident of Himalayas and influence the life of the people across the Lines. Vast large area of snow cover and glacier which fed many perennial rivers is characteristics of I.H.R. Apart from this I.H.R are the giant Carbon sink for atmosphere and environment. I.H.R also known to make that we call Himalayan Bio diversity hotspot. But now it is facing environmental crisis on the account of stress and anthropogenic activities. Thus I.H.R falls in vulnerable category. The Unplanned Populating town by construction creates non compliance. The state government made non biodegradable garbage act 1995 for preventing throwing and depositing non biodegradable waste. The state government prescribe the size of plastic to use is 70 microns of virgin material but further. The state government of Himachal Pradesh ban plastic in entire state from 2009. The present Research has been taken at a micro level for upper Beas basin of Kullu valley. At this Level in, Anthrop- environmental Interaction system is of critical importance as living condition of people is not very good. Till recently, The main occupation of the people was subsistence agriculture. This was not because of their choice but under the pressure of environment and lack of adequate technology. Dal lake in

Srinagar Kashmir is main attraction for tourists. Lake and waterway development and conservation authority (Srinagar) and CEE (Center for environment education) with some NGO'S took initiative for conservation and mass awareness. Fragmentations of the houses should be stop in hilly regions, The urban Development/rural development area should be designated, The construction should be stopped in hazardous Zones. The seismic Areas at the time of construction should provided by all earth quick resistance system. The Guidelines are given for management of Himalayan biodiversity at various levels. Guideline prohibiting indiscriminate disposal of garbage particularly non-biodegradable waste. Prevention management steps for solid waste management. Documentation about the varying composition of waste from the hill town to expedition top. Promotion of technique such as conservation of biodegradable waste. The Four R's Principle give strong message REFUSE, REUSE, RECYCLE, REDUCE. Good quality of portable water is essential in Himalayas. With Awareness & Capacity building, Best international experience for conservation of surroundings with support and innovation. Religious sentiment for conservation of mountains is harnessed through encouraging them to undertake participatory plantation, Promote the concept of eco-cultural landscape, Involved local residents in maintenance of scared grooves. Ladakh Himalayan Home stay with Transforming local mindset Toward snow leopard in this segment The Himalayan Home stay program foster conservation based community managed tourism development in remote settlements. It

standout as an example that aim to sensitive to both host and visitor expectation without compromising the aspiration of the host community. Immense Eco tourism in Himalayan Region and big opportunity should create great cultural value and regional employment.

Number of threats to Himalayan biodiversity:

The Indian Himalayas, which constitute about 12% of the country's landmass, is home to about 30.16% of the fauna, says a new publication from zoological survey of India(ZSI).

The publication faunal Diversity of Indian Himalaya List 30,377 species in region with the entire identified fauna in country added upto 1,00762. Spread across Six States-from Jammu and Kashmir in west through Himachal Pradesh, Uttarakhand ,Sikkim and west Bengal's Darjeeling to Arunachal Pradesh in far east-Indian Himalayas are divided into two biographic zones-The trans Himalaya and the Himalaya, based on physiographic, climate and exobiological attributes. The central Himalayas are most rich in faunal Diversity with 14,183 species, followed by the west Himalayas, which is home to 12,022 species.

Habitat loss due to land use change, Illegal wildlife trade, forest fires and increasing anthropogenic activities pose threat to Himalayan biodiversity, the publication underline

Every summer, the mass inflow of tourists towards the hill station has often led to specific negative externalities such as inappropriate and dangerous construction, poorly designed roads, inadequate waste management, air and water pollution, loss of natural resources and biodiversity, vehicular traffic and an increasing carbon foot print, among others.

These are cumulatively affecting the long-term tourism development prospects of

IHR. COVID-19 has provided a rare opportunity for earth to heal, which has rejuvenated the mountain ecosystem after a very long time.

It provides a great scope of the remodeling of tourism sector as "Green tourism", So as to make it inclusive and sustainable, thus contributing to united nations-mandated Sustainable Development Goals(particularly SDG-8 AND SDG-12).As sustainable cities and communities (SDG-11) gain attention and investment in India, efforts to strengthen, protect and safeguard our natural cultural Heritage is becoming inevitable.

