



**Proceedings of the
ROAM Validation Workshop for Uttarakhand, India**



Organised by

International Union for Conservation of Nature (IUCN),

and

G.B. Pant National Institute of Himalayan Environment and Sustainable
Development (GBPNIHESD)

Dehradun, Uttarakhand

08 March, 2018

Background:

Forest landscape restoration (FLR):

Forest landscape restoration (FLR) is an ongoing process of restoring ecological functionality and enhancing human well-being across degraded landscapes. It is more than just planting trees – it is restoring a whole landscape to meet present and future needs and to offer multiple benefits and land uses over time.

Restoration Opportunities Assessment Methodology (ROAM):

There is a growing suite of tools to help countries, organisations and individuals interested in restoration to identify and map priority areas of restoration, potential restoration interventions and opportunities, perform cost-benefit analyses, navigate policy and more. One such tool developed by International Union for Conservation of Nature (IUCN) and World Resources Institute (WRI) is called Restoration Opportunities Assessment Methodology (ROAM). It is a flexible and cost-effective analytic process for identifying restoration opportunities at national or sub-national levels, as well as describing how those opportunities relate to various factors such as food, water and energy security. The application of ROAM generates good context-specific knowledge relevant to understanding and addressing forest and land-use planning and management. Through participatory processes, the assessment provides a framework for a common setting of restoration goals at a landscape level that address immediate priorities, such as livelihoods. ROAM is being applied across more than thirty countries in the world.

In India, IUCN is piloting a ROAM study in the state of Uttarakhand, in partnership with G.B. Pant National Institute of Himalayan Environment and Sustainable Development (GBPNIHESD). On 8th March, 2018, a State Validation Workshop was organised at Dehradun to present and validate the key findings of the ROAM study to stakeholders and experts in Uttarakhand. This report summarizes the deliberations and outcomes of the workshop.

Inaugural Session

Ms. Anushree Bhattacharjee, Programme Officer – Forest Landscape Restoration (FLR) from IUCN India welcomed all the delegates and introduced the speakers of the session. Thereafter, Mr. P.R. Sinha, Country Representative, IUCN-India, introduced the concept of forest landscape restoration briefly and discussed the ROAM framework. He mentioned that IUCN had been piloting this methodology to assess opportunities for restoration in the state of Uttarakhand since the last one year in partnership with scientists from G.B. Pant National Institute of Himalayan Environment and Sustainable Development.



Clockwise from left to right – Mr. P.R. Sinha, CR, IUCN India welcoming the delegates; Dr. S.C. Gairola, DG ICFRE elaborating on Bonn Challenge; Dr. D.V.S. Khati, PCCF Wildlife speaking on restoration in Uttarakhand; and Mr. Jai Raj, PCCF and HOFF delivering the inaugural address

He was followed by Dr. S.C. Gairola, Director General, Indian Council of Forestry Research and Education (ICFRE) who spoke on Bonn Challenge and its relevance for India and Uttarakhand. Dr. Gairola highlighted the relevance of Bonn Challenge and gave a brief perspective of how it is different from other treaties and agreements. He remarked that globally 2 billion hectares of land have potential to be brought under restoration. The Bonn Challenge is a global effort to bring 150 million hectares of degraded land into restoration by 2020 and 350 million hectares by 2030. He also apprised the audience that 47 parties (state and non-state) have pledged towards bringing 160 million hectares of degraded land under restoration till date. In 2015, India had also committed to restore 13 million ha of degraded land by 2020, and an additional 8 million ha by 2030. India's pledge is one of the largest from Asia.

Dr. Gairola said *“Bonn Challenge is much more than afforestation. The underlying principle is forest landscape restoration”*. He mentioned that it is very important to first identify the drivers of degradation. He also emphasized upon the need for local leadership and said *“Restoration can be successful only when locals are involved in deciding and implementing the kind of interventions to be made”*. Dr. Gairola shared with the participants the outcomes of the first Asia Bonn Challenge High-level Roundtable held in South Sumatra, Indonesia in May 2017, which was aimed at developing strategies for Asian countries to meet their restoration targets. He also mentioned the South Asia Regional Consultation on Forest Landscape Restoration and Bonn Challenge that was held at New Delhi in August 2017. He said that it is important to have a proper roadmap towards the achievement of the Bonn Challenge. In conclusion, Dr. Gairola complimented IUCN for initiating the first step towards developing a roadmap on restoration for the state of Uttarakhand and said *“It is important to*

involve the policymakers right from the beginning". He remarked *"What IUCN has begun is a tough task as it involves so many contradictions, the experience gained during this process in Uttarakhand can help drive the process in other states as well"*.

