

Editorial:

Mountain Economy: Resources, Sustainability and Governance

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The theme 'Sustainable Development, Resource Endowment and Governance: Mountain Economy in Perspective' is very crucial particularly against the back drop of the fast changing dimensions of natural resources in the mountain region, emergence of varieties of state and non-state actors and institutions and more critically the unprecedented pressure on the very use of endowed resources in the mountain regions. 'This is an important event from three major perspectives of natural heritage, livelihood management and societal sustenance.'¹ The entire Eastern Himalayas is declared as one of the 25 bio-diversity hotspots in the world. Since, Sikkim and Darjeeling is the core of the Eastern Himalayan region, besides the typical governmental organizations, even the public interest organizations like, NGOs and academic institutions like Salesian College and Sikkim University have very critical role to play in both the conservation and promotion of these rich and profuse natural resources.

One of the critical ways is to enhance the level of their usage and intensify the degree of their utility, by making these natural resources as friendly and as popular as possible. This can be done by bringing the traditional knowledge and native wisdom of the faith healers like *Dhami*, *Jhankri*, *Phendengba*, *Bonbo* of Nepali and *Pow* and *Nejum* of Bhutia and *Bumthing* in Lepcha communities to an institutionalized forum and under well designed scientific framework. They are presently scattered because they do not feel confident and safe about bringing their traditional knowledge and intellectual resources to the public domain. Besides, these faith healers fear their traditional knowledge being tampered by the promoters and agencies for commercial use. As a result, the rich intellectual heritage of our region is either frittered away illegally by both petty agencies and multinational companies, or remain badly diminished because of the death of these faith healers. Sikkim University plans to create a scientific forum for all these faith healers to come together and capitalize on their traditional knowledge base, by propagating the same at the national and global level. This means harnessing their rich knowledge base through licensing, patenting and globalizing which can be done under the Centre for Folk Medicines in the School of Indigenous Studies, and in the School of Sustainable Development and Livelihood.

1 The title of the UGC sponsored national seminar organized at Salesian College Sonada at which this keynote address was delivered by the author.

The critical aspect in the sustainable management of endowed resources is its linkage with public health, wherein, naturopathy as a traditional practice is both crucial and meaningful in our society. This has to be consciously advocated and promoted. The studies done in this region have shown that half of the health problems arise because of poor sense of environmental sanitation. For instance in Sikkim, over 45 percent of the people still lack adequate healthy sanitation facilities. This naturally is a major cause of diseases in our region. The challenge is to link the development of the government with the grass root needs of maintaining the health of mountain people in a sustained manner. Equally attractive venture would be to link holistic natural health management with mountain tourism. The traditional concept of *onsen* [hot water spring] as a part of the holistic natural health is blended colourfully together with tourism a place like Hakone, in Japan. They earn money; make people aware about naturopathy, globally make available Japanese traditional system and rich culture, and more importantly conserve the natural resources through its very prudent use. Something similar could easily be replicated in Sikkim, Darjeeling, Bhutan and the entire Eastern Himalayas in a big way, and would be one way to bring clean tourism to the mountain area.

Highlighting on the livelihood of the residents of the hilly region the following may be noted: Firstly, despite the distinct topographical disadvantages agriculture has been the mainstay of the inhabitants, irrespective of the faster pace of growth both in the manufacturing and services sector. The development both at the national and global level, provide the farmers in the entire hill and mountain areas of the North Eastern regions with both great opportunities and serious challenges. The opportunities are however in areas like huge demand for organic farm based commodities, commercialisation of horticulture and floriculture, value addition at the very farm gate level and diversification of commodity baskets. In this regard, presently, fair trading has become a major instrument of market access. The integration of agriculture sector with even the traditional medicinal practices, and hence, with the pharmaceutical industries provides unparalleled opportunities. But these require a sound governance framework with a good blending of indigenous traditional practices and modern management techniques. For instance, carrying the agricultural products to the demand centres require a recognised certification, which can only be provided by a modern institutional facility. Appropriate and cost effective technology and market access through better connectivity, are two vital things required to make the agricultural practices sustainable. The usual subsidy on food has dampened the spirit of the farmers to grow agricultural products. This has even led to migration of farmers to urban conglomerates.

Secondly, the issue of retaining farmers at the farms is another area of concern. This means de-attracting them from the inducement to migrate to the towns and cities, which requires a conscious partnership between public and private agencies. The key issue is to build a professional institution fully devoted to providing market promotion and access, to the farmers in the hills and mountains of this region. The

Ministry of Development of North East Region (MDONER) and the North Eastern Council (NEC) should have a special fund exclusively to develop national, regional and global connectivity in this regard.

