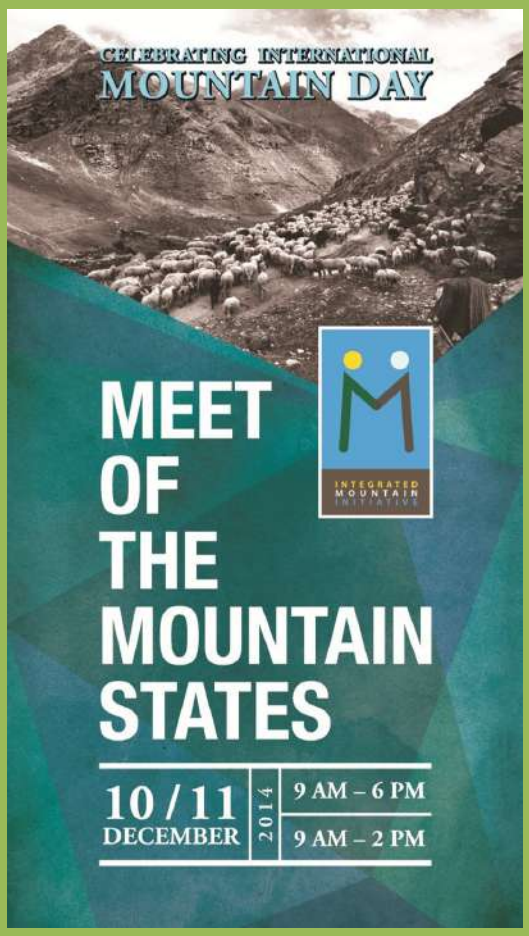


Meet of the Mountain States - III

Report of the Proceedings

Vishwa Yuvak Kendra. New Delhi. December 2014

Our Sponsors & Partners



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Executive Summary

The Meet of the Mountain States is an outcome of a long process of reflection and consultation, involving committed individuals and institutions from across the Indian Himalayan Region. The third edition of the Meet was convened on 10 and 11 December 2014, coinciding with International Mountain Day on 11 December and drawing on the International Mountain Day theme of mountain farming. In 2011, CHEA organised the first-ever Sustainable Mountain Development Summit. The successive SMDSs received good support from a range of participants. The Meet of the Mountain States, which is convened between two SMDSs, is used as an avenue for sharing the outcomes of the preceding SMDS with a wider audience.

The mountain states face twin contradictory challenges – sustainable physical and human resource development and environmental concerns. The issue of out-migration from the mountain states is a matter of concern as these states lie along India's international borders. This may pose a threat to national security. Mountain development therefore requires innovative approaches to navigate this conflict. The Meet saw IMI renewing its links with partner institutions which have supported it along its journey.

The case studies presented during the session on *Himalayan Farmers: Vulnerabilities and Sustainable Trends of Change* illustrated a microcosm of the wide-ranging differences in altitudes, landscapes, climatic conditions, and administrative policies that have an impact of farming and livestock rearing in the Indian Himalayan Region. While many speakers during the technical session pointed out critical issues about the loss of traditional farming practices and the marginalisation of mountain agriculture and nomadic livestock rearing, positive aspects such as new economic opportunities due to climate change were also pointed out.

The mountain states are emerging as the country's leaders in organic agriculture. Organic farming may present greater opportunities in terms of expanding revenue. There are weaknesses as well: standards are adopted for exports, rather than for domestic needs. If organic agriculture has to be taken forward, mountain-specific R&D is key. IMI has a role here in terms of building advocacy and sharing best practices. Another aspect that needs to be looked into is food security as none of the mountain states is food sufficient.

Traditional forms of agriculture such as shifting cultivation and livestock rearing need supportive institutional mechanisms to address inherent economic insecurities in light of

changing climatic and other conditions. There is an absence of a national focus on organic agriculture research. There is also a pressing need for R&D in this field with region-specific solutions. Another focus area where IMI's attention was sought is the absence of market linkages and supply chain constraints which is hampering the progress of small organic farmers and entrepreneurs.

The session, *Celebrating International Mountain Day* noted that a major issue of concern for the mountains is poverty though the regions are rich in natural resources. Speakers and participants hoped that concrete government interventions in mountain farming would result from the recommendations made during this Meet. Every mountain state has its unique issues – even within a state there are different issues in different parts. There was a suggestion that a separate ministry should be created for the mountains.

The session, *Mountain Concerns in light of Climate Change* observed a visible trend of increase in the frequency and intensity of natural disasters. Research on the impacts of climate change on mountain ecosystems, especially in India is scarce. The mountain states need to prepare themselves by adapting their development strategy to deal with the likely consequences of climate change. During the *Round Table Deliberations: People & Policymakers*, Parliamentarians raised their concerns regarding the introduction of climate legislation in the Indian Parliament. There were discussions on dilution of the importance of local communities when international conventions are translated into national legislations. The Meet recommended the establishment of a mountain division in the Niti Ayog, which may lead to creation of a mountain department in every central ministry, in addition to a mountain ministry.

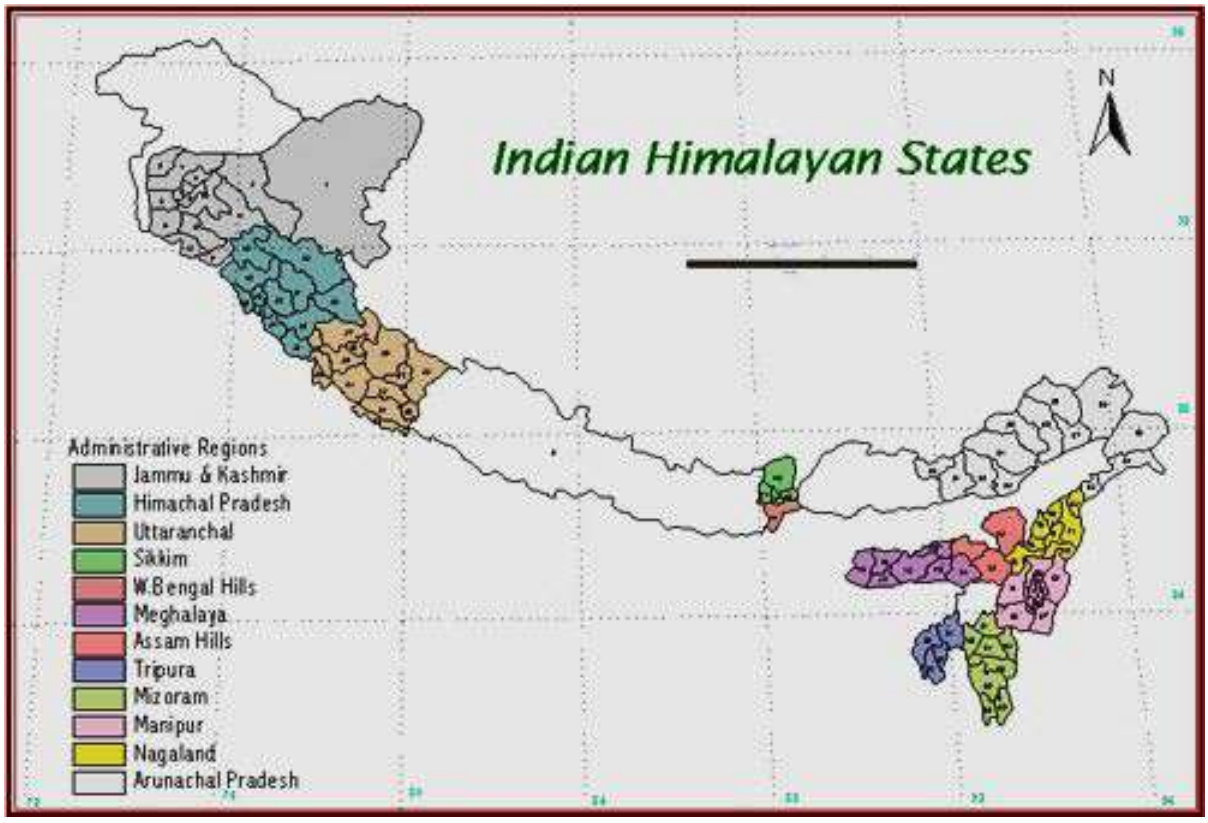


People & Policymakers

Inaugural Session

The third edition of the Meet of the Mountain States was convened by the Integrated Mountain Initiative at the Vishwa Yuvak Kendra in Chanakayapuri, New Delhi on 10 and 11 December, 2014. With over 150 participants, the two-day Meet was the culmination of an arduous journey, conceived of as early as in the 1980s. It was a vocal expression of the ideal that geographical diversity has to be a primary concern in policy interventions. IMI, the home of the Meet of the Mountain States, is a spark that was lit nearly three years ago. The Meet began with a welcome address by Dr. R.S. Tolia, President of IMI. The welcome address referred to the Meet as a "unique gathering, symbolic of all the mountain states coming together". The forum is an outcome of a long process of reflection and consultation, involving committed individuals and institutions from across the Indian Himalayan Region.

Amba Jamir, Council Member of IMI, led the participants down the path of IMI's story so far. IMI works in the 12 states (including sub-state entities) of the Indian Himalayan Region (IHR).



These states have unique ecosystems, peculiar challenges and opportunities, and have extraordinary culture, biodiversity, and knowledge systems. Located at the frontier of India,

this region is, for the most part, secluded, underdeveloped, and at the fringes of the country's attention. In 1983, the Central Himalayan Environment Association (CHEA), Nainital (Uttarakhand) organised a seminar leading to proceedings titled *Environmental Regeneration in Himalaya: Concepts and Strategies*. Nearly two decades later, the importance of a common platform for this region was recognised by a Task Force of the Planning Commission of the Government of India in 2010. The Report of this Task Force tentatively titled this as the *Himalayan Development Forum*.



Yet despite some official efforts, attempts to constitute such a forum did not bear fruit. Once again, it was CHEA who took the initiative to organise the first-ever **Sustainable Mountain Development Summit** (SMDS) at Nainital in 2011, in line with the legacy of the Sustainable Mountain Development Agenda (Chapter 13 of Agenda 21) of the United Nations Conference on Environment and Development (Rio Earth Summit, 1992). This was an avenue to seek consensus among the IHR states regarding the creation of a platform where diverse stakeholders working on issues pertinent to mountains could come together to engage in an informed debate on identified themes, with the objective of informing and influencing policy formulation in respect of the mountain region. Through SMDS-I, the idea of IMI became a movement.