Dr. D.V.S Khati, Principal Chief Conservator of Forest (PCCF) Wildlife and Chief Wildlife Warden (CWW), Uttarakhand, in his opening remarks complimented IUCN in completing the project within one year. He spoke of the relationship between forest restoration and spring revival in Uttarakhand. He apprised the participants about the necessity of involving locals in restoration efforts. He said *"Associating people in the process of restoration will give fruitful results"*. Dr. Khati stressed the importance of going with the natural way of restoration and people's way of restoration, and linking restoration with watersheds. He said often plantations in the hills fail because the pits dug for the plantation cause slope erosion. Thus, it is crucial to adopt natural regeneration as a strategy for restoration in the hills wherever possible rather than going for artificial regeneration.

Mr. Jai Raj, Principal Chief Conservator of Forest (PCCF) and Head of Forest Force (HOFF), said that the biggest challenge facing the country today was harmonizing economic development and conservation of nature. He felt that often it was a losing battle for conservation and restoration. He congratulated IUCN for the initiative taken in the state of Uttarakhand and remarked that it would only be useful *"when the initiative is transformed into a finitiative"*. By saying that he meant that the initiative taken up for conservation and restoration needs to reach the finish line. Mr. Jai Raj said that assisted natural regeneration (ANR) has worked well in Uttarakhand, while plantation in the Terai region has demonstrated 95% success rate. Thus, it is important to have strategies as per the suitability of the region. Mr. Jai Raj also stressed on the importance of involving local communities and civil societies in the process from the very beginning. He spoke how civil societies are strong in other countries compared to India. He referred to Japan as a good example of development and community involvement. He felt that in India, public awareness was a slow process. Similarly, there was often lack of finances and resources for environment. Public opinion could hopefully help drive real action and appropriate allocation of resources. He also focussed on the idea of sustainable development. He ended his address by saying *"Let us build public opinion for conserving nature and supporting the departments"*. The idea is to take a landscape approach, considering the aspirations of the local people, taking into consideration the ability of the land to provide various goods and services, which will take into account the ecological, social, and economic aspects. He said that once an indication of the financial resources required for the project was shared with the government, the state could also look at the resources available such as Green India Mission (GIM), National Mission for Clean Ganga (NMCG) etc. to ensure implementation and monitoring of the restoration actions.

The inaugural session was brought to a close by a vote of thanks by Ms. Anushree Bhattacharjee.

Session 2 - Presentation of results of restoration opportunities assessment for Uttarakhand and open discussion



From left to right – Inaugural speakers of workshop; Anushree Bhattacharjee, PO – FLR, IUCN India presenting the findings of the study

The next session was the presentation of the ROAM study in Uttarakhand followed by open discussion. The presentation was given by Dr. Rajesh Joshi from GBPNIHESD, Ms. Anushree Bhattacharjee and Dr. N.M. Ishwar, IUCN.

Ms. Bhattacharjee gave a brief introduction of forest landscape restoration. She discussed the restoration opportunities assessment methodology (ROAM) which focuses on producing relevant analytical input to national or sub-national land use policies and planning and also generates information that is relevant to (sub) national priorities. ROAM can provide vital support to countries seeking to accelerate or implement restoration programmes and landscape-level strategies. In this regard, ROAM will also enable countries to define and implement national or subnational contributions to the Bonn Challenge and concurrently allow nations to meet existing international commitments under the Convention on Biological Diversity, United Nations Convention to Combat Desertification and the United Nations Framework to Combat Climate Change. She then introduced the study that was conducted in the state of Uttarakhand with intensive study sites being the two districts of Pithoragarh and Garhwal (popularly known as Pauri Garhwal).

Dr. Joshi, Scientist, GBPNIHESD explained that the datasets for the spatial analysis were collected from different sources, and criteria and weightage were accordingly assigned. Based on these criteria, functional degradation maps were prepared for Uttarakhand and the two intensive study sites of Pithoragarh and Pauri Garhwal. He discussed the degradation drivers, perceived consequences and suggestions that came from stakeholder consultations. He also presented the final FLR opportunity maps that were prepared for the state as well as the two districts.

Dr. Ishwar discussed the recommended FLR actions. These FLR recommendations were prepared for different elevation zones i.e., <1000m, 1000-2000m, and 2000-3000m. Above 3000m was excluded for the purpose of the study as the area was largely ice-bound.

Open Discussion:



Delegates of the state validation workshop on restoration opportunities assessment in Uttarakhand

Following the presentation, the floor was opened up for discussion. Dr. Dhananjai Mohan, APCCF Wildlife pointed out that Dehradun city was falling in the area marked as low opportunity for restoration. This was discussed and it was suggested that there could be an exclusion layer added to the map which would include urban centres. This would remove it as a FLR opportunity area for the purpose of the study. It was suggested that it might be good to carry out additional ground truthing of the GIS analysis wherever possible. Dr. Hitendra Padalia from Indian Institute of Remote Sensing (IIRS) asked about the weightage and criteria. Ms. Bhattacharjee mentioned that the weightage and criteria was present in the detailed report and could be discussed later. Mr. Sinha stressed that the project aimed to pool in all available information for facilitation of integrated planning.