Thirdly, the issues of global warming and climate change have started affecting farmers, although there is not much of awareness about this at the very local level. An important question that arises at this point relates to the consequences of the glacial erosion. As a result of the global warming the traditional seasonality of the crops in the hills are being disturbed, and the altitude based cropping pattern are fast and unnaturally changing. This could change the entire recorded pattern of agricultural practices in the hills and could even dislocate the farmers. This will unsettle the very cradle of civilization in the mountain regions. These farmers have no control over the events at the global level but get struck by the adverse impact so profusely.

In this background, academic institutions and organizations like, Indian Council of Agriculture Research (ICAR) has to play a very critical role. The farmers should be made aware about such unnatural phenomenon, developing methods and instruments to shift to a better agricultural regime. The farmers are to be trained not only to cope up with the situation but also transform other sustainable agricultural practices. Moreover, the governments in this part of the region are not fully conversed with the negotiations on agriculture that are going on at the global level under World Trade Organization. All these have definite impact on us in areas varying from subsidies to phyto-sanitary measures, and from market access and technology transfer to intellectual property rights. Institutions like Agriculture Department, Spices Board and ICAR have to really look into these issues as urgently as possible.

It is noticeable that the eastern Himalayan region had an unbelievably warm and pleasant winter in the recent years. This was very visible in 1998-99 and 2008-09. The rhododendrons started flowering in the first week of February as against the April May pattern. Environmentalists largely attributed this unique climatic behavior to global warming. Winter is the time when forest cover is under a cold spell and gets regenerative space. However, this long spell of dryness led to forest fires, as a result of which the young seedlings died. In fact, the entire North East region, Bhutan and Nepal battled the blaze of forest fire during February-April of 2009. This literally dried up the many traditional sources of water. As a result, the entire natural cycle was disturbed. Receding glaciers, hot winters, and poor regenerative cycles have started occurring with greater frequency. These might have lead to failure of multiple industries, mostly traditional in structure and composition. Continuation of environmental scarcity, along with an ever-increasing rural-urban development gap in turn could trigger off large-scale displacement and migration like the ones in Rwanda, Pakistan and South Africa. The most adverse impact is likely to be on the hydel power plants which are primarily fed by the water supplied by the glaciers in the mountain areas.

However, by using these resources in a traditional and unscientific way, we have not been able to really delve into the scientific properties and commercial values of these resources. This has affected us in two ways; firstly, there is lack of proper knowledge among the people about the method of conserving the resources and what actually need to be conserved; secondly, many of these resources and the intellectual properties related to them have surreptitiously been smuggled and commercialized by companies, of both gigantic proportions and also by small petty agencies. The demands for these resources are shooting up both in the national and global market. Hence, both ways, we are the losers. Also these have serious adverse impact on the bio-diversity pool, its management and conservation effort. One of the striking reasons for this has been the low level of awareness among the locals, lack of primary scientific institutions to handle them and more seriously literal absence of local skilled manpower to harness and conserve them.

This is where Universities and research institutions can play a crucial role in making major skill and knowledge development intervention. Universities must not only produce mere graduates and doctorates. We should endeavour to produce skilled, motivated, committed and technically sound human resources to harness and conserve these natural resources. In fact Sikkim University has designed two full Schools viz., 'School of Indigenous and Folk Studies' and 'School of Sustainable Development and Livelihood Management' with a range of Centres/Departments primarily focusing on this region's core competence and strategic advantages. We plan to act as a link between the local, national and the global knowledge pool. This is reflected in the way the Sikkim University has assiduously reformed the entire under-graduate programmes. The pharmacy related syllabus has been made more inter-disciplinary, demand driven and academically sound and up-to-date. At present there is an integrated BSc and MSc programme on Horticulture and Floriculture Management. Education is therefore a programme aimed at producing a farmer to be a technocrat, a manager, a marketing professional, an entrepreneur and conservation expert as well.

The most critical issue today is human security in the mountain areas. The question is what makes human beings secure? Other way round would be to ask why people feel insecure? Hardin's in *The Tragedy of the Commons*, (1968), DH Meadows and others *The Limits to Growth*, (1972); Brundtland's *Our Common Future*, (1988), Homer-Dixon's *Environmental Scarcities and Violent Conflict*, UNEP's *Caring for Nature* (1991), all do indicate that environmental security is the key to human security. In India, institutions like Indian Social Institute, Council for Social Development and Centre for Science and Environment have done pioneering work in these areas. The conjunction between environmental conditions and security interests generate a condition for environmental security. Conflict over natural resources and the degradation of environment undermines the security of states and other entities like its citizens. The latter, also known as environmental scarcity is caused by the degradation and depletion of renewable resources, their increased consumption and/

or their inequitable distribution, as was the case in Gaza between Palestinians and Israeli settlers' community. Therefore, the environment is a 'good in itself', that sustain both present and future human lives and societies. It is on the supportive bases and self-resuscitating system provided by the planet-environment combination, that the varieties of human actions – political, economic, social, cultural, religious – have worked, moved and remained viable. In fact, these practices and viability together constitute the core of the state system.