The next SMDS was held in Gangtok in 2012, through the efforts of the Ecotourism and Conservation Society of Sikkim (ECOSS). The Gangtok Summit (SMDS-II) added the participation of private sector players like PricewaterhouseCoopers India and Tata Motors. Organisations such as GLOBE India also became active partners in the process, and the Sikkim chapter of GLOBE India was successfully launched as a component of the Summit. The success of these Summits facilitated the organisation of the Kohima Summit (SMDS-III), by the Sustainable Development Forum, Nagaland (SDFN). The International Centre for Integrated Mountain Development (ICIMOD), Department for International Development (DFID), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ-India), Ashoka Trust for Research in Ecology and the Environment (Atree), Swiss Development Corporation-Indian Himalayan Climate Change Adaptation Programme, World Wide Fund for Nature

(WWF), and the Tata Trusts, amongst others continued the generous support they had given since the first Summit.

All three Summits have seen over 250 participants from across the IHR and led to the adoption of declarations such as the **Gangtok Declaration**, which emphasised the importance of the sustainable mountain development agenda for the future. Other events took shape and grew alongside the SMDS. These include the **Himalayan Photography Competition**, the **Legislator's Meet**, the **Policy Maker's Dialogue**, the **Youth Summit**, and the **National Workshop on Mountain Cities**.

> *"We resolve that the mountain states in India have not received the attention due to them, and that the sustainable mountain development agenda is far from even being conceptualised, though several frameworks and mechanisms have been promulgated at the national level. We recommend that greater focus and emphasis be given to the sustainable mountain development agenda without delay, and continued for the next 20 years"*
> *- Gangtok Declaration*

In order to ensure that the initial momentum and enthusiasm generated during the SMDS continues, it was resolved that a **Meet of the Mountain States** (MoMS) would be convened between two SMDSs. MoMS, of which this is the third edition, is an avenue for sharing the outcomes of the preceding SMDS with a wider audience, being held in New Delhi. It is also a forum for advocacy, particularly directed towards sensitising national policymakers and mountain diaspora about mountain issues.

In furtherance of this agenda, the Report of SMDS-III was released by Dr Harak Singh Rawat, Hon'ble Minister for Agriculture, Government of Uttarakhand and Chief Guest of the Inaugural Session.



Dr H.S. Gupta, Director-General of the Borlaug Institute for South Asia and Guest of Honour of the Inaugural Session took the dais to discuss the overwhelming neglect of mountain agriculture. "*Paani aur jawani dono nitche chalta hai* (water and youth both flow downstream)", Dr Gupta pointed out. 80% of hill peoples practice agriculture, but growth in this area has been slow. Per capita investment in agriculture is at critically low levels. Despite having excellent universities in the mountain states, there are very few committed people working on mountain agriculture.



Dr Gupta noted that the importance of agriculture and food security received national attention in the 1960s when the cost of importing 10 million tons of food grains placed significant strain on the exchequer. Thus began the process of identifying areas which could be tapped for food production, but the mountain regions were left out of this plan. Mountain agriculture continued to be overlooked in the 1970s and 1980s. As a result, malnutrition, which is a serious concern all over India, is particularly high in the mountain regions. The vagaries of mountain agriculture are disenchanting for the youth of the region, who migrate in droves for cities in the plains, leaving agriculture in the mountains all the more vulnerable.

Dr Gupta pointed out that mountain agriculture has significant potential. Diversification is the key to agriculture in the mountains. Mountains are ideal locations for planting high-value fruits and vegetables. These have large markets in the plains, and whatever is not marketed can be used by the farming families to supplement their nutrition. Some mountain states have fared better than others in this regard, and efforts are required to share developments across the region and learn from each other. The best examples of family farming are also found in the mountains, and these can operate as models for other parts of the country.

The Chief Guest, Dr Harak Singh Rawat, Hon'ble Minister shared his experiences handling the Ministry of Agriculture in the State of Uttarakhand, which oversees both agriculture and horticulture. Uttarakhand has taken a lead in adopting new agricultural methods, with over 50,000 hectares of land successfully converted to organic farming. The Organic Board in Uttarakhand has expanded its role over the past three years, and has been advocating the use of organic fertilisers. Uttarakhand has also set up the first government organic certification agency in India. Efforts are underway to distinguish between the various

climatic zones in Uttarakhand and develop them into distinct regions of organic farming in the State.



Dr Harak Singh Rawat addressing the gathering



IMI Councillors and participants with the Hon'ble Chief Minister and Agriculture Minister (Uttarakhand)

Sharing by Partner Institutions: Towards Building a Common Vision

The Chief Guest of the session, Mr. Harish Rawat, Hon'ble Chief Minister of Uttarakhand began by congratulating IMI for organising the Meet. Mr Rawat expressed his earnest wish that the congregation of participants would deliberate on issues related to the integrated development of the mountain regions of India, and come up with useful insights and recommendations for designing suitable policies, programmes and implementation strategies for improving the lot of mountain peoples.

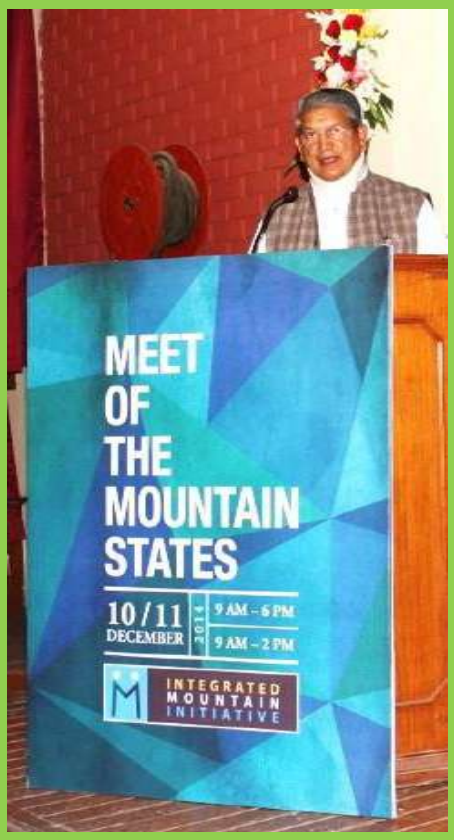
Mr Rawat discussed the organic farming initiatives undertaken by his State, and pointed out some of the efforts in the areas of:

- Soil health enhancement
- Water harvesting, water conservation, and sustainable and equitable use of water
- Crop insurance reform and access to affordable credit
- Development and dissemination of appropriate technologies
- Improved opportunities, infrastructure, and regulations for marketing of organic produce

Agriculture and other areas of mountain life, noted Mr. Rawat, are severely affected by the natural disasters that the mountain regions seem increasingly prone to. Uttarakhand has begun the process of recovery from the catastrophic flooding of the Kedarnath region in June-July, 2013. The mountain states therefore face twin challenges –first, the promotion of sustainable physical and human resource development and second, the necessity to address environmental concerns. These conflicting objectives place tough choices on administrations besides making life and livelihoods difficult for mountain folk.

Mr. Rawat informed that the mountain regions are heavily forested, and due to stringent forest laws, the scope of expansion of agriculture, mining and other industry is limited. Almost all the mountain states lie along the country's international borders. The issue of out-migration from this region therefore also raise concerns regarding national security and integrity. The paucity of jobs in the primary and secondary sectors could be compensated by expanding the services sector, through the adoption of a low-volume-high-value approach.

Yet this too entails significant capital investment, pointed out Mr. Rawat. The mountain states look to the Centre to come forward with appropriate policies and programmes in this regard. Mountain development calls for innovative approaches. Forums such as the Meet of the Mountain States provide rare opportunities for brainstorming, which can lead to outlining suitable prescriptions and suggestions.



...Cost and time overruns in infrastructure development projects have been the inevitable outcomes of cumbersome environmental processes. Thus we are faced with double jeopardy. On the one hand, we have to spend on items like NPV, compensatory afforestation etc. and on the other hand we have to again spend higher amount due to time overruns.

We cannot deny the fact that ecologically and strategically important Himalayan states, including the North Eastern States need hand holding from the Centre. In particular, the Himalayan states have common problems relating to a large forest area, sensitive international borders, proneness to natural calamities, and weak financial resources due to restrictions on the use of natural resources like forested areas and hydropower potential.

I emphasise again that the contribution of these states related to direct and indirect ecosystem services is immense, which is not accounted for in the National Accounting System. The importance of such services is globally acknowledged and cannot be denied in view of the impending dangers of climate changes… It has been estimated that Uttarakhand's forests alone provide Rs.161,1921 crores of ecosystem services annually to the nation, without any compensation mechanism to the State.

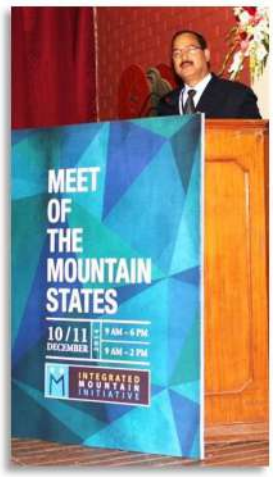
Many of our duly approved hydro-power projects and other infrastructure projects by the Government of India have been stopped by the Hon'ble Supreme Court on the basis of unscientific factual submissions. This raises doubts regarding the sanctioning process and has adverse impacts on investors. The loss of income accruing from these projects is estimated to be Rs.1800 crores annually. This further impacts the acute shortfall in our annual plan resources each year…

…The B.K. Chaturvedi Committee of the Planning Commission of India noted the need to compensate the Himalayan and North Eastern States for maintaining valuable ecosystems, the benefits of which are shared by the country at large. Regarding simplification and rationalisation of related procedural issues, the Committee also recommended that these regions receive fiscal compensation, particularly in recognition of their special disabilities, which should be at least 2% of the Gross Budgetary Support to the Plan each year for the remaining period of the 12th Five Year Plan.

The Planning Commission was also in the process of developing an Environmental Performance Index to incentivise states for environmental prudence through budgetary allocation. The fate of these crucial and life-and-death issues for the Himalayan and North Eastern States hangs in limbo with the abolition of the Planning Commission…

The genesis of IMI and the milestones in its journey so far, would not have been possible without the initiative of a few dedicated individuals and institutions such as CHEA, ECOSS, and SDFN. IMI has been fortunate to work with many such partner institutions that provided funding and technical expertise to teams engaged with this work. In the belief that the task of addressing the challenges of the mountain states in a holistic way is complex, which requires co-ordination and collaboration among all like mind institutions, Session II focused on bringing some of the key partners of IMI together to share their institutions' visions and its links with the vision and objectives of IMI. The session aimed to bring about some new insights on strengthening current partnerships and building new ones.

Sharing his ideas about the common visions linking the G.B. Pant Institute of Himalayan Environment and Development (GBPIHED) and IMI, Dr P.P. Dhyani, the Director of the Institute and the Guest of Honour of the Session, noted that there have been myriad task forces which had given recommendations in respect of the IHR, but few of these had been carried out by the ministries, the state governments, and other organisations. He lauded IMI for taking forward the recommendation of the G.B. Mukherji Task Force, which was co-ordinated by GBPIHED, through creating a common platform for the mountain states of the country over the past three years. IMI has been creating an avenue for discussion and also influencing policies in respect of the mountain states.



