



G. B. Pant National Institute of Himalayan Environment **Himachal Regional Centre, Mohal, Kullu - 175126, H.P.**

The Himachal Regional Centre of the Institute organized 1st Youth Forum on "**Himalayan Environment, Climate Change Adaption and Sustainable Development of the Indian Himalayan Region (IHR)**" on March 18, 2021 in the Conference Room, GBP-NIHE, HRC, Mohal-Kullu, Himachal Pradesh through physical and virtual mode (via Webex) under the project "**Himalayan Calling: Bridging Science, Policy and Practices to Foster Sustainable Development in the Indian Himalayan Region**". The Scientists, more than 100 research scholars and students from the different Scientific Institutes and Professors from different universities of the Himachal Pradesh participated in this workshop in both physical as well as virtual mode.

The following were the main discussion points of the said webinar:

- I. **Impact of Climate Change on the Cryosphere in Himachal Himalaya**
- II. **Wetland Degradation: Its Driving Forces and Environmental Impacts in The Indo-Burma Hotspot**
- III. **Forest for Climate Change Mitigation: Global Commitments and National Initiatives**
- IV. **Atmospheric Emissions, Climate Change and Adaptation Practices**
- V. **Energy Farming: A Future of Secure Himalayas**
- VI. **Water Use and Utilization in Leh Town from an Agricultural Society to a Tourism Based Society**
- VII. **Way Forward for Constitution of Youth Forum in Himachal Pradesh State**

Keeping in view of the theme of webinar following panellist/subject experts from academic/research organizations, government agencies were invited. The details of invited panellists are given as below:

1. Dr. Surjeet Singh Randhawa, Principal Scientific Officer, HIMCOSTE, Shimla
2. Dr. S.C. Rai, Professor & Head (Department of Geography), Delhi School of Economics, University of Delhi, Delhi
3. Sh. V.R.S. Rawat, Former Asst. Director General, ICFRE, Dehradun
4. Dr. J.C. Kuniyal, Scientist-G & Head (CEA&CC, GBP-NIHE, Kosi-Katarmal, Almora
5. Dr. Nivedita Sharma, Professor & Head, Dept. of Basic Science, Dr. Y.S. Parmar University of Horticulture & Forestry, Solan
6. Dr. Konchok Dolma, Assistant Professor, Dept. of Higher Education, Leh, Union Territory of Ladakh

In the opening session of the programme, **Dr. Renu Lata**, Scientist- C welcomed **Dr. R. S. Rawal** (Director, G. B. Pant National Institute of Himalayan Environment), Chief Guest of the programme, **Sh. Nishant Thakur** (HPAS, Joint Member Secretary, HIMCOSTE, Shimla) and all the eminent scientist and panelist as well as all the participants and briefed them about the 1st Youth Forum on "**Himalayan Environment, Climate Change Adaption and Sustainable Development of the Indian Himalayan Region (IHR)**". The Centre head of the Institute, **Er. Rakesh Kumar Singh** in his welcome address appreciated all the participants for their participation and contribution for the success of the event. **Er. R. K. Singh** during his opening remarks briefed about the G. B. Pant National Institute of Himalayan Environment as well as the Himachal Regional Centre of the institute. He also mentioned that the Himalaya is among the Biodiversity Hot Spot and highlighted the need of environment conservation socio-economic development Himalayan natural resources. He explained the participants about the topic "**Himalayan Knowledge Network - Bridging science, policy and practice to foster sustainable development in the Indian Himalayan region (IHR)**". He further mentioned that there is a data deficiency regarding climate change and other important ecological factors of Indian Himalayan Region which will have to overcome through this HKN for betterment

and sustainable development of IHR. After that **Dr. G.C.S. Negi** in his speech briefed about the role and responsibility of Youth Forum. He also addressed the issues of Climate Change in already fragile IHR. He also figure out the data deficiency regarding the climate change and biodiversity conservation persist consider the fact that the presence of various national and state level scientific institute and Universities in this region.