Depletion in a nations' environmental foundation could lead to the decline of the economy and deterioration of the social fabric, as well as destabilization of the political structure. This may trigger disorder and insurrection within the nation or tension and hostilities with other nations. For instance, the two very vital environmental protest and movement related to deforestation (the Chipko movement) and protests against the dam at Tehri in the 1970s and 1980s, helped the people of the Garhwal and Kumaon hills of Uttar Pradesh in India to politically mobilise demand for a separate state of Uttarakhand. Similar parochialism could be witnessed in Pakistan over the issue of Kalabagh dam between provinces like Sindh and North West Frontier Province (NWFP). There are also Trans-border natural resources management issues which have created conflicts in the past. The Baglihar dam project between India and Pakistan, the Farakka and Tipaimukh issues between India and Bangladesh, the diversion of Brahmaputra in Tibet, and the Kosi and Gandak between India and Nepal.

All these controversies clearly indicate that interdependence is critical in environmental risk assessment. This is more so in the trans-border context, as 'eco-systems do not respect national boundaries'. Nations cannot treat economic and ecological interdependence at par. In the former, border controls could manage and regulate the degree and impact of inter-dependence, whereas, in the latter case, 'fortress option is not available' in a situation like that of trans-boundary pollution. In the trans-border sense, environment-security linkages emerge when environmental stress in one country spills over to another and also when there is a difference in sharing of common resources like water. In the first case, environmental degradation in a particular space undercuts economic potential and affects human well-being. This in turn helps to fuel political tensions and conflict, which may result in serious trans-boundary implications. Issues like depletion of configuration of groundwater aquifers by the use of one country, pollution of river waters that run into another, excessive deforestation, or even a dam construction in a mountainous country leading to flooding in downstream countries could lead to both intra and inter-state conflicts. In such cases, a resource war can take place when a nation has some scarce resources in its exclusive geographical domain. This kind of resource war can occur if one country dependent on natural resources dictates the terms about its management to the country where it is actually located.

There is another dimension to the trans-border injury which is of an offshoot variety. One of the very devastating impacts of global warming is likely to be the

rise of sea level by 0.09-0.88 meter by 2100. It has now been estimated that a 1 meter rise in the sea level, would displace some 70 million people from coastal areas of Bangladesh. This could lead to massive migration to within and outside Bangladesh, thereby, triggering large scale human movement and insecurity. At the same time, at the very cross border level very positive things can happen. Places like nearby Bhutan can be cited an example as to how the hydel power potential could transform the entire economic system. Bhutan's revenue from the power exports to India (1,472 GWh) from the 336 MW Chukha project on river Wanchu was Nu 2,367 million (\$ 52 million) in 2002-03. This constituted almost 45 percent of Bhutan's exports to India and 11 percent of the Kingdom's GDP. The Chukha model of power trading between India and Bhutan has worked very well with the latter exporting as much as 76% of its generation. During the year 2007-08, more than 5 billion units of energy were exported from Chukha (336 MW), Kurichu (60 MW) and Tala (1020 MW) projects. It provided handsome revenue of US\$ 203 million (Nu 9778) to Bhutan. However, the pace of development that is catching up in the western regions of China under its "develop-the-west" campaign, launched in 2000, would require hefty and constant doses of energy supplies. The supplies from the mainland China may not be feasible on the long term basis. In this context, the possible options are: (i) importing electricity from the neighbouring countries including India and Bhutan and (ii) extending gas pipelines that are being negotiated among India-Pakistan and Iran. China's electricity demand has more than doubled in the last decade and will probably almost quadruple by 2020. Therefore, Sikkim's surplus power could be well exported to the western China at a very remunerative price. This will also enhance the level of inter-dependence on both sides of the border, and hence create development stakeholders.