The Himalayas is one of the world's 34 biodiversity hot-spots, pointed out Dr Dhyani. It is very fragile, and the effects of climate change and unplanned development projects are adversely affecting this region. On its part, GBPIHED engages multiple stakeholders of the Himalayan region, including students, researchers, farmers, peoples' representatives, and policy-makers. GBPIHED has launched 8 new initiatives through the creation of Himalayan Fellowships, the development of Himalayan researchers, the organisation of Himalayan Lecturer Series and the Himalayan Peoples' Representatives Meet, Nature Awareness Campaigns, and Himalayan Farmers' Livelihoods Enhancement Drive.

The Institute, Dr Dhyani informed, has prepared a National Mission Document for Sustainable Himalayan Development, which highlights best practices, which can be replicated across the entire region. Rs.150 crores has been earmarked for the implementation of the

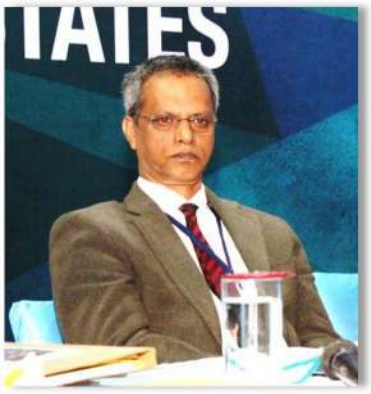
recommendations of this policy document by the Ministry of Science and Technology. GBPIHED's goals thus link directly with IMI's vision of making mountain peoples proud of their mountains. The Institute expressed the intention to sign a Memorandum of Understanding with IMI to establish a formal and long-lasting partnership.

Dr Sejal Worah of WWF highlighted that WWF has been working on a number of issues relating to biodiversity and conservation in the Himalayan region. WWF works on water management and wetlands, as well as on eco-tourism. Tourism cannot be left out of discussions on mountain development. WWF works with communities through regional offices in all the Himalayan countries - China, India, Pakistan etc. Mountain development cannot be separated by political boundaries - the issues are interconnected.



Dr Worah noted that most of the audience present were familiar with mountain issues, and everyone accepts that the mountains need development. The way forward for IMI is to foster discussions regarding the kind of development that the mountains need. This is an area of disagreement. WWF holds the view that development needs to be eco-system based. If the mountains are constrained to adopt a limited kind of development, we need to identify who should bear the cost of the components of development that are left out. Clearly there has to be some sort of incentive to convince the mountain regions to adopt this mode of development. IMI can play a vital role in providing answers to difficult questions such as these.

The Himalayan states are quite different and need to find their niche, noted Dr Worah. Following the herd is not an approach that will work, since the mountain topography will not allow it. IMI also plays a vital and unique role as it receives the attention of high-level political actors. In the previous session, we had a chance to listen to them. IMI can create an avenue for them to listen to us. IMI needs to find a way to talk to technocrats and decision makers in the mountain states, as well as farmers and the aspiring young. They determine the future of the mountain states. In the absence of efforts in this regard, gatherings such as the present one, turn into an exercise in preaching to the converted. In summary, IMI's path forward is: discuss, engage, and support action.



Dr Dhrupad Choudhury of ICIMOD added to the pertinent issues raised by Dr Worah, by stating that he, in some ways, disagreed with the statements made by the Minister for Agriculture and Chief Minister earlier. The crux of their submissions was that the mountain states need help from the rest of the country, though they did refer to the valuable goods and services provided by the mountains. Dr Choudhury was of the opinion that this is a discourse that needs to change. Mountain goods and services such as water resources are crucial to the growing energy demands of this country. The mountain states need to be proactive and active participants and actors in this inclusive development, and not just recipients. The corporate sector could be engaged in this regard. IMI is a natural ally of ICIMOD, and ICIMOD has been part of IMI's journey from its first SMDS in Nainital to the most recent one in Kohima.

Dr Choudhury noted that IMI has the ability to converse with power, which is a wonderful capability. This is not just with bureaucrats and civil society, but also with legislators and parliamentarians, which is crucial in making the mountain issues heard. ICIMOD also looks to IMI to bring together other partners who understand issues at the grass-roots level. Together, ICIMOD and IMI have had some success in policy advocacy, which has benefitted the Himalayan region.



Dr Malavika Chauhan, representing the Tata Trusts, discussed the importance of strategic thinking when attempting to roll out a programme. It is difficult to develop integrated systems and responses to disasters, especially in remote rural areas. When talking about development, it is vital to include health and education in the dialogue. The Tata Trusts strongly see that IMI has a reach that extends across sectors, and that is the kind of development that can be taken forward together.

IMI is a member of Mountain Partnership (hosted by the Food and Agriculture Organization of the United Nations), a voluntary alliance of governments and organisations committed to working together with the common goal of achieving sustainable mountain development around the world. Dr Kevin Gallagher, India-Representative (*ad interim*) of the Food and



Agriculture Organization of the United Nations (FAO), described the role of Mountain Partnership in providing a common voice for common issues of the mountain states, and stated that the alliance included 53 governments, 14 intergovernmental organisations, and 167 civil society organisations. It is a matter of concern that India is not a member of Mountain Partnership, which is an issue that Mountain Partnership is keen that IMI takes up. The Indian mountain states could also benefit from associating with Mountain Partnership.

Mr. Sushil Ramola, Secretary, IMI and moderator for the session, concluded by thanking the speakers for sharing their views and creating a common vision plan with IMI. IMI is very grateful to have the constant support and backing of all partner institutions, some who could participate in the Session and others who could not. Through Memorandums of Understanding and other formal and informal links, IMI looks forward to a long and enduring relationship with all its partners, in the hope that jointly much more can be envisioned and achieved than can be done alone.



Speakers at Session II with Mr. Sushil Ramola, the moderator

Himalayan Farmers: Vulnerabilities and Sustainable Trends of Change

2014 is the International Year of Family Farming. As declared by the FAO, mountain farming is largely family farming, which for centuries has contributed to sustainable development[1]. IMI draws on this theme in the technical session on Himalayan farmers. The Co-Chair of the technical session, Dr Tej Partap, Council Member of IMI (and Vice-Chancellor of the Sher-e-Kashmir University of Agricultural Sciences and Technology) pointed out that the case studies to be presented illustrate a microcosm of the wide-ranging differences in altitudes, landscapes, climatic conditions, and administrative policies that have an impact of farming and live-stock rearing in the IHR.

THREATENED FARMING CULTURES

Mr Gurmet Dorjey (Executive Councillor - Sheep and Animal Husbandry of the Ladakh Autonomous Hill Development Council) presented a case of the pashmina goat and yak herders of Changthang region of eastern Ladakh. This is a cold-arid high altitude desert, which receives average annual rainfall of 100 millimetres. While the winters of recent years have been warmer than before, this region is plagued by sudden heavy snowfall.



Dead carcasses of goats and sheep in Changthang

Mr Dorjey pointed out that traditional shelters used by herders are open structures, which result in high animal mortality during heavy snowfall. Herders of the region have incurred losses to an extent of Rs.9.60 crores, but they are yet to receive any compensation. There is an immediate need for the formulation of disaster information systems and plans, as well

[1] *Mountain farming is family farming: A contribution from mountain areas to the International Year of Family Farming 2014* (2013) FAO.

as the creation of underground shelters for livestock. Prompt dispatch of relief funds and fodder is of primary importance.

Political and international boundary issues also affect nomadic herders, as it restricts their migration to traditional grazing pastures, Mr Dorjey informed. Political solutions to this issue need to be found at the highest levels, which can safeguard traditional grazing lands and grant herders the permission to build basic structures in border areas. Nomadic herders serve as unpaid foot soldiers of the nation, and they should be paid honorariums for this service.



Herder with livestock

Mr Dorjey further pointed out that infrastructure is poor in border areas, and there is little government investment in improving road connectivity and telecommunications (mobile connectivity), and providing adequate healthcare, water, and housing to residents of this region. As a result, there is rapid out-migration from the region. Out of the 90 families who were living in Kharnak Village, only 15 remain. Drinking water pumps should be made available at migration sites, and provisions made for insulated portable shelters for use during migrations. Facilities for value additions to herders' livelihoods need to be envisaged to bring relief to distressed communities of this region.

SHIFTING CULTIVATORS

Mr. Amba Jamir (Executive Secretary, Sustainable Development Forum, Nagaland) discussed the threatened livelihood of shifting cultivators in the Eastern Himalayan Region. He pointed out that most shifting cultivators are self-sufficient farmers. There is a conception that shifting cultivation is associated with poverty, but in fact shifting cultivators often have surplus. The problem is the absence of a system to market that surplus. It is also important to determine the know-how that needs to be brought in, particularly with regard to pest management, which is rising alongside the introduction of new crops.

The declining numbers of farmers in family farms need to be taken into consideration, noted Mr Jamir. Cultivators are torn between traditional and new cultivation methods.

Traditionally, cultivation was a community affair, which was communally decided, but with government and other agencies, and their various schemes coming in, different methods have been introduced and farming has become less communal. Farmers need clarity on the people they are farming for and whether their crops are for a local market or an external one. At present, most food products stay within the State.

Mr Jamir pointed out that clarity on the manner of supportive mechanisms is also needed. By most accounts, when we speak in terms of a prosperous society, we talk in terms of material wealth. For a development planner, the dilution of community values might not matter, but to the community, it does. The value chains that are to be created must take these issues into account. It must be remembered that the market is exciting, but at the same time it leads to vulnerabilities. Small farmers are today caught between the market, various agencies and their own aspirations. These diverse threads have to be examined both from within and outside.

Dr Dhrupad Choudhury (Regional Programme Manager – Adaptation to Change, ICIMOD) related his experiences regarding managing change in shifting cultivation. The common perceptions about shifting cultivation that drive policy is that the practice is 'primitive', 'unscientific', economically unviable, and the main cause of deforestation and environmental destruction. Hence the policy view that these practices must be replaced by settled agriculture.



Common misleading images of shifting cultivation

Dr Choudhury observed that policy approaches fail to recognise the fact that shifting cultivation is a sequential agricultural and forest management practice, on the same plot, but separated in time, and that regenerating fallows and the resultant secondary forests are integral to the practice (and to livelihoods). Shifting cultivation has remained a subsistence practice, with limited opportunities for cash generation, not because of a lack of marketable commodities, but because of limited and un-organised links to markets. Communities too desire a change to enhance cash generation options and improve livelihoods. Transformation, therefore, has been both a policy objective of governments and an aspiration of communities.