Dr. D.P. Dobhal, Wadia Institute of Himalayan Geology said that geology was an important factor that might have been considered as a base layer for the multi-criteria analysis. Participants sought clarification about whether the GIS analysis was done at state level, or district level and then extrapolated to the state. The project team clarified that the GIS analysis was done at the state level. Mr. Vishal Singh, CEDAR discussed about forest density as a base layer and suggested that it was equally important to consider the forest type as well. It was clarified by the team that forest type map was also one of the base layers used.

Dr. Hitendra Padalia, IIRS felt that the area above 3000m was best excluded in totality for the study. This was also clarified and agreed upon by the team. It was also mentioned that the area under Van Panchayats and their status may need to be verified on the ground. The reason for ghost villages and out migration being caused by degradation needed to be further clarified, as the delegates felt that degradation was not the only reason for cropland abandonment.

Dr. Neena Grewal, Project Director, Watershed Management Directorate, said that often there was over exploitation of water and excessive tapping near the source by various departments. It was also discussed that heavy road construction was a major cause for water loss and degradation. Many participants spoke of the improvement in the forests since the

penetration of LPG in the state. Mr. Vishal Singh of CEDAR said that it would be interesting to see the effects of climate change on the identified degraded patches. Dr. Dhananjai Mohan spoke of the importance to check the perceptions about forest fire and human-wildlife conflict and cross-check it with the existing data from the department as well as from satellite imagery. Community perceptions need to be revalidated through science wherever possible he felt. Dr. V.P. Uniyal, Wildlife Institute of India (WII) spoke about forest fire sometimes being beneficial for the quality of the forest.

Mr. Subrato Paul, UNDP enquired about slope and aspect layers used. The team clarified that all of these were used as base layers for creation of the final maps. Ms. Neena Grewal mentioned that FRI had carried out a socio-economic assessment of forests in India last year, and this report would be useful for the ROAM study. Dr. Padalia, IIRS said that a review of the different ROAM processes across the different countries and their levels of success would help to inform the audience better. He also felt that temperature could be considered as a factor in the biophysical base maps. On the socioeconomic side, he felt that literacy, road network, household water availability could be important factors. Interpretation of degradation can be quite tricky. Temporal data of fire is also available on the Bhuwan website which may be utilised for the study. He spoke of the need to have consistency in giving weightage through the EHP approach. The approach needs to be opened up so that there is transparency. The IUCN team clarified that the weightage and criteria could be discussed with the participants, and again stressed that ROAM is a very adaptable and flexible framework.

Mr. Vishal Singh mentioned that degradation in the Himalayas is very different from other regions. He mentioned that CEDAR has long term monitoring plots and the findings from the same could be quite useful for the ROAM study. The project team thanked him and requested that he share the data with them. Dr. Gajendra Singh, Uttarakhand Space Application Centre (USAC) stressed that in case of landslides, it was important to see the extent of area that was directly affected, and similarly for forest fires as well. He spoke of the need to create accurate GIS layers and for staying neutral while creating the GIS layers and avoiding bias. Ms. Neena Grewal spoke of the budget of the Planning Commission of the Uttarakhand Government. It would be good to refer to that document as the Government was linking the budget to the Sustainable Development Goals (SDGs), and land degradation was also being considered in that report.

Dr. Manoj Chandran congratulated the IUCN-GBPNIHESD team for the tough task completed by the team. He suggested that the definition of restoration as well as degradation needed to be very clearly clarified right at the beginning. He stressed that all the assumptions needed to be validated through either literature review or through a methodology. He stressed that the stakeholder perceptions could be supported through validation. The age-group and knowledge level of the stakeholders was an important factor to be considered. He stressed on the importance of engaging all stakeholders. Dr. Chandran remarked that *“Once the perception of stakeholders is validated through a methodology it becomes science”*.

Dr. Vinay Bhargav, DFO Pithoragarh spoke of the need to give water a priority in the analysis and mentioned that community participation would be of great importance in forest fire management. He mentioned this was the first time that an integrative approach was undertaken in the district and he congratulated the team for making this possible.

The open discussion session was then brought to a close with Ms. Bhattacharjee, IUCN thanking all the delegates for sharing their valuable feedback.

