

**SEVENTH
R.S. TOLIA MEMORIAL LECTURE**



15.11.1947 - 06.12.2016

**PROMOTING GREEN ECONOMY THROUGH UNIQUE
BIODIVERSITY OF UTTARAKHAND**

In search of potential for Impact Investment

JYOTSNA SITLING (IFS Retd.)

11th DECEMBER 2024



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Publisher :

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Design & Printed by :

PRABHAT GRAPHIC PRINTERS

I-159, Nehru Colony, Dehradun.

Mob.: 9027047100

Year : 2024

PROMOTING GREEN ECONOMY THROUGH UNIQUE BIODIVERSITY OF UTTARAKHAND

JYOTSNA SITLING

First of all, I thank SFDU for having invited me to deliver 7th RST Memorial Lecture on the occasion of World Mountain Day.

It is my great honour to deliver 7th RST Memorial Lecture on this day as a tribute to our great master. The inspirational leader and mentor to a generation of public servants, civil society and RTI activists. He is more relevant today in view of today's quantum mountain challenges and as his followers, we may have to make tough choices sometimes, if we want to continue the legacy of Dr. R S Tolia Sir in the interest of this mountain state.

I was very fortunate to get mentored by Late Dr. R.S Tolia Sir, an inspirational leader and a great human being, in the early stage of my public service career and learn a great deal from him. I first came in touch with Tolia Sir during one of his field visit in Doon Valley Watershed Management Project in 1996. With keen eyes on the ground, perhaps had been closely seeing my works since then and during my first posting as Conservator of Forests in year 2002, when the state had just came into existence, Nanda Devi National Park was ridden with conservation conflict that was receiving international attention. Seeing my people centric works in Doon Valley, Sir perhaps thought that I could solve it. It was Tolia Sir' stremendous faith in my capacity to solve the park – people conflict in the area, the history followed when these 20 years of intense conflict got resolved resulting in enlisting

of Valley of Flowers National Park in the World Natural Heritage Site in 2005. One of the key criteria for IUCN's field assessment of the site was minimum conflicts with the people both around Nanda Devi and the Valley of Flowers national parks. When I had worked there for about 3 years there, Tolia Sir asked me in year 2004, if I could apply for the post of Director, Livelihoods Improvement Project for the Himalayas funded by IFAD. This project was meant for enhancing livelihood of the poorest in 959 villages of 17 most food insecure development blocks of Uttarakhand. There also, the sound foundation on systems building approach to livelihoods promotion paid off richly to Uttarakhand Govt. with third the tranche of consecutive funding from IFAD with accelerated support for pan Uttarakhand coverage till year 2029 This tells volumes on Tolia Sir's vision for Uttarakhand. Tolia Sir was the one who fielded me for Indira Gandhi Paryavaran Award 2004 and my NDBR team for Prime Minister's Award for excellence in public administration 2005. He again believed that these works had distinction to get the national recognitions.

My most fulfilling experience to work with him was developing the Mountaineering Guideline of Uttarakhand in 2004 to '05, the first environment friendly mountaineering guideline of its kind in any mountain state in India. I had the opportunity to revise the same after 16 years in 2021 to '22 while maintaining the same environmental fervor... And, finally working in his spirit as PCCF Van Panchayat from 2020 to '23 to rectify the revenue records of 11,217 Van Panchayats, the subject which Tolia Sir had passionately worked for, and handing over the complete land records to

each and every Van Panchayats with the support from Revenue Department.

Tolia Sir's knack of sensing the pulse of public administration from the ground and his passion to reflect and write every experience on his interface with Samaj, Bazar and Sarkar could help bring all three pillars together to work in building solid foundation for the future of Uttarakhand. I am sure, the lives of every august audience here, have been touched by Tolia Sir in a very special way. Today, in the World Mountain Day is the special day to reaffirm our commitment to the Legacy of Tolia Sir.

My lecture of today, in sequel to last year's Memorial Lecture given by Dr. B. K Joshi on 'Thinking like a Mountain: Development imperatives in Uttarakhand' will focus on 'Doing like a Mountain' to promote sustainable livelihoods through green economy in Uttarakhand. Because the Green economy is the only way to mountain solutions for sustainable future, the very theme of this year's World Mountain Day.

Uttarakhand is endowed with many life-sustaining natural resources such as glaciers, forests, rivers and minerals. Forest resources of Uttarakhand provide critical ecological services to the vast population of our country extending beyond the state boundary.