Dr Choudhury noted that usual alternative options promoted include wet rice cultivation, cash crop plantations and horticulture crops, but there is little focus on products harvested through shifting cultivation. Transformation into cash crop cultivation has not always been successful due to inappropriate technologies and inadequate market linkages. In these cases farmers tend to go back to shifting cultivation. While governments desire to replace (eradicate) shifting cultivation with settled agriculture, communities transit gradually to more economically productive systems such as commodification of shifting cultivation, home gardens and through the introduction of cash crops in fallows.



Shifting cultivation

This has implications for ecosystem services through the loss of provisioning services (biodiversity - both from agriculture and fallows) and regulatory services (rapidly depleting water retention capacity and soil nutrient cycling), noted Dr Choudhury. Expanding plantations and inadequate fallow regeneration lead to marginalised shifting cultivation and to fuelwood and water scarcity. This increases time required for fetching fuelwood and water, with climate change operating as a compounding factor. Rapid erosion of soil fertility and water retention contribute to drastic reduction in productivity and an increase in food insecurity.

Dr Choudhury is of the view that the implications on livelihoods are mortgages or under-pricing of the next seasons' crops, and the emergence of wage earning with attendant migration to urban areas. This also affects property regimes, and dilution of traditional institutions through elite capture and an emergence of private titles to land. Managing transformations in shifting cultivation is not simply an agricultural issue. It is much more, and highly complex. It requires a holistic livelihood security approach: 'agriculture/ forestry/ soil conservation plus'. It is necessary to adopt a 'Livelihood Transformation' approach, rather than an 'Agricultural Transformation Approach'.

WOMEN MOUNTAIN FARMERS

Dr Lal Singh (Himalayan Research Group, Shimla) addressed the issue of a high level of drudgery involved in the work of women members of agricultural households. Women suffer from ill health as a result, and yet have little financial independence, limited leisure time, and no access to new technologies and skill development. Interventions are needed to not only address specific cash needs but also to tackle the key issues relating to social development, resource conservation, and other demands for food, nutrition, energy, health, and employment.



Women farmers atwork

Dr Singh informed that the Himalayan Research Group's empowerment approach includes provision of simple technology, skill development and training, material and logistics for enterprise development. These include vermiculture, mushroom cultivation, *chirayita* medicinal plant cultivation, and post-harvest management and marketing. Cash flows generated through these methods have benefited women. Solar energy has been promoted to reduce the consumption of fuel wood, which also reduces the time women spend in collection of firewood. Fodder and silage development for livestock rearing also help women save time, reduce drudgery and free them up for other income-earning activities they may choose to engage in.



Local v/s improved varieties

MOUNTAIN FAMILY FARMS

Dr Malavika Chauhan (Tata Trusts) discussed the efforts of the Tata Trusts in creating integrated small farm systems following a cluster approach through integration of agriculture, forests, livestock, water and communities. Productivity is enhanced in small and

fragmented land holdings by promoting selected high value crops, adoption of appropriate package of practices, use of integrated pest management methods, farm mechanisation, efficient input supply, and through knowledge-sharing, training, and creating avenues for exposure.



Thresher in use

Dr Chauhan informed that innovation in low-cost water harvesting technologies such as solar lift irrigation, low-cost water harvesting and storage devices, and soil-moisture conservation techniques has yielded results. Farm system linkages are strengthened through the promotion of fodder in commons/waste lands, better feeding and management practices, and improved breeds and stall-feeding. Institutional mechanisms for collective marketing enhance the efforts in other arenas and produce substantive results.

CULTIVATING IN UNCERTAINTY

Mr. Roshan Rai (ATREE/DLR Prerna/KSS) talked about the uncertainty of cultivation in Darjeeling. Agriculture is limited to less than 30% of the land area in Darjeeling. There is very little research and extension, and changes in pest, disease, and productivity cycles are widely prevalent in the Darjeeling Hills. Most extension work is limited to large-scale conventional farming rather than organic farming. Tea plantations cover over 20% of the total area under plantation. The statement 'mountain agriculture by default is organic' is not true. Chemicals are widely used.

94% of agricultural land in this region is non-irrigated, but rain fed, noted Mr. Rai. Climate variability results in longer and drier winters. Changing rainfall patterns have led to a significant decline in soil fertility and productivity, and landslides are commonplace. Traditional farming practices are waning and it is a growing concern that fewer communities are saving seeds, but instead resort to procuring them from external markets. Government schemes such as those under the Mahatma Gandhi National Rural Employment Guarantee

Act (MGNREGA), which place more emphasis on non-agricultural activities, also hinder small-scale farming.



Farmer with destroyed crops

Mr. Rai pointed out that human-wildlife conflicts place additional strain on farming, with up to 40% per cent of the productive crop of a village being destroyed by wildlife. Greater convergence is needed between government programmes relating to soil and watershed conservation and employment generation, as well as between the forest department and agriculture department, as forests and agriculture are interlinked in complex ways in these Hills. Mountain-specific agriculture extension, research, and institutions are the need of the hour.

Open House Discussion

Participants raised questions on oil palms and land use in the North Eastern States. Reconciling biodiversity and markets with the backdrop of climate change, and the possibility of IMI documenting the differences in biodiversity available in the mountain states was suggested. Questions were also raised about the identity of shifting cultivators in Nagaland and the State policies in this regard. Mr. Amba Jamir responded by stating that shifting cultivation is a system where land is community-owned. Through practices of sharing land, there are different ways and mechanisms to access land, which one does not own. There is no real issue of discrimination in access to land, as long as she or he is a member of the community.

Dr Choudhury referred to a report of the FAO on the strengths of shifting cultivation. IMI can play a facilitating role in this dialogue, particularly through the use of participatory methods as has been done in Nepal. The Chair of the session, Mr. Alemtemshi Jamir (Vice-President of IMI and former Chief Secretary, Nagaland) closed the session by pointing out that the promotion of food and horticultural production was a consistent policy of the Government of Nagaland. However, since the government did not own much land, it was not in a position to take a stronger position in this regard.

The anchor of the session, Dr Tej Partap discussed the design of the panel discussion, with the aim to draw on the vast experiences of the panellists and participants by directing specific questions to them within their subject areas. The panellists were: Dr AK Yadav (President, International Competence Centre for Organic Agriculture (ICCOA) and Former Director, National Centre of Organic Farming), Ms Binita Shah (Senior Programme Manager, Uttarakhand Organic Commodities Board), Dr Shafiq A Wani (Sher-e-Kashmir University of Agricultural Sciences and Technology, Kashmir), Mr Santa Pradhan (Former Secretary, Agriculture & Horticulture, Government of Sikkim), Dr. Ravikant Avasthe (Principal Scientist, Indian Council of Agricultural Research, Gangtok), and Mr. Manoj Menon (Executive Director, International Competence Centre for Organic Agriculture).

Q: Why have the overall national efforts at organic agriculture failed while the mountain states have been more successful in organic farming? What are the key hurdles with respect to organic farming, for the country in general and the hill states in particular?

Dr AK Yadav: Primarily, the biggest challenges with respect to organic farming at national level are the absence of a planned approach and faulty implementation of policies, the lack of support systems in terms of technology, and absence of a viable market. This is the story of a failure. We have run out of organic cotton in India. The volumes required for marketing could not be produced. From 4 lakh hectares, the area under cultivation of organic cotton has gone down to less than 1 lakh hectare.

The success achieved by hill states, such as Sikkim and Uttarakhand, can be attributed to a planned approach towards organic farming. Regarding policy issues, although we have seen many government policies, none of them have achieved the aims that were intended. Over the course of time, as we can see in most of the states, the meaning of organic has become limited to just certification. The manner of organic farming that was promoted was very simple, and did not engage in knowledge transfers to the farmers. This has been a major stumbling block. The hill states have been further constrained by a mix of mountain-specific challenges -geographical distance and an absence of markets, and technological challenges.

We need a concerted approach, particularly in the North Eastern States, which focuses on end to end management practices, use of proper technology and knowledge transfer to the

farmers, to build an organic movement. Presence of a viable market to aggregate all the produce is also required. It appears the time has come to introspect and devise a proper strategy, heeding the lessons from failures.

Q: If we look around, then Uttarakhand stands as one of the pioneer states in organic farming and a model for success in the last 15 years. We would like to understand the key ingredients, the processes and factors for building an organic movement in a state, based on your experience in Uttarakhand? Would you have any advice on how to set up a successful mechanism for organic farming?

Ms Binita Shah: Bringing in changes in agriculture and crop cycles require time. Adoption of new agricultural technologies cannot happen in two or three years. The problem with just bringing in a scheme or a programme through the government or any private funding is that there is usually a time lag of 2 to 5 years. Changing the farmer's adoption practice at the grass roots level and letting him see the success rate in crop cycle would take 3 or 4 years. Further, for organic farming, process verification and certification is required. This also requires time, and farmers should be incentivised to learn about it. Even then, it is not clear who is going to take this farmer to the next stage. Schemes and institutional mechanisms can come to an end mid-cycle, which could be a problem.

Uttarakhand has been rather successful in this regard. The success of Uttarakhand in organic farming can be attributed to visionary thinking by the Government and creation of an institutional mechanism driven to support the challenge of bringing in a change of regime. The establishment of an Organic Board and processes for certification have been the biggest support factors.

Q: Dr R.S. Tolia, you have been one of the pioneers in the field of organic farming. Can you take us through your journey in this field, including your thoughts on promotion of organic farming and the institutional mechanism to support the movement? What positive and negative experiences do you have in terms of organic farming promotion in Uttarakhand?

Dr R.S. Tolia: Anything, which we intend to do in the long run, such as organic farming, we needed to be reflective about it. Development is always incremental, you have to stay with the idea for some time, allow it to nurture and reflect on it. There were many setbacks

with organic agriculture in Uttarakhand. We almost gave up half way through, and then we realised what the dos and don'ts are.

There has been a lot of learning and a large part of the success is owed to the institutional head. Today, we heard how the Minister of Agriculture of the State was promoting organic farming. Support is needed at all levels, right from the top, through administrative and bureaucratic channels, all the way to the availability of trained staff on the ground. To sum-up, the success factors for organic farming in Uttarakhand have been two-fold: (i) institution sanctity and (ii) institution building. The farmers are the biggest strength of the organic movement in Uttarakhand.

Q: Sikkim has pledged to become an organic state by 2015. How did Sikkim become a pioneer state? And what are the problems faced in meeting the 2015 goal?