Thus, on account of these reasons, the emerging issues of sub-regional cooperation at the cross border level are considered as a practical solution to the problems in the hilly and mountain regions. The effective role of private investors, clear cut government policies and legal regimes and visible impact on the local economies are the reasons why the sub-regional cooperation has become very successful among Johor state of Malaysia, Singapore and Riau islands of Indonesia (JSR Growth Triangle), Hong Kong, the Guandong and Fujian provinces of China and Taiwan also known as South China Growth Triangle, (SCGT) and Greater Mekong Subregion (GMS) consisting of Cambodia, Laos, Myanmar, Thailand and Vietnam and Yunnan province and Guangxi Zhuang Autonomous Region of China. There have been several initiatives in the last one decade on concretizing the sub-regionalism based cooperation and integration process. This includes the South Asia Growth Quadrangle initiative, Kunming initiative, the Bangladesh-China-India and Myanmar (BCIM) initiative and the Bay of Bengal Initiative for Multi-Sectoral Techno-Economic Cooperation (BIMST-EC). However, nothing concrete has come out of these initiatives yet. Assam government has been emphasizing on the reopening of the Sillwell Road built during the Second World War that connects North East region of India with Myanmar and China. The North East Vision Document 2020, very clearly emphasizes on the sub-regionalism

based development that enhances the level and quality of cross border interactions and exchanges.

One of the most fascinating aspects of the philosophy of mountain people has been the place of volunteerism in their social life. Traditionally, a strong concept and bond of volunteerism is used to characterize the mountain societies across the Himalayas in Nepal, Bhutan, Sikkim, Himachal Pradesh, Kashmir and Darjeeling. Many of the community level activities including hospitalization of sick people support during the disasters and calamities, building of community facilities including agricultural activities, was done spontaneously by the extended labour service for prolonged working hours. These were done without any major governmental support. In fact these practices prevailed mainly because the government support and interventions had not reached the village folks. This was a core element in the entire development philosophy of mountain region. It also reflected the friendly and careful attitude of the people towards the natural property. There was a strong sense of community living and a distinct commitment to serve the community. The villages were a lively unit, as people remained highly integrated and emotionally bonded. In contrast, most of the mountain villages have now started looking for government aid and intervention for even petty repairing of village roads or public facilities. This reflects a change that clearly manifests that, the villagers too would like to have an urban pattern of life where individualism is the most dashing feature and where government is the most predominant actor. This has several implications for traditionally well-knit societies in the mountain regions.

While what preceded was the keynote address at the national seminar on 'Sustainable Development, Resource Endowment and Governance: Mountain Economy in Perspective' held at Salesian College Sonada, 7- 8 August, 2009, what follows is a summary of the articles that are selected from among the papers presented at the seminar and submitted for publication in this issue of the journal. The mountainous regions, especially the Himalayas, replete with resources urgently require governmental attention as they are the most visible victim of rapacious exploitation in the name of development. While the natural beauty and resources are there for the humans both the dwellers as well as the visitors, their preservation for the future humans and for the sustenance of other species than human interlinked on the vital chain of life on the planet calls for radical interventions. Some of the issues revolving around the problematic are being addressed to some extent or other by these articles brought together in this issue.

Subrata Ghosh in his paper discusses the potential resources and its uses in the mountain region. In order to make use of potential resources, a commitment to the sustainable development in the Himalayas is necessary. The author highlights the Himalayas as one of the highest hydropower resource regions in the world, which

includes Indus, Ganges, and Brahmaputra rivers. Besides, the paper draws attention to the advent of new technology, population increase and development pressure, leading to dramatic increase in the magnitude of resource outflow. In making a case for sustainable development in the Himalayas, the role of ecotourism in this process has been emphasised showing how both men and women play distinct roles in maintaining the mountains. In this regard, the steps to be adopted by the central and the state authority for sustainable mountain development are also featured.

Anjan Chakrabarty highlights the conflict between sustainable development and the conservation of the Lachung Valley in North Sikkim. In this context he explains the "Tragedy of Commons". This theory however explains that if there is a higher degree of exploitation of natural resources, then, gradually the resources stop benefiting the common man. This interpretation of 'Tragedy of Commons' also holds good for North Sikkim. Pastoralism is an economic activity carried out in the Lachung Valley. The cyclical movement of herdsmen that take place under pastoralism serves the livelihood of a majority. The author here explains that on account of legal technicalities a ban has been imposed on the grazing of gothwala community of the Lachung Valley. He argues that such a ban is not all praiseworthy by skilfully explaining the gothwala system and its region specific uniqueness.

Anup Shekhar in his paper explains the North-South divide in Mizoram particularly due to "the geographies of anger." The geographies of anger arose due to biased developmental activities in the Northern Mizoram. There was non-availability of sufficient development funds for southern Mizoram. The author explores the ground reality and talks about the possible future for the region as contained in the 'Look East Policy', which gradually opened up southern Mizoram to the Northern Mizoram and the rest of the world.