Such natural endowments give a great opportunity and additional responsibility to the state of Uttarakhand to follow the path of green economy in managing its resources while leveraging its unique biodiversity aligned with sustainable

usage practices and promotion of these resources. Using Uttarakhand's unique biodiversity for societal projects at community level is one way to attend this.

In today's lecture I will discuss the opportunities and readiness of the state to create such societal projects that are aspirational for the youth and have the possibility to attract impact investment to usher bottom-up green economy.

Uttarakhand Vision 2030 document aligned to SDG goals brought out by Planning Department with Institute of Human development New Delhi in 2021 envisages the attainment of SDGs goals keeping focus on four thematic areas i.e. Sustainable Livelihoods, Human Development, Social Development and Environmental Sustainability. In this mountain state, Sustainable Livelihoods is intricately linked with Environmental Sustainability. We have already seen how frequent outbreak of forest fires and natural disasters are creating havoc to the lives of proximate communities of this state and how it is actually disrupting the pathway to creating a distinct brand value of Uttarakhand as green state that could help in promoting the green economy.

Coming to the agenda of sustainable livelihoods, Uttarakhand Vision 2030 document has identified horticulture/hill agriculture along with aromatic plants, medicinal Plants with link to AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy), biotechnology and tourism as growth drivers. The selection of these sectors has been backed by a detailed sub-sector analysis. Along with this, the sectors like Micro, Small and Medium Enterprises (MSME), Information Technology and Green Power with emphasis on

Small Hydro power have been identified in this vision document as the growth enablers.

The sector-wise financial resources required against the possibility of resources available to fulfil its SDG goals on sustainable livelihoods has been calculated in the time horizon of 3 years (2020), 7years (2024) and 15 years (2030) from the year 2017 onwards in this document. The sector-wise resources requirements to meet the SDG target of the state by 2030 are humongous. To cite few examples of related sectors such as 'agriculture & allied sectors' indicates an expected shortfall of fund by Rs.568 crores by year 2024 with possible escalation of this shortfall to Rs. 3,285 crores by year 2030. Similarly, the expected shortfall of Rs. 113 crores in rural development financing by 2024 is expected to escalate to Rs. 2,139 crores by year 2030. Given such financing gaps, it becomes imperative for the State Government to leverage the natural endowments for sustainable livelihoods through market mechanisms and private sector partnerships. But unless the growth drivers for green economy are paid attention to in very systematic manner through an ecosystem building approach of growth enablers, it will never be able to gather the required traction for social investments and green investments leading to green growth in the long run.

To bring home the above points, it would be good to look at the second migration survey report of Uttarakhand, which reveals that after 2018, the profile of contribution of nano and micro enterprises in 5,837 Gram Panchayats starts with the largest share from multipurpose shops (23.24%), milk production (18.7%), vegetable cultivation (17.2%), taxi

service (11.91%), others (8.33%) hotels (4.32%) , fast food corner (3.91%) , poultry farm (2.4%), computer services (1.95%), home stay (1.58%) , hardware (1.53%), garments (1.51%), mobile store/repair (1.38%) , automobile (0.83%) , mushroom (0.72%) and ecotourism (0.36%). This shows how the conventional economy is emerging/ growing in Uttarakhand hinterland. A quick glance to these statistics shows that there is a major contribution of tourism sector. But one can also see that adoption of eco-tourism has remained minimal since 2018.

It is noteworthy that Uttarakhand has made considerable strides to align sector wise resource allocation based on Uttarakhand Vision 2030 document and closely monitor the same through dedicated planning and monitoring of the stakeholder Departments to this effect. But it is equally important to address the vast resource gap, where, analyzing the readiness of the state to attract impact investments on livelihoods linked with environmental sustainability in agriculture and allied sectors and in tourism sector becomes important. Apart from this, the other key emerging sector identified is green building, which do not feature in Uttarakhand Vision 2030' but has a unique advantage to promote green economy in the state, have also been considered. While considering these, my talk will equally focus on growth enablers needing support of the government regulation and facilitation for promoting green economy in Uttarakhand. These are the health of the commons, renewable energy, water conservation, water harnessing and harvesting, solid waste management and information technology which hold the key for ecosystem building to

attract green investments.