Mr Santa Pradhan: We are dreamers, Sikkim itself is a dreamer. In 2003, the Sikkim Government adopted a resolution for making Sikkim an organic state. Sikkim State Organic Board was constituted for drawing up policy matters and strategic plans, and developing standards and regulations of organic farming. The Sikkim Organic Mission was launched in 2010 to draw the roadmap with the vision to develop Sikkim into organic state by 2015. In fact, size matters and since we are small, we will be able to achieve this by 2015. No doubt we will be the first state in the country to be entirely organic.

There are constraints and roadblocks but we are going ahead with the programme addressing the roadblocks. We lack research bases – we do not have a university in the state – but we are supported by ICAR and other such institutions. Even before becoming organic, we have taken steps to mitigate the damage to the environment. We have banned the use of pesticides and chemicals, which had caused a lot of damage to the environment. Sikkim, as we all know, is a biodiversity hotspot. While we constitute 2% of the country's landmass, we represent 26% of biodiversity in the country. With rampant use of chemical fertilisers and pesticides, we saw a decrease in the number of butterflies in the state. The butterfly species, which had dwindled with the increase in use of synthetic fertilisers and pesticides, have increased with the switch to organic farming. Therefore, with the switch to organic farming, along with bird-watching tourism, we started butterfly tourism. One issue that needs to be looked at is the marketing of the organic produce. We had raised this

issue with the former Union Minister for Agriculture Shri Sharad Pawar. Addressing this issue will provide a massive impact to the growth of organic farming.

Dr Tej Partap: I had an opportunity of analysing the Sikkim success story and found it to be unique and outstanding. I had the opportunity to meet the Chief Minister in 2010 while representing ICCOA, where he had asked us to prepare a blueprint for Organic Sikkim. I was impressed by how he followed the vision of organic farming, taking the lead in promoting the vision himself, both among policy makers and among the local public. The Chief Minister, explaining his vision, remarked that a dream remains a dream, unless it is converted into a practice. Then it becomes a vision. He remarked that he has envisioned how the policy would shape up:

i. The Chief Minister talked about attacking the issue from the top through sudden policy changes: this will be achieved by going to the assembly and making a statement to go organic. This will make all the policy makers to work for organic Sikkim promotion
ii. Pass the blueprint through the Assembly: this was the first step to stop using chemical fertilisers. The Chief Minister said that the main problem would be to sensitise the government departments about organic agriculture, as they had limited understanding about the same. He said that he would himself go the public and lead the change, to convince the public to go organic. I asked him wouldn't it be a political risk for you to go ahead with this? He said that this is specifically what he wants to convey – that you will have to take a risk if you really want to go organic, only then you will be able to get it.
iii. He said one of the greatest challenges would be the lack of research & development (R&D) support for organic farming. Another challenge will be marketing. He said that the locals should establish a special local market mechanism in Gangtok, and instead of selling it in streets, work on adding some glamour and certifications. He said that the people of the state first deserve organic produce.

I believe that tenaciousness and perseverance was the key for Sikkim becoming organic.

Q: What type of technological support did ICAR offer Sikkim? Do you think, for organic technologies, with the systematic research system that India has, we as

scientists are well equipped to succeed or do we need something more to help states?

Dr Ravikant Avasthe: The ICAR in Sikkim was established in 1976. Till 2002, we focussed on conventional agricultural technologies. From 2003, the entire organisation was re-mandated with organic farming and we have developed sufficient technologies. We have held massive capacity building exercises in Gangtok, right from training the steering committee of organic mission, to policy makers and farmers. Recently, a handbook on organic production in Sikkim was released by the Chief Minister on 15 August, credited to researchers from the Institute. The book prescribes organic practice for 31 crops and contains chapters on nutrition management and others. At the international level, the research is not specifically focussed on organic farming per se. We are far ahead of the work done at the national level.

Recently, there have been many changes in Sikkim. The Government has given the autonomy to the Department to monitor the progress on a day-to-day basis because the deadline has to be met. Under my chairmanship at ICAR, there is input management, production management and marketing management. Inputs, location advice, seeds etc. have been provided, and now we have more information that can be provided.

Q: Now moving on to how the nation is performing and how organic states are moving ahead. Where does India stand in organic achievements, their strengths and weakness and in that scenario, what role do the mountain states have to play?

Mr Manoj Menon: There has to be a paradigm change in what organic agriculture is all about. The public perception of organic is stopping the use of chemical fertilisers and getting a certificate. Organic farming is much more than that. Part of the answer lies in the topic of the panel discussion – "Making Himalayan Farmers Organic Entrepreneurs". We have to build organic entrepreneurship skills at the national level. Furthermore, there is a need to identify marketable commodities in different states. Uttarakhand is a successful model in this regard – the state has identified marketable commodities such as Basmati rice, amaranth, etc.

Another aspect that needs to be looked into is the quality of seeds and the lack of processing facilities. Presently, the departments are simply giving seeds to the farmer without ensuring its quality, leading to inferior quality products. If both the quality of seeds

and the processing facilities are good, we will definitely find the markets. There are markets but we are unable to cater to it. Addressing these challenges will help us attract markets.

Q: There are states who are still thinking of going organic, promoting it, and are in initial stage. In such states, where should organic farming come in? What should be the priority in the promotion of organic agriculture- totally organic certified or just organic practices?

Dr Shafiq A Wani: In Jammu and Kashmir, currently we grow crops in about 10 lakh hectares of land and produce about 20 lakh metric tonnes of food. The current demand is about 25 lakh metric tonnes; necessitating the import of about 30 to 35% of our food requirement from outside the State. This cycle is going to be more vicious because of the population of 1.25 crores, a number which is increasing. In my opinion, organic agriculture is the key to sustaining the production system in the hills and mountains of our state. However, adequate research has not gone into organic farming and food security. This problem is not specific to the hill states, but impacts the nation as a whole.

We need research support and technological inputs to make organic farming economically viable. The Sher-e-Kashmir University has made some attempts in making technologies available with some success, such as for getting weed removed and livestock sustenance through microbe interventions. We also work on bio-fertilisers and bio-pesticides, although their use is at a nascent stage.

Q: We have discussed the lack of R&D at a national level. What should be done to ensure viability of organic farming? Is it not possible that we don't talk about certification but just work for safer foods, through creation of safe food zones?

Ms Binita Shah: Policy makers are not completely convinced about organic farming and are somewhat concerned about food security when pesticides are not used. Before rolling out an organic plan, we must address the environmental and ecological aspects of the farming ecosystem. There are systems such as GAP-Quit Agriculture practice and EUROGAP, which enables use of certain pesticides, where certain toxic chemicals can be used that gradually support the orchard ecology. You may not reach the organic standard, but will make food safer.

Dr AK Yadav: Just as the Government of Kerala has adopted a "Safe to Eat" regime, we must ensure that our food is safe to eat. If we are unable to replace chemical pesticides, we should try and replace at least some quantity of pesticides. Even if we cannot totally eradicate the use of chemical fertilisers, let us try to bring in safer goods and move towards safer food regime. Then we can think of an organic regime.

Conventional agriculture is succeeding because they have continuous follow up and is supported by continuous up gradation in technology. We do not have the institutional mechanism for research and development and long term innovation in organic farming. This is where I suggest that IMI offers support. IMI should insist on development of research infrastructure to provide long-term support to aid the journey of safe to eat food.

The panel discussion was followed by an open house discussion, where the participants posed questions to the esteemed panellists. The session also saw comments on the current state of organic agriculture in India, by the participants.

Q (Open House Discussion): **When you say Sikkim will be organic, what do you do about other food materials, which you bring in from outside, e.g. in medicines?**

Mr Santa Pradhan: Sikkim has such a small land mass and therefore cannot be self-sufficient. It will always have to bring in some food from outside.

Q (Open House Discussion): Are the Universities doing adequate research? There is so much more we need to understand in terms of organic technologies. Why are they not doing it?

There are no concerted efforts in a systematic way because the policy makers are not fully convinced. Hence, whenever there is a talk of R&D activities, there is lack of support. The need for safe foods should be emphasised and the policymakers must be sensitised.

Mr. Roshan Rai, from the audience, opined that existing paradigms in terms of agricultural research needs to be relooked at. People's knowledge and traditional knowledge systems should be integrated into formal education systems. Mountain universities need to pick up these issues. The issue of consumer awareness also needs to be explored.

Mr Manoj Menon shared some statistics regarding organic agriculture in India. He informed the audience that the total area under certified organic was 6 lakh hectares, while 52,000

hectare in the North Eastern Region is certified organic. He said that the total value of organic trade is Rs.3,000 crores out of which Rs.2,400 crores is from exports. He informed the audience that the global market for organic trade is Rs.4 lakh crore (USD 75 Billion) and is expected to cross USD 100 Billion. He believed that the potential of trade in the North Eastern States is Rs.550 crores.

Dr Tej Partap concluded the session by summarising the discussion. He remarked that the broader picture of organic farming is one of great opportunities, in terms of expanding revenue. There are weaknesses as well, as we have adopted standards for exports, rather than addressing strategic needs domestically. For some reason, organic agriculture has not been taken up by the Ministry of Agriculture. It was promoted by the Ministry of Commerce instead. If organic agriculture has to be taken forward, we have to involve R&D in the processes. That is exactly where IMI has a role, in terms of building advocacy and sharing best practices.

Another aspect that needs to be looked into is food security. None of the mountain states are food sufficient. The mountain states depend on the Public Distribution System. The mountain states have an incentive to shift to an economically viable agricultural model. Organic food could be promoted as a niche category here, though naturally the food basket will vary between the 11 mountain states. Efforts must be taken to identify the niche products of each state. This is will also benefit organic entrepreneurs.

Dr Partap stated that a priority for IMI is to identify the right strategic model to encourage organic farming for the different Himalayan states. He enumerated the need for an extensive study in this regard, including identification of niche products, which could be promoted and cultivated in different states. Dr Partap re-emphasised the need for dedicated research institutions for organic agriculture to support the process. On behalf of IMI, Dr Tej Partap extended best wishes to Sikkim in its journey to become organic by 2016.



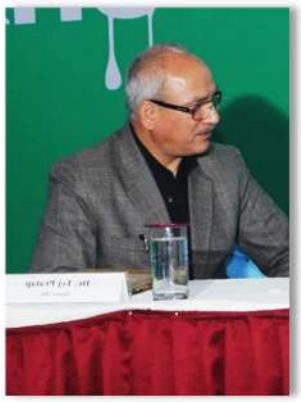
Organic pineapple farming (ICCOA)

Celebrating International Mountain Day

Mr. P.D. Rai (Hon'ble Member of Parliament, Sikkim), Council Member of IMI welcomed the delegates and guests to Day 2 of the Meet of the Mountain States, organised in celebration of International Mountain Day. The greetings of the Chief Minister of Sikkim were conveyed to the gathering. Mr. Rai observed that the fact that Sikkim will be the first organic state of India is a matter of great pride for all the mountain states.