Dr. R. S. Rawal, Director, GBPNiHE in his keynote address congratulated the Chief Guest of the programme, all the eminent panellist as well as all the participants and specifically the youth participants for their participation at the 1st Youth Forum. He emphasized on to sensitize the youth about the concern about the environment and bring them together for the conservation of the environment and its sustainable development. The enthusiasm and energy of the youth must be put together to achieve the target. Different practices, policies and research based knowledge must be bring to one place to get productive results. He mentioned a government report published in 2007, which tells that Himalaya is data deficient and asked why it is data deficient when there are number of agencies or institution working on the Himalayan aspects. Further he added that we are not data deficient but our knowledge is fragmented and dispensed. He informed that about 3500 articles published on the Himalayas, from these about 2800 are peer reviewed journals and apart from those 3500 books published on Himalayan Biodiversity. The only need is to bring data together and use for the betterment of the people or region.

Then the chief guest of the programme, **Dr. Nishant Thakur, HPAS Joint Member Secretary, HIMCOSTE, Shimla** first thanked Er. R.K. Singh and G. B Pant Institute of Himalayan environment for inviting him to the 1st youth forum and he stated about the how vulnerable and fragile our mountain region are. He stated that mountain covers the 30% of the area and 1/10th of the population resides here. It inhabited high Biodiversity and number of global endangered species. He also empathised the fact that Hydro projects, agricultural activities and tourism (Travel) activities in the Himalayan regions has also its negative impact which lead to the climate changes and affect the Himalayan Biodiversity. He also mentioned about the cloudburst and landslides like natural calamities which affected the already fragile mountains region badly. He stated that we should work on protection of the climate change and indulge in activities like:

- Increasing the water level
- Install early warning system
- Mechanism for the green energy production
- Empower local communities and youth
- Research institution should utilize the traditional along with the scientific knowledge
- Green initiative and holistic approaches must be utilised to improve the livelihood of the local people.

At first, **Dr. Surjeet Singh Randhawa**, Principal Scientific Officer, HIMCOSTE, Shimla thanked Er. R. K. Singh for organizing this Youth Forum and giving him opportunity among the panellist of webinar. Dr. Randhawa talked about **Impact of Climate Change on the Cryosphere in Himachal Himalaya**. During his speech, he defined and addressed various reasons of climate change. He also mentioned about the IPCC (2014) report on global warming. He also explained the various parameters of climate change, estimation of future level of CO₂ and issues of concern due to climate change. He further briefed about the Glacier Status of Himachal Pradesh and comparative area under annual and seasonal snow cover. He also addressed the immediate effect of climate change on water resources, forest cover and various floral and faunal biodiversity. He then stated about the cryosphere and also discussed immediate effect of climate change on cryosphere such as upper ward shifting of snowline, decrease in snow cover area, permanent snow cover area turns into seasonal snow cover area. He further discussed about the application of Remote Sensing in snow cover area as well as glacier monitoring, rate of change of length of glacier and temporal variation of glacier cover area. In his speech, he also highlighted various work done by HIMCOSTE.

After that **Dr. S.C. Rai**, Professor & Head (Department of Geography) Delhi School of Economics, University of Delhi, Delhi talked about the **Wetland Degradation: Its Driving Forces and Environmental Impacts in The Indo-Burma Hotspot**. He first thanked Er. R.K. Singh and G. B Pant Institute of Himalayan environment for organising and inviting him to the 1st youth forum. He then talked about 17 sustainable goals set by the UNESCO. He then mentioned the major driving forces responsible wetland changes and formation which include land cover characteristics, hydrological process; he further explained the importance of conservation of forest land despite of the various issues such as shifting cultivation (Jhum cultivation) and deforestation. He further mentioned about the water bodies distribution in Manipur which includes wetland, Aquaculture and Reservoirs. He further talked about the Loktak Lake, which is a wetland of the International importance and also stated about its morphometric pattern and figure out the fact that it has an area of 1040 km² and contains 233 flora species , 425 animal , 100 birds, 64 fish fauna.. He also mentioned the Loktak lake contain Marshy/Swampy areas, aquaculture land, ponds, water bodies, dense forest, open forest and Scrub forest. He further mentioned that the land use land cover area of the Loktak river changes during the year 1990-2004 due to the 6.5 lakh metric tonne sediment input into the lake form the Nambol and Nambul. He also pointed out the fact that this change in forest cover area was due to the Jhum cultivation. He further mentioned that to avoid the dergradation of this wetland following step should be followed:

- Water quality parameter analysis should be done regularly during various seasons
- Demarcation to conflict the issues
- Stop drainage of lake
- Di-siltation of the lake
- Biodiversity conservation
- Water quality monitoring/conservation
- Treatment of influx of water
- Long-term catchment programs

Then **Sh. V.R.S. Rawat** Former Asst. Director General, ICFRE, Dehradun thanked HRC for organising webinar on key issues and giving him opportunity to be part of this webinar. He talked about the **Forest for Climate Change Mitigation: Global Commitments and National Initiatives**. He mentioned about the IPCC special report on global warming of 1.5 degree and Paris agreement. He explained the role of forestry sector to address the climate change issues. He further stated about the objectives of UNFCCC 1992 and Kyoto protocol. Also he figure out the fact that Kyoto protocol and UNFCCC 1992 made carbon a tradable commodity. He further highlighted about the eight “National Missions” which form the core of the National action plan for climate change. He then talked about various forestry initiative such as diversion of forest land for non-forest activities, 33 percent of geographical area should be under forest cover. He further stated about REDD+ strategies which stands for reducing emissions from deforestation and forest degradation in developing countries, and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries.

After that **Dr. J. C. Kuniyal** Scientist-G & Head (CEA&CC, GBP-NIHE, Kosi-Katarmal, Almora in his speech talked about **Atmospheric Emissions, Climate Change and Adaptation Practices**. He discussed about the aerosol, its sources, properties, about various equipment used for aerosol studies such as AWS, Sun photometer, RDS, FPS, Aethalometer, Ion Chromatography. He further discussed about the black carbon monitoring, aerosol radiative forcing. He also mentioned that Aerosol radiative forcing is defined as the effect of anthropogenic aerosols on the radiative fluxes at the top of the atmosphere (TOA) and at the surface and on the absorption of radiation within the atmosphere. He also briefed about the Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observation (CALIPSO) mission. He also figure out the trend of heating rate in Kullu valley. In his speech he further discussed about the climate change adaptation policies.

Dr. Nivedita Sharma, Professor & Head (Department of Basic Science) Dr. Y.S. Parmar University of Horticulture & Forestry, Solan in her speech first thanked Er. R.K. Singh and G. B Pant Institute of

Himalayan Environment for inviting her to the 1st youth forum. She talked on topic entitled **Energy Farming: A Future of Secure Himalayas**. She stated that energy farming is production of alternative form of energy which is non- polluting and renewable source of energy. She emphasized on the production of bio-fuel as the natural non- renewable sources are depleting. She also figure out the fact that biodiesel production is very important as it is clean energy and does not produce any pollutants. She mentioned some of the plants on which current research is going on for the production of the biofuel which includes *Pongamia pinnata*, which is high oil yielding about 30-40 %, *Jatropha curcus* and *Madhuca indica* , both of these also have high oil content and used for biofuel production.

Dr. Konchok Dolma, Assistant Professor, Department of Higher Education, Leh, Union Territory of Ladakh, first thanked Er. R.K. Singh and G. B Pant Institute of Himalayan Environment for organising and inviting her as a speaker to the 1st youth forum. She talked about **Water Use and Utilization in Leh Town from an Agricultural Society to a Tourism Based Society**. She stated that the sanitization diverts from the dry to water based sanitization with the tourism but the there is no proper sewerage system in the Leh town. She also figure out the fact that tourism although increased the income of the local communities but it impact the environment of the Leh adversely.

Then **Dr. K.S. Kanwal**, Scientist-D, GBP-NIHE, HRC discussed about the formation of youth forum and also invited suggestion from various stakeholders in this regard. After that **Dr. Renu Lata**, Scientist-C highlighted the core issues from the speech given by various eminent panellist. Then the Nodal person of the Youth Forum as well as the Centre Head of HRC, **Er. R. K. Singh** in his concluding remarks empathised on the fact that Himalayan Knowledge Network (HKN) will be providing the platform for the storing and sharing data for the scientific research and will be helpful for policy maker. He also informed that anybody having any specific query regarding HKN would directly contact the Nodal person through Email.

At the end, **Dr. Sarla Shashni**, Scientist-D, GBP-NIHE, HRC expressed the formal Vote of thanks to the Chief Guest, all the Panellist and participants of this Youth Forum and all the stakeholders of the Himalayan Knowledge Network (HKN).