Sonam Sherpa argues that development and displacement can be considered as a human rights issue through his attempt to assess the development and displacement issues in Sikkim since its merger to Indian Union. He substantiates his views with the empirical data showing different developmental projects in Sikkim which displaces the people without proper rehabilitation. He further suggests that to stop the impoverishment and marginalization of the people affected by the developmental projects one has to consider rehabilitation as right of the people because they pay the price for development.

Amrita Banerjee focuses on the role of mountain women towards sustainable development. The importance of the women class in the mountain regions have been emphasized very logically. The writer asserts that it is the women who perform the task of natural resource management in the process of managing their own households. That is to say those women play a triple role in production, reproduction and development. But despite the contributions, mountain women remain as the marginalised gender of the marginalised mountain areas. This is because the mountain women are subject

to the issues of gender inequality, they are threatened more by the natural calamities. Irrespective of the negative aspects in the lives of the mountain women, necessities and circumstances resulted in women taking up the role as the head of the household. Several environmental movements show the result of integrated efforts on part of women to save the environment.

Terence Mukhia in his article highlights the potential of Chatakpur, a village above Sonada to become one of the prominent Eco-tourism destinations of Darjeeling hills. He embellishes his views with some database on Flora and Fauna. He also unveils the socio-economic condition of the people and also the role played by the new players in eco-tourism to strengthen them. He further gives emphasis to the people's participation in the decision making which alone can bring about sustainable development of the place. He acknowledges the role played by the forest department in bringing the place into main stream.

Shubhro Michael Gomes studies the supply chain management by applying the the Data Envelopment Analysis. Benchmarking has been considered as a relevant tool in studying supply chain. The Data Envelopment Analysis has been used to find the benchmarking units, based on various parameters by relying on the tea industry in Darjeeling as a case study. A sample of ten tea industries of Darjeeling has been taken, and the DEAP version 2.1 software has been used for measuring the relative efficiencies of a homogeneous set of Decision making units (DMUs).

Rohin D'Souza highlights the role of Fair trade Labelling Organization International (FLO) in bringing about more sustainable and equitable world. He envisages Fair Trade as addressing the historical inequity and seeks to improve the lives of the most marginalized who also happen to be the primary producers in the case of tea. He further reveals that Fair Trade is the strategy which provides an ample opportunity to producer/workers who have been economically disadvantaged.

Kishan Harijan makes an assessment and finds out the co-relation between diversity and integrity in sustaining the cultural uniqueness of the Darjeeling hills. He highlights the factors such as Climate, Trade and commerce, Demography, Education, language and tourism which brought about the cultural integration and continue to play a major role in its sustenance. The existence of communal harmony in the Darjeeling hills for over 200 years is the sign of sustained cultural integrity in the Darjeeling hills. He further gives emphasis to the promotion of cultural tourism in the Darjeeling hills for which participatory planning is the ideal to solve the problem of sustainable tourism development.

Samar Thapa makes a scientific assessment of the climatic conditions of the Darjeeling hills through which energy can be saved. He comes up with the solar passive heating design based on comfort zone calculation, heating load analysis and energy saving obtained from room temperature. He supports his design with scientific

methods and emphasizes the usability of such design which can lower the financial investment even while maintaining conservation of energy.

Rukmini Thapa's article goes a long way in explaining the Diminishing Schooling opportunities for children of migrant parents. Although there is a positive perception among poor parents towards schooling of children even in rural areas, such aspirations are being gradually blocked as and when the economic conditions deteriorate. The aim of providing universal elementary education to all has been in place since the Constitution came into force. But the rise in literacy rate in India (as per census 2011) does not relieve us from the task of providing free elementary education to all. Several schemes like Sarva Siksha Abhiyan(SSA) have been proposed by the government in this regard. However, the study also shows that even these schemes have not been fully successful.

Lakpa Tamang and Bishal Chettri in their case study bring into consideration the Balason River and the effects of human induced activities of quarrying minor mineral. They have also highlighted the economic aspects of the human activities which is one of the important sources to carry on their livelihood. They also reveal that the high rate of transformation of Siliguri town and the high rate of urbanization geared up the demand of minor minerals which ultimately increases the rate of extraction of minor minerals in the Balason River. They further highlighted the evil effect of rapid extraction of minor minerals in the channel form, bar stability, channel evolution and other aspects of river.

The articles in this volume in one way or the other address therefore the issues related to sustainable governance of the resources for the wholesome development of the people with a future vision of preserving the region's assets of diverse kinds for posterity.