Mr. Rai pointed out that while trying to bridge the deficits of the previous 65 years of planning process of the country, the discourse of development for the mountain states must convey a vision that is distilled by IMI that every Indian should be proud of the country's mountains. The way forward for that is to join hands as we are doing, and to energise every stakeholder, whether a chief minister, a bureaucrat, a civil servant, a member of civil society, NGOs and those who represent the interests of the people of this country in their own way.



Dr Tej Partap presented a summary of the recommendations on mountain farming derived from the proceedings of the previous day. While many speakers during the technical session pointed out critical issues about the loss of traditional farming practices and the marginalisation of mountain agriculture and nomadic livestock rearing, there were some positive prospects regarding new economic opportunities in the wake of some aspects of climate change. The mountain states were emerging as the country's leaders in organic agriculture.

IMI's role was envisioned in terms of advocacy on behalf of distressed farming communities in the mountain regions, pointed out Dr Partap. Traditional forms of agriculture such as shifting cultivation and livestock rearing need supportive institutional mechanisms to address inherent economic insecurities in light of changing climatic and other conditions. The absence of a national focus on organic agriculture research was highlighted, and the pressing

need for R&D in this field was pointed out, with the necessity to identify region-specific solutions. The absence of market linkages and supply chain constraints was frustrating small organic farmers and entrepreneurs, and this is another policy area that IMI could focus its attention on.

The Guest of Honour, Dr Eklabya Sharma (Director Programme Operations, ICIMOD) discussed the importance of the Himalayan Mountains and its challenges of sustainable development: 12% of the people of the world live in the mountains and 40% of goods and services come from the mountains. The Hindukush region is a treasure house of natural endowment and cultural heritage. This is the greatest mountain system in the world. 210 million people live in this mountain range. The rivers flowing from this region are vital to irrigation in the lower plains. After the South and North Poles, the Himalayan Region holds the largest water reserve in the world. Of the 200 biodiversity regions of the world, 60 are found here, along with 45,000 species.



Dr Sharma noted that IMI has an important role to play in drawing attention to the mountains and through IMI, ICIMOD would further like to attract the attention of policy makers. A major issue of concern for the mountains is poverty. In spite of being rich in natural resources, mountains are poorer than the plains. Mountains are not compensated for the resources they provide. We need to include natural capital with material economic measures such as Gross Domestic Product (GDP).

In order to address sustainable mountain development, pointed out Dr Sharma, we need to look at the changes impacting the area such climatic variations and infrastructure development (hydropower, roads). Permafrost in high-altitude areas may be lost through global warming. Consequently, arable land may be lost, and droughts and floods are likely to be common occurrences in the near future. Urbanisation of the mountains and out-migration are pertinent questions. Dr Sharma was of the view that many of these changes are inevitable, and we need to work on how best to manage them. Mountain people have little choice but to adapt to these changes. We need to explore avenues for community-

based adaptation, while seriously pursuing modes of combining traditional local knowledge with scientific knowledge. This is a key pillar in the adaptation game, in addition to communication between stakeholders, and the fostering of innovation and appropriate scaling up. Policy and practice have to come together for good adaption strategies.

Mr Chowna Mein, Hon'ble Minister of Agriculture, Government of Arunachal Pradesh began his address by offering to host the next Sustainable Mountain Development Summit in Arunachal Pradesh, which was met with great enthusiasm by the gathering. Mr Mein observed that there is nothing new in discussing mountain issues, but so far we have been talking about it mostly in isolation in individual states. IMI plays an important role in jointly raising and focussing attention on the various issues of all the mountain states of India. It is hoped that concrete government interventions in mountain farming will result from the recommendations made during this Meet.

Problems vary from region to region, even within states, informed Mr Mein. Arunachal Pradesh is thinly populated with around 18 lakh hectares of land identified with potential for horticulture and about 6 lakh hectares for agriculture. However, only 6% per cent of the former and 37% of the latter is being utilised. Of late there has been considerable crop diversification with the cultivation of ginger, peas, cardamom, kiwis, apples, rubber and palm oil, nuts and high altitude medicinal plants. With over 1500 species of medicinal plants and 600 species of orchids, Arunachal Pradesh has the potential to become the "temperate crop bowl" of India. Being a late-starter in agriculture, there is significant scope to go organic in Arunachal Pradesh. At the same time a balance has to be maintained in terms of preserving forests and prevention of de-forestation.

Further, Mr Mein noted that despite its advantages, Arunachal Pradesh faces relatively slow growth of development due to its geographical isolation and communication bottlenecks. This raises the cost of inputs considerably, which is a primary reason why the generalised guidelines of the Government of India's flagship schemes do not suit this State. The absence of scientific cultivation and lack of technical support for farmers are hurdles. Farmers are not equipped to handle new diseases which are appearing in the region, and have incurred heavy losses, particularly in orange cultivation. Farmers therefore remain small growers with little organisational capacity and are taken advantage of by middlemen. Pragmatic policies are required to deal with these issues.



…I propose the following policy interventions to redress the issues facing agriculture and horticulture in Arunachal Pradesh:

- ***Separate planning process/body for mountain states***
  The Union Ministry of Agriculture may consider creating a separate division to address and deal with agriculture planning and guidelines for the mountain states, by having members drawn from stakeholders of the mountain states. Guidelines of all central flagship programmes for agriculture and horticulture development may be prepared by this division and should be state specific.
- ***Financial incentives for agricultural growth based on ecological service***
  The Government of India needs to compensate their carbon sinks by giving financial incentives to the mountain states based on forest cover maintained by each state, for providing alternative livelihoods to farmers in place of shifting cultivation so that the current area under forests can be maintained and enhanced.
- ***State Farmers' Commission***
  Since agricultural scenarios in the mountain states differ from the mainland, each mountain state may have State Farmers' Commissions to analyse the deficiencies in agricultural development and recommend measures to address these issues
- ***Agriculture Innovative Fund***
  A separate corpus fund may be created to address situation-specific R&D interventions. Lessons could be borrowed from indigenous traditional knowledge. R&D wings of the state governments should be allocated funds by the Centre, similar to the ICAR institutions.



Mr. Nephiu Rio (Hon'ble Member of Parliament, Nagaland) contributed to the discussion by raising the issue of identifying concrete policy measures to aid backward areas of the mountain states. Vast amounts of timber from the mountain states are brought down to the mainland without processing these because of a lack of appropriate technologies, which acts as a considerable constraint on the livelihood options available for mountain peoples. Concerns about alternative livelihoods should also take into account the conservation and preservation of forest areas. The North Eastern States have the same potential for organic farming as Sikkim. Special policies in this regard would encourage the entire geographical area of the North East to go fully organic. Support can also be sought from international bodies like the United Nations.



The Chief Guest, Mr P.A. Sangma, Former Speaker of the Lok Sabha and Hon'ble Member of Parliament, Meghalaya wholly endorsed the views of the previous speakers. He pointed out an urgent need for a separate ministry for the mountains, noting that without the political initiative of the Government of India, little would move forward. Mr Sangma suggested that IMI create a small committee, which he offered to be a part of, to present their case for a separate ministry before the Prime Minister, a suggestion that was met with great enthusiasm by the delegates.

Concluding the session, Mr. Sushil Ramola (Secretary, IMI) made a commitment to the gathering that IMI would indeed take Mr Sangma's suggestion forward in the near future. IMI thanked its partners and supporters who have been part of its journey from the beginning. Special mention was made of the Sustainable Mountain Development Summit in Kohima in 2013, the report of which was released at the Meet. This was a successful and momentous event, and an inspiration in terms of the range of participation, support, and sponsorship it generated. The delegates were thanked for their enthusiastic participation

and expert guidance, especially the many who took the effort to travel to Delhi from various parts of the mountain states. IMI is entirely volunteer-driven, and the selfless commitment of its Councillors is its greatest strength. The youth volunteers of the Meet are looked towards as those who will carry forward the vision and goals of IMI, particularly that of making the people of India proud of their mountains.



Celebrating International Mountain Day



Mr Anurag Singh Thakur, MP with the Model Display of Planning in Mountain Cities

Mountain Concerns in light of Climate Change

Climate change is one of the key thematic focus areas of IMI. In this session, IMI partnered with the Global Legislators Organisation for a Balanced Environment (GLOBE) and the Indian Environment Law Offices (IELO) to convene a regional consultation on climate change negotiations, comprising legislators and parliamentarians of Indian mountain states.


Uttarakhand (June 2013)


Himachal Pradesh (August 2014)


Kashmir (September 2014)


Kashmir (September 2014)


Meghalaya & Assam
(September 2014)

IELO highlighted the importance and relevance of global climate negotiations for mountain states. It is widely acknowledged that the Himalayan eco-system is vulnerable and susceptible to changes on account of natural causes, climate changes resulting from anthropogenic emissions, and changes on account of the developmental paradigms of a modern society.

There is a visible trend of increase in the frequency and intensity of natural disasters, and recent research leans towards a conclusion that occurrences such as the Uttarakhand floods were a consequence of climate change[2]. While this remains a much-debated issue, and research on the impacts of climate change on mountain ecosystems, especially in India is scarce, the *precautionary principle* mandates that all three acknowledged drivers mentioned earlier should be closely monitored. Some of the significant impacts of global warming on the Himalayan region could be:

a. Variability in the volumetric flow of water in the rivers
b. Loss in biodiversity
c. Unsustainable changes in ecology
d. Glacier recession
e. Deforestation and degradation
f. Conditions for impending natural disasters
g. Dislocation of traditional societies dependent vulnerably on the Himalayan ecosystem

This leaves mountain farming particularly vulnerable. The apple-growing belt in Himachal Pradesh has shifted to higher altitudes, and former apple growing areas, such as Bajaura in the Kullu Valley, are now growing vegetables. Sikkim farmers have lost their comparative advantage in the cultivation of large cardamom. Cardamom continues to grow well in high altitudes and there is no sign of diseases, while plantations in lower altitudes have severely declined. Sikkim mandarin orange cultivation has declined both in terms of productivity and plantation area. Upheavals at this scale are likely to play havoc with the economy, food security, livelihoods, and agro-diversity.

The mountain states need to prepare themselves by adapting their development strategy to deal with the likely consequences of climate change. As a first step, it is important for the

[2] *Explaining Extreme Events of 2013: From a Climate Perspective* (2014) Special Supplement to the Bulletin of the American Meteorological Society, Vol. 95 (9).

mountain states to understand climate negotiations comprehensively and engage more meaningfully with the discourse on international climate negotiations both domestically and internationally. In this regard it is also imperative to understand the stance that the Government of India has taken so far and proposes for future, since it will impact the mountain states directly. Legislators and policymakers in these states need to engage with national decision making to ensure that India's negotiating strategy and stance takes a serious note of the special circumstances and developmental priorities of the mountain states. Particular attention must be paid to those aspects of international climate negotiations which have special relevance to the mountain states such as REDD+.