Closing Session



Dr. Dhananjai Mohan, and Dr. Manoj Chandran wrapping up the closing session

Dr. Dhananjai Mohan, APCCF (WL) remarked “*It is a nice initiative to look at degradation in a holistic manner*”. He said that he looked at the entire project as a great opportunity. The first step of convergence of information that this project had achieved was something that he lauded. He felt that convergence of action was something that was very tricky and maybe beyond the limit of the project. He suggested that developing criteria based on objectives and defining them accordingly would help in coming up with good results. He felt that satellite interpretations needed to be supported by ground truthing. He suggested that the project should take up the feedback and comments that were feasible within the lifecycle of the project. He again congratulated the IUCN-GBPNIHESD team on completing the project within a year, and delivering results.

Mr. Sinha, IUCN, said that the important thing is the macro picture that emerges based on which decisions can be taken. He said “*Opportunity map is a practical suggestion to move forward*”. He also thanked everyone for their suggestions and feedback, and said that all the suggestions will help to make the macro level decision at the state level and some micro-level decisions at the district level.

Dr. Rajesh Joshi gave the vote of thanks, thanking everyone present for providing their valuable suggestions towards making the workshop a success.

ANNEXURES

Annexure 1

Agenda

9.30-10.00: Registration and Tea/ Coffee

10.00-10.45: Inaugural Session

10.00-10.10: Welcome address – Shri P.R. Sinha, Country Representative, IUCN

10.10-10.20: Bonn Challenge and its relevance for India and Uttarakhand – Dr. S.C. Gairola, Director General, ICFRE

10.20-10.30: Remarks – Dr. D.V.S. Khatri, PCCF (WL) & CWW, Uttarakhand

10.30-10.45: Address by Session Chair – Shri Jai Raj, PCCF and HOFF, Uttarakhand

10.45 – 11.00: Tea/ Coffee and snacks

11.00-12.00: **Presentation of Results of restoration opportunities assessment for Uttarakhand**
GBPNIHESD and IUCN

12.00-01.00: Open discussion on Presentation

01.00-01.30: Closing Session

01.00-01.10: Remarks – Dr. Dhananjai Mohan, APCCF (WL)

01.10-01.20: Closing remarks and Way forward – Dr. N.M. Ishwar, Programme Coordinator, IUCN

01.20-01.30: Vote of thanks – Dr. Rajesh Joshi, GBPNIHESD

01.30-02.00: Lunch

Annexure 2

List of participants:

S.No.	Name of Participant	Designation and Organisation
1.	Mr. Jai Raj	PCCF & HOFF, Uttarakhand
2.	Dr. S.C. Gairola	DG, ICFRE
3.	Dr. D.V.S. Khati	PCCF Wildlife, Uttarakhand
4.	Dr. Dhananjai Mohan	APCCF Wildlife
5.	Mr. Sanjay Singh	Scientist, ICFRE
6.	Dr. G.D. Joshi	Joint Director, ULDB
7.	Dr. Harsh Mehta	Head – Plant Sciences, ICAR-IISWC
8.	Mr. Vishal Singh	Deputy Executive Director, CEDAR
9.	Ms. Malya Singh	Research Associate, CEDAR
10.	Ms. Surbhi Gumber	JPF, CHEA
11.	Mr. Ripu Daman Singh	SPF, CHEA
12.	Dr. Hukum Singh	Scientist, FRI
13.	Dr. Arun Kumar	FRI
14.	Mr. Sanjay Bhatia	Team leader, Himmothan Society
15.	Dr. Bhupendra Bhaisora	DMMC
16.	Dr. Hitendra Padalia	IIRS
17.	Ms. Neena Grewal	Watershed Management Directorate
18.	Mr. Bhuwan Chandra	CCF Shivalik and Garhwal
19.	Mr. R.N. Jha	Head, State Climate Change Centre
20.	Mr. D.S. Rawat	DFO Garhwal
21.	Dr. G.S. Rawat	USAC
22.	Dr. Suresh Ram	Deputy Director, Horticulture
23.	Dr. D.P. Dhobal	Wadia Institute of Himalayan Geology
24.	Mr. S.T.S. Lepcha	MD, UFDC
25.	Dr. V.R. Bhargav	DFO Pithoragarh
26.	Dr. Manoj Chandran	CCF, UKFD HQ
27.	Dr. V.P. Uniyal	WII
28.	Mr. Manish Bhardwaj	Maxwell Hospital
29.	Mr. Subrato Paul	UNDP
30.	Dr. Rajesh Joshi	GBPNIHESD
31.	Mr. L.M. Kaul	RO, Uttarakhand Biodiversity Board
32.	Mr. Ravi Pathak	GBPNIHESD
33.	Mr. Amit Bahukhandi	GBPNIHESD
34.	Mr. P.R. Sinha	IUCN
35.	Mr. Vishnu Sharma	IUCN
36.	Ms. Manpreet Kaur	IUCN
37.	Ms. Anushree Bhattacharjee	IUCN
38.	Dr. N.M. Ishwar	IUCN