A step towards green tourism can be taken through establishing

Sustainable tourism fund

Sustainable development task force

Sustainable tourism label and certification system

Annual head water management for Himalayas and shifting cultivation

Understanding the present water budget in Himalayan Basins is a challenge due to poor in situ coverage, incomplete or unreliable records and Limitations of course resolutions gridded data set. In the study, a two way coupled implementation of weather Research and forecasting Model and WRF hydro hydrological model extension package was employed in its offline configuration, over a 10 year stimulation period of mountainous river basin in north India. A triple nest is employed in which innermost domain has 3 km for atmospheric model grids and 300m for hydrological component. Shifting cultivation and shifting farming locally Know as Jhum , tesri , Podu , Khoriya and various other names is widespread is much of Eastern Himalayas covering North East India, Bhutan, Eastern Nepal, Chittagong Hill Tracts of Bangladesh, North Eastern Myanmar and remote areas of Yunnan, Sichuan Provinces of china. Shifting cultivation locally Known as jhum in India, Has

been often blamed for deforestation and environment degradation

Himalayan Mountain and Himalayan biodiversity

According to a 200 Year of research on Himalayan biodiversity trends gaps and policy implications Global mountains, including the Himalaya are highly vulnerable ecosystem, especially gives climate and land-use changes. Here, we compile the literature on Himalayan biodiversity in order to assess spatial and taxonomic trends in research during past 200 years. 35,516 output of research. Nepal contributes the largest volume of published literature, followed by western Himalaya Indian states, with relatively few studies on the most bio diverse region lying to east of Nepal. The Himalayan represents the highest mountain system on the earth. Extending more than 2400 Km in length, The Himalayan span tremendous variation in climate condition from subtropical to boreal. It forms a longest bioclimatic gradient in the world with vascular plant found from 60 to 6,400 m above sea level. The mountain range is situated to four zoographical realms the pale arctic, Saharo -Arabian, Sino-Japanese and Oriental. Climate variation associated with wide range of habitat colonized by fauna and flora from different realms has resulted in a biodiversity hotspot of global importance. J.D. Hooker documented plants and published the work as the flora of British India in seven volumes. Similarly, Bland ford conducted extensive research on animals and publish fauna British India series also in seven volume. The government of India think tank for development (NITI Aayog; National institution for transforming India) emphasizes five areas for sustainable development in Himalayas

- Inventory and revival of springs in Himalayas for water security
- Sustainable development in Indian Himalayan region
- Shifting cultivation Toward Transformational approach
- Strengthening Skill and Entrepreneurship landscape

Financial schemes and support for Indian

Himalayan Region : To take translate many of the recommendations from thematic reports into action for Himalayas, the agencies will require enhanced financial outlays and financial support

Convergence and leveraging: Proposed institutional mechanism should help in convergence of schemes/program/ priority action suggested under five themes with related ongoing programmes/schemes/missions supported by center and state. Similarly, the key schemes identified for leveraging of financial resources in the reports could be harnessed. An assessment of all the relevant public schemes and business investment can be made from convergence and leveraging (e.g CAMPA, MGNREGS and the National Clean energy fund could leveraged for program on spring rejuvenation)

Easy assess of Institutional finance: Easy availability of institutional finance through banks, financing under Mudra ,skill India ,standup India, Start up India and other institutional mechanisms will greatly assist in strengthening the skill and entrepreneurship and supply chain management landscape in Himalayas

Enable credit guidelines: be put in place to allow group guarantee (from village/clan authorities) for loans, instead of land title deeds for sustainable land –use practices in shifting cultivation areas

Green climate fund: may be leveraged for launching a pan-Himalayan program of spring revival, transformative approaches to shifting cultivation, sustainable tourism and support to skill and entrepreneurship

Fund for pan Himalayan Database management: There should be a specific fund or financial support to the central and state agencies that will promote data collections/generation and also its hosting at CDMA for effective dissemination.

Structuring the policy processes: draft national water framework bill can ensure that springs are considered ground water resource and give high priority to spring revival.

Development Planning of Indian Himalayan region particularly north east

The IHR stretches from Jammu Kashmir to Arunachal Pradesh has been facing various problems on account of very difficult terrain, weather conditions, extreme events, dispersed habitation, under developed infrastructure. Further north eastern states suffer poor connectivity both with rest of the India and within the respective states of the region. The Hill Area Development Programme (HADP, in operation since the Fifth Five Year Plan) was a major step in this regard. The programme also aimed balanced regional development. By now, HADP had entered in a crucial phase, particularly with reference to complementarity between interests of the hills and plains. The envisaged guiding principles for HADP were the promotion of a secure, basic life-support system, and judicious utilization of land, mineral, water and biotic resources in a total perspective embracing the complementarity of interests of both the hills and the plains. The whole strategy was

centered around the active participation of the people, particularly of women, in the fulfillment of their basic needs. Special category treatment was given to states of North-Eastern region, Jammu and Kashmir, Sikkim, and Himachal Pradesh; while other hill areas of IHR continued as those designated hill areas which were earlier covered under the HADP