ROUND TABLE DELIBERATIONS: PEOPLE & POLICYMAKERS



These pertinent issues were deliberated in greater detail through a round-table discussion amongst legislators and policymakers from the mountain states. Mr. Bhubaneswar Kalita, Hon'ble Member of Parliament (Rajya Sabha), Assam and Ms. Vandana Chavan, Hon'ble Member of Parliament (Rajya Sabha) Maharashtra, who had attended the recently concluded Lima Climate Change Conference (COP 20, December 2014) to the United Nations Framework Convention on Climate Change, briefed the lawmakers gathered on the discussions pertaining to forest and climate legislation at the Conference.



The Parliamentarians raised their concerns regarding the introduction of climate legislation in the Indian Parliament in the near future. They pointed out the importance of identifying measures through which each city in the country and the country as a whole could bring down their carbon emissions. In international forums India neglects to point out the voluntary measures already in place in the country to address climate issues. It is impressive that we have states that have already come forward with plans for climate change mitigations without being under any international pressure. These efforts are particularly important for the Himalayas, which are hotspots for climate change. IMI's efforts in bringing the legislators of this region together to discuss these important issues were recognised.



Mr. Anurag Singh Thakur, Hon'ble Member of Parliament (Hamirpur, Himachal Pradesh) touched upon the effects of changing climatic conditions which were driving apple cultivation to altitudes of 2100 metres from their earlier ranges of about 1500 metres. Mr Thakur noted that these changes could be attributed to climate change, and pointed out efforts taken by his state to reduce carbon emissions through the distribution of free CFL bulbs, rainwater harvesting, and the ban on logging and polythene bags. These have produced results, though dramatic climatic changes continue to be a factor of concern. He also focussed on other issues facing these regions such as a rising population growth and over-crowding in mountain cities and mountain areas, as well as the serious monkey menace affecting crop cultivation in the state.

Mr. P.D. Rai drew attention to the drastic changes in climatic conditions, which have nearly wiped out cardamom plantations in Dzongu, Sikkim. Mr. S.G. Lepcha, Deputy Speaker of the Sikkim Legislative Assembly, who hails from Dzongu, stated that prior to 1997 nearly 4000 metric tonnes of cardamom was produced in the State. Support regarding the catastrophic decline in the crop was sought from the Spices Board of India and the Department of Horticulture, but little has been done to remedy this.



The State, pointed out Mr. Rai, has now moved to successfully promote the cultivation of oranges, which are organically grown since the state has banned the use of chemical fertilisers. Sikkim remains committed to going completely organic by 2016. Despite being a small state, Sikkim has made the combating of climate change its top priority through its policies and programmes. Mr Lepcha highlighted initiatives undertaken by the state to combat climate change such as the ban on grazing in forests, and on plastics. While initially these measures were difficult to enforce, these have come to receive public support.

Dr C. Lyngdoh, Parliamentary Secretary (Agriculture), Meghalaya addressed the issue of calamitous floods, a very recent problem in the state. Many lives were lost, people were

displaced, and property was destroyed on a large scale. When talking about Meghalaya, people often think of Cherrapunji in the East Khasi Hills District, known for receiving the highest rainfall in the world. It is important to note that even Cherrapunji these days remains dry from October to March, and residents here have to stand in long queues to collect water for their daily needs during those months. This has happened due to the significant decline in vegetation in the area.



Dr Lyngdoh expressed that discussions regarding climate change and environmental protection often lay down blanket guidelines regarding the cutting of trees and the burning of forests. There is little relevance in telling tribal communities, whether in Meghalaya or Nagaland, not to cultivate on the slopes. These are peoples whose way of life is closely connected with the land and nature. Without providing any other options to people, this is a hard rule to enforce. Policy envisioned in forums such as the Meet of the Mountain States, should take these constraints into account.

Mr. T.K. Dewan, Hon'ble Member of Legislative Assembly (Darjeeling), West Bengal discussed his experiences with the perceptible climatic changes in Darjeeling. In his youth, he remembers the severity of winters and the copious snowfall, which would cut off Darjeeling for days. Darjeeling does not see snow anymore, except in its high mountainous area. He pointed out changes in rainfall patterns in the area from about 2500 millimetres per year which was evenly distributed through the year, to today's trend of about 80% of the precipitation being confined to the months of June, July, and September, followed by a week of torrential and disruptive rainfall in October.



There is also an increase in the frequency of major landslides, contributed by the building of unplanned roads and other infrastructure through schemes under MGNREGA, pointed out Mr Dewan. The state machinery lacks the data to make predictable analyses, and this combined with the complete absence of a disaster management plan or system results in

disaster efforts which are at best ad-hoc and relief centric. Despite the spate of natural disasters including cyclones, which caused deaths of 32 people in 2009, Darjeeling does not have access to early-warning systems for cyclones and has to rely on Sikkim for this service.

Mr Dewan noted that disaster relief from the state capital reveals a lack of understanding about the region and aid comes in the form of supplies, which are of no use in Darjeeling, such as cycles, tube-well sets, and *dhotis*. Natural disasters in mountain areas like Darjeeling are completely ignored by the national media, and business as usual continues. These are major concerns and are among the many mountain-related issues that can be addressed only by a Ministry of Himalayan Affairs at the Centre. Disaster management plans suited to the needs of mountain areas should be a first priority. Mr Dewan also thanked IMI for creating a platform for questions of this nature to be raised.

Mr Rigzin Spalbar, Council Member of IMI and Chairman of the Ladakh Autonomous Hill Development Council, Jammu & Kashmir, mentioned that the Ladakh region is the only part of India that geographically forms part of Central Asia. This is a barren mountainous region, and does not contain much forest and other kinds of vegetation. It is said that those near the sea and those on the mountains first experience changes in climatic conditions. This has been observed in Ladakh in the form of receding glaciers and increasing minimum temperatures from -35º to -16º Celsius, over the course of the last 15 years.



Mr Spalbar is of the view some might say that this may bode well, as we can now grow crops such as apples in the higher altitudes, which was not possible earlier. However these are short-term advantages. Longer-term disasters are in the offing. Initiatives to combat this have included the planting of a record number of trees in the region, the banning of plastics and the use of chemical fertilisers. All products of the region are organic by default, though certifications to this effect are yet to be acquired. Ladakh can lay claim to almost 99% of the world's pashmina.

Unfortunately Ladakh is politically isolated since it has very few people, noted Mr Spalbar. The population density is 1 person per square km. Strategically this area is of importance to India since it is bordered by two of the country's most hostile neighbouring countries. The nomadic pashmina goat and yak herders are therefore vanguards of India's border security,

though they are restrained from accessing their traditional pasturelands on border regions. Out-migration of these communities creates further inroads for countries like China to usurp our agricultural and pasture lands. It is through IMI that the problems and difficulties of this region can be aired at a pan-national event, so that policymakers at the state and national level can take these concerns into account going forward.

Amongst the audience, Mr Sushil Ramola noted that the deliberations so far had discussed the implications of climate change, and raised a question about the measures that could be undertaken to address this issue. The mountains have a valuable resource in the form of solar energy, which could be a boon for the rest of the country as well. Legislators from the mountain states could take the lead in pushing this agenda, and the mountain states could be the leaders in this regard. Today, most greenhouse gas emissions are generated in the cities. Therefore we need to plan our mountain cities better so that we do not replicate that model and instead work towards decentralising growth in the mountains. To fund these initiatives, the mountain states should receive compensation for the ecosystem and other services they contributes to the nation. Policy and advocacy measures in this regard are also imperative.

In response, Mr Rigzin Spalbar pointed out that Ladakh is the solar capital of India, with solar panels having been distributed to almost every household in the region. The Government of India has plans to commission 5000 MW-yielding solar panels in Ladakh. This proposal covers a large area of land. However all revenue and benefits from this will accrue to the State Government, while the Ladakh region will be ignored when it comes to compensation. Ladakhi people have therefore taken a stand that they cannot allow this project to go ahead unless the benefits are shared with the local and nomadic peoples of Ladakh. The same argument will apply to hydro-power projects.



Mr Reuben Gergan (Senior Project Engineer, Ladakh Renewable Energy Development Agency) in the audience explained the step-up approach to the development of renewable energy in Ladakh. The first phase of this began in 2000, when LREDA distributed solar panels to nearly every household in Ladakh, and the second phase involves the setting-up of decentralised power-generation plants in every village. About 95% of the planned 125 solar power plants have been set up. 45 of these are for villages, and the

others for educational and medical institutions in the Leh District. Since the needs of the area are met through this project, the energy generated in a 5000 MW plant will be transmitted outside Ladakh. This raises concerns that nomadic communities will be locked out of their pasturelands as a result of the large land demands of the proposed project. Benefits of projects like these have to be decentralised for the projects to be viable.

Mr Mutchu Mithi, Hon'ble Member of Legislative Assembly (Roing), Arunachal Pradesh



added to the discussion by raising the issue of mountains not being compensated for their low carbon footprint. He stated that the lack of these incentives were a constraint on these states pursuing environmentally sound policies and programmes in these states. He also pointed out that nearly 80% of the land area of Arunachal Pradesh comprised forests, and therefore commensurate compensation is vital for the eco-system and carbon-offsetting services made available to the nation.

Ms Vandana Chavan responded to Mr Ramola's comments on urbanisation by stating that one must be realistic about the inevitability of urbanisation and migration. The focus should instead be on how to better plan urbanisation, and a forum like IMI is ideal for discussions on the manner of urbanisation that people really want. Dr Dhrupad Choudhury (ICIMOD) in the audience noted that catastrophic natural disasters focus attention on the issue of climate change, which is one aspect of the problem. What is also important is that legislators work towards setting up a disaster management mechanism, such as affordable insurance for the poor.

Dr Choudhury further noted that planning in the mountain states should ensure a balance between environmental concerns and the inescapable development needs of populations. Urban planning is the need of the hour, as mountain cities such as Gangtok and Shimla are growing exponentially. Energy-efficient buildings and other infrastructure will be crucial, and the private sector can be called into play their part. Mr Sudarshan Rodriguez (Senior Programme Co-ordinator, Tata Institute of Social Sciences) pointed out that the private sector and market-driven approaches may not provide solutions to the energy needs of places like Ladakh with small populations, and unique and difficult geographic



conditions. The solution instead may lie in giving incentives to R&D with results, and not just for academic ends.

Ms Topi Basar (Faculty, Law Campus Delhi University) raised the issue of the importance of local communities becoming diluted when international conventions are translated into national legislation. Locals play an important role in the conservation of natural resources and are critical actors in efforts to mitigate the effects of climate change. Ownership of land and natural resources is a murky area of Indian environmental legislation, as there are contestations between the National Government, the state governments, and communities. Policymakers from the mountain states should also ensure that customary laws and norms are not diluted by national legislation. Mr P.D. Rai flagged the concerns expressed regarding communities and pointed that it was critical issue for legislators from the mountains to focus their attention on.



Dr R.S. Tolia noted that concerns of the mountain states raised during the session are those that can be truly represented at the national level by a dedicated ministry, as the administrative structure as it exists today at the Centre does not co-opt inputs from the mountain states. He also pointed out to the legislators that the State Action Plan on Climate Change has been formulated only by 3 mountain states. The matter cannot rest with just the formulation, as it is also important to identify the resources and funds necessary to put these plans into action. With the disbanding of the Planning Commission the uncertainty of the source of these funds becomes a matter of concern for mountain states, as there is the likelihood that their *special category* status may be watered down. The Niti Ayog should take these considerations into account. Mr T.K. Dewan made a suggestion that the 2% corporate social responsibility levy mandated under the Companies Act, 2013 could be a source which could be tapped in this regard.



Mr. Alemtemshi Jamir (Vice President, IMI) expressed his concern that the creation of a mountain ministry would marginalise, rather than highlight the concerns of the mountains. He compared this with the experience of the North Eastern States of India with the Ministry of Development of North Eastern Region of India. This led to many other central

ministries washing their hands off the North East since they had a dedicated ministry. A stronger impact would be created by establishing a mountain division in the Niti Ayog, which could ensure the creation of a mountain department in every central ministry.

Mr P.D. Rai closed the proceedings by noting that the session had contributed to greater awareness amongst legislators that climate change is a crucial issue on which they need to focus their attention on. Climate change affects the lives and livelihoods of people in their states. He also thanked the legislators for bringing out the ground realities of the effects of climate change in their constituencies. The first step in this regard is bringing together these voices, which IMI has achieved today.



Lawmakers at the Session



P.A. Sangma with P.D. Rai

Summary of Recommendations

The following are the policy recommendations distilled from the deliberations during the Meet of the Mountain States:

The next Sustainable Mountain Development Summit could be convened at Itanagar.

Traditional forms of agriculture such as shifting cultivation and livestock rearing need supportive, culturally-sensitive, and participatory institutional mechanisms to address inherent economic insecurities in light of changing climatic and other conditions. Such mechanisms should incorporate a holistic livelihood security approach: *agriculture/ forestry/soil conservation plus*.

The absence of a national focus on organic agriculture research was highlighted, and the pressing need for R&D in this field was pointed out, with region-specific solutions to be identified.

The absence of market linkages and supply-chain constraints were frustrating small organic farmers and entrepreneurs, and needs policy attention. Restricting access of herders is also a security issue as it leaves border areas vulnerable to incursions from neighbouring countries.

Greater convergence is needed between government programmes relating to soil and watershed conservation and employment generation, as well as between the forest and agriculture departments, as forests and agriculture are interlinked in complex ways in the mountains.

Mountain-specific agriculture extension, research, and institutions are the need of the hour.

Climate change requires the exploration of avenues for community-based adaptation, while seriously pursuing modes of combining traditional local knowledge with scientific knowledge. This is a key pillar in the adaptation game, in addition to communication between stakeholders, and the fostering of innovation and

appropriate scaling up. Policy and practice have to come together for good adaption strategies.

Ownership of land and natural resources is a murky area of Indian environmental legislation, as there are contestations between the National Government, the state governments, and communities. The importance of local communities is often diluted when international conventions are translated into national legislation. Locals play an important role in the conservation of natural resources and are critical actors in efforts to mitigate the effects of climate change. Care must be taken to ensure that new legislation does not impinge on customary laws.

Mountains should be proactive seekers of development suited to their particular needs, and not passive recipients. It is vital to identify mechanisms to compensate the mountain states for their low-carbon footprints, their role as carbon sinks and the eco-system services they contribute to the nation.

Efficient and sustainable planning to be put in place in the development of cities and urban centres in mountains.

Solar power is a viable alternative source of energy, and places like Ladakh can be pioneers. However if the energy generated is transmitted outside the state, local communities must be duly compensated. Result-oriented R&D is needed to provide solutions to the energy needs of the mountain states. Market cannot be the sole driver as the remoteness and small population of many of these places are economically unattractive to the private sector.

Disaster risk reduction emerged as a key priority area. There is a need for better infrastructure, better-suited relief measures, disaster warning mechanisms, better planning of roads and other major infrastructure, and insurance schemes for the poor.

There is a vital need to establish a mountain ministry. The Niti Ayog should include a mountain division. A more ambitious recommendation is to incorporate a dedicated mountain department in every central ministry. IMI is to form a committee comprising senior policymakers to take this agenda forward.

Annexure 1: Office Bearers and Volunteers

Office Bearers

- Dr R.S.Tolia
- Alemtemshi Jamir
- Sushil Ramola
- Fantry Mein Jaswal
- P.D. Rai
- Rigzin Spalbar
- Dr Tej Partap
- Amba Jamir
- Dr T.S. Papola
- Dr Pushkin Phartiyal
- R.P. Gurung
- Mridula Paul (Programme Director)

Volunteers

- Divyashish Sharma
- Priyanka Tolia
- Krishna Rautela
- Monika Verma
- Ravi Kiran Upadrasta
- Thejaneinuo Kaco
- Ella Mary
- Monika Rawat
- Rashmi Verma
- Madleina Daehnhardt
- Namrata Neopaney



IMI Councillors with Volunteers

Annexure 2: Programme Schedule

Wednesday, 10 December 2014				
9:00 – 10:00	Registration of Delegates			
10:00 – 11:00	Inaugural Session: Meet of the Mountain States Chief Guest: Dr Harak Singh Rawat, Hon'ble Minister for Agriculture, Uttarakhand Guest of Honour: Dr HS Gupta, DG, Borlaug Institute for South Asia			
	Evolution of IMI	Release of Report of SMDS-III (Kohima)	Address by Guest of Honour	Address by Chief Guest
11:00 – 11:30	Tea			
11:30 – 13:00	Session II: Sharing by Partner Institutions – Towards Building a Common Vision Moderator: Sushil Ramola			
	Address by Chief Guest (Shri Harish Rawat, Hon'ble Chief Minister, Uttarakhand) Guest of Honour: Dr PP Dhyani, Director GBPIHED			
	ICIMOD	SRTT	ICAR	Others
13:00 – 14:00	Lunch Break			
14:00 – 16:30	Session III (Technical Session): Himalayan Farmers: Vulnerabilities and Sustainable Trends of Change Chair: Alemtemshi Jamir, Vice-President, IMI. Co-chair: Dr Tej Partap, Member, IMI The session will highlight challenges of sustainable mountain farming, and key learning from the innovations and experiences of individuals and institutions to overcome them			
	Gurmet Dorjey (LAHDC Ladakh) Threatened farming cultures: pashmina goat and yak herders of Changthang, Ladakh			
	Amba Jamir (Sustainable Development Forum, Nagaland) Threatened livelihoods of shifting cultivators in the Eastern Himalayan Region: policies, technologies and trends			
	Dr Dhrupad Choudhury (ICIMOD) Overview of initiatives facilitating shifting cultivators' adaptation to change in the NE region: what lies ahead			
	Dr Lal Singh (Himalayan Research Group, Shimla) Mountain women farmers empowered by technology, skills, and value chain management, transform family farming into a viable agribusiness enterprise: A case study of a mountain valley in Himachal Pradesh			
	Dr Malavika Chauhan (ED-Tata Trust and Himmothan Society) Integrating technological and institutional innovations bringing economic security to mountain family farms: A case study in Uttarakhand			
	Roshan Rai (ATREE/DLR Prerna/KSS) Small farmer innovation and adaptation in the Darjeeling Himalayas			
	Open House on threatened farming cultures, their future, and IMI's role			
16:30 – 17:00	Tea			

17:00 – 18:00	**Session IV (Panel Discussion): Making Himalayan Farmers Organic Entrepreneurs - Overview of Developments and Envisioning Future Prospects**

Moderator: PD Rai Anchor: Dr Tej Partap

Panellists include:

- **Dr AK Yadav (President ICCOA & Former Director NCOF)**
- **Mrs Binita Shah (UOCB, Uttarakhand)**
- **Dr Shafiq A Wani (SKAUST Kashmir)**
- **Mr Santa Pradhan (Retd. Secretary (Agriculture & Horticulture)**
- **Dr Ravikant Avasthe (Principal Scientist, ICAR Gangtok)**

Discussion leading to open house debate

Exhibition of Innovative Farm Technologies:

- **Farmer Innovation (NGO/Government/Farmers)**
- **R&D Innovations (Agriculture Universities/Other Institutions)**
- **Farm Products and Farm Models**
- **Poster Exhibition**
- **Display of Reports of previous SMDS, MoMS**
- **Mountain Cities Model**

18:00	**Close**

Thursday, 11 December 2014

9:00 – 10:00	**Registration of Delegates**
10:00 – 11:00	**International Mountain Day** **Chief Guest: Mr. P.A. Sangma MP (LS) Tura (Meghalaya)** **Guest of Honour: Dr. Eklabya Sharma, ICIMOD**

Welcome Address	**Summary of Recommendations on Mountain Farming**	**Address by Guest of Honour**	**Chief Guest's Address**

11:00 – 11:30	**Tea**
11:30 - 13:30	**GLOBE Meet: Regional Consultation on Mountain Issues in light of Climate Change Negotiations**

International Climate Negotiations: Relevance and Importance for Mountain States - Indian Environment Law Office

Based on the increasing evidence of climate related disasters in the IHR, this session will provide an overview of international climate change negotiations regime - its relevance to the special fragile ecosystem of mountain states in the country, and discuss its evolution and present status, with a focus on India's position so far

Key takeaways from GLOBE Lima Summit:

Vandana Chavan MP (RS)*

Bhubaneswar Kalita MP (RS)*

Round-table discussion with legislator and policymakers from mountain states

Moderators: IELO & Vandana Chavan MP (RS)*, Bhubaneswar Kalita MP (RS)

Legislators and policymakers to discuss key issues pertaining to mountain states and potential solutions, with a focus on mountain farming. Policymakers will also deliberate India's position in global climate change negotiations and the way forward to ensure sustainable development in mountain states

Q&A

13:30	**Lunch**

*** Programme is subject to changes based on the availability of some individuals on the day**

Annexure 3: Participants

No.	Title	Name	Occupation/ Designation	Organization	Email	State/City
1	Dr	A. Shupre		UUHF		Uttarakhand
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