In earlier plans of government and authorities. High priority was accorded for converting the Meter Gauge (MG) network to Broad Gauge (BG) and to provide rail link to all State capitals of north-eastern region. Hill areas lack infrastructure facilities particularly roads, power, education and health facilities. Second, most of the hill areas lack political power and consequently adequate funding. North east region and the western Himalayan region comprise of ecosystems that provide ecosystem services that are important for local region national and international wellbeing in context of sustainability. Hill area therefore face unique challenges in addressing their developmental needs in a manner that take care of conservation concerns for sustainable developments. Disparity exists in developmental status, as evidenced by socio economic indicator, across hill and plain area dominated state and within hill state as well. The interplay of biophysical and economic factor have implications for sustainable economic developments of these hill areas. The two basic developmental requirements are the provision of physical infrastructure such as power and roads, and the provision of social infrastructure that builds capacity, institutions and human skills to ensure economic growth such as provision of health and education. The aim of the study is to contribute to the understanding of these aspects for hill state in India by addressing the following objectives

Identification of the important parameters impacting cost disabilities in Indian Himalayan region arises from biophysical terrain characteristics

Conduct a quantitative analysis of the parameter in terms of their implications for provision of their infrastructure and basic services in achieving parity in sustainable development

. Today the Himalayan population can be classified into three ethnic types, namely Aryans, mangoloids and negroids. But the truth about its original inhabitants is still a point of debate. There is a debate that first settlements in Himalayas began in 1500 BC when a warrior tribe called khasa migrated to its western range. In terms of Business, In the major boost to organic products export from the country, first consignment of millets grown, first consignment of millets (land of God), uttarakhand would be exported to Denmark.

Observations

Himalayas Play vital role as savior and protector of Indian mountainous state. Himalayas provide plethora of services to resident of Himalayas and also across Himalayas. Environmental degradation is main concern of Himalayas in different aspects. Steps are taken to stop environment degradation especially non biodegradable product like plastic. Boosting Travel and tourism as covid-19 change the set of requirement in travel and tourism industry. Special concern in conservation of biodegradable waste by the principle of four r's REFUSE, REUSE, RECYCLE, REDUCE. The Indian Himalayas, which constitute about 12% of the country's landmass. It consist great faunal diversity which should be conserved. Water management is also big concern.

Himalayan Basins is a challenge due to poor in situ coverage .A two way coupled implementation of weather Research and forecasting Model and WRF hydro hydrological model extension package was employed in its offline configuration, over a 10 year stimulation period of mountainous river basin in north India. Shifting cultivation is popular in hills but it cause soil erosion though it provide very easy and very fast method of preparation of the land for the agriculture. There is a debate that first settlements in Himalayas began in 1500 BC when a warrior tribe called khasa migrated to its western range. Today the Himalayan population can be classified into three ethnic types, namely Aryans, mangoloids and negroids. The regional development is very much required in every aspect. The government of India think tank for development (NITI Aayog; National institution for transforming India)emphasizes various areas for sustainable development in Himalayas

Conclusion

Himalayas are saviour and protector of mountainous states of India. Its matter of the debate first settlements in Himalayas began in 1500 BC when a warrior tribe called khasa migrated to its western range. That was regarded as benchmark for human settlements. Himalayas are considered as giant carbon sink for atmosphere. There are various carbon mitigation strategies used time to time. Carbon sequestration, carbon sink, carbon credit and carbon tax . Water management is also big concern. Himalayan Basins is a challenge due to poor in situ coverage .A two way coupled implementation of weather Research and forecasting Model and WRF hydro hydrological model extension package was employed in its offline configuration. The Indian Himalayas, which

constitute about 12% of the country's landmass, is home to about 30.16% of the fauna. Indian Himalayan region facing environmental degradation problems because of anthropogenic activities. The Himalayas travel and tourism should be promote for better opportunity for both visitors and hosts .The Himalayan home stay program foster conservation based community managed tourism development in remote settlements. The IHR stretches from Jammu Kashmir to Arunachal Pradesh has been facing various problems on account of very difficult terrain, weather conditions ,extreme events, dispersed habitation, under developed infrastructure .Further north eastern states suffer poor connectivity both with rest of the India and within the respective states of the region. The Hill Area Development Programme is a major step in this regard. The programme also aimed balanced regional development. . The Himalayas have great Biodiversity, hotspot and natural resources its our duty to conserve the resources