The quality of collaboration of state, market, civil society and knowledge institutions matters much as prerequisite ecosystem elements that build traction for green economy. The critical role of financial institutions and investors to push such growth drivers and growth enablers in this biodiversity rich state cannot be overstated. The role of social enterprises to innovate and promote green products and services and the critical role of Government to let such social enterprises work with the Government to bring impact on green economy holds the key.

Who counts as the primary stakeholders in such societal projects? The households in this mountain state thrives on basket of livelihood options offered by the natural resources. A number of formal, informal and traditional community institutions that are operational in Uttarakhand have their immense stake in the local biodiversity. These are Panchyati Raj institutions, Van Panchayats, Biodiversity Management Committees, Mahila Mangal Dals, Yuvak Mangal Dals, Joint Forest Management Committees, Eco Development Committees and Self Help Groups (SHGs). Over the period of last 30 years, SHGs/ Business Federations/ Producer Companies/ Cooperatives have been actively participating with their agriculture /horticulture/ allied products/services in the market nurtured by the rich biodiversity of the state. Uttarakhand also has a good network of strong civil society organisations (CSOs) and social entrepreneurs (SE) have worked with the people as change makers to overcome the biodiversity related livelihood challenges.

1.The key growth driving sectors and the key activities under these sectors that have the possibility to attract the State centric impact investment in societal projects to promote green economy are as under:

1.1 Agriculture and allied sectors (horticulture, forestry and livestock)

Agriculture and allied sectors while engaging the highest proportion of the labour force in Uttarakhand, contributes the least to the GSDP. Uttarakhand has high diversity in crop races, cultivars and livestock supported by wide wild variants of the on-farm crops in the wild forest area. Climatic conditions of mountain regions are favorable for diversification in existing traditional agriculture, floriculture, horticulture and animal husbandry. Medicinal and aromatic plants (MAPs) cultivation is an emerging sector to increase income of marginal farmers as a substitute to low yielding traditional crops. Apart from high demand of high value crops like off-season vegetables, spices, flowers, medicinal & aromatic plants and Mushrooms etc., the emerging demand for super foods, nutraceuticals, health supplements and medical grade apparel could be a game changer for farmers of Uttarakhand.

The activities which have the potential to attract investments are Logistic (packaging and transportation infrastructure) and marketing support in terms of expertise in agriculture, horticulture and livestock products of Uttarakhand having niche identity to achieve the scale with quality such as unique spices, fruits, vegetables, organics, GI products and others. Partnerships with retail chains, e-commerce and export

markets wherever possible.

Extend cultivation of Medicinal and Aromatic Plants (MAP) in unused land and absentee land-hold. This will help reduce man-wildlife conflict. Build institutional support for Research & Development (R&D) on MAP. Establish high-tech nursery for MAP. Initiative taken by Uttarakhand Govt. from 2023 to develop six aroma valleys is a welcome initiative.

- Achieve scale in natural honey production from biodiverse sources (farm, off-farm & wild) – a prominent vector entity in biodiversity conservation.
- Focus on expansion of industrial hemp, oilseeds with high nutraceutical value such as Perilla (plants source of omega 3 fatty acid).
- Promote freshwater fish in different riverine ecosystems. e.g. trout farming with research in high quality fish seeds.
- Promote craft and food craft to main stream traditional Agri and allied crops in hospitality sector (cuisine and gift) with unique branding.
- Develop block chain technology to make organic certification more affordable to small farmers. Bring efficiency and effectiveness in crop insurance scheme by use of appropriate digital technology.
- Invest in technology to bring market closer for payment of ecological services – water and carbons sequestration.
- R&D with Intellectual Property Rights (IPR) support to

bring the most useful healing practices of traditional healers to the market.

- Research and investment with the community for super foods, nutraceuticals and supplements.
- Research and Investment in medical grade clothing made from industrial hemp and nettle and other natural fiber and promotion of sericulture (both Oak tassar & Mulberry based silk) based apparels.
- Research and investment in bamboo cultivation for green construction and furnishing.

Innovations to mitigate man animal conflict

1.2 Ecotourism and environmentally conscious tourism

The challenge of Uttarakhand is in handling mass religious tourism on one hand and niche tourism on the other hand. Nature based tourism or ecotourism focusing on societal good has great potential to leverage the local economy while contributing to the sustainable growth of the state. Given the massive potential of ecotourism, there is a need to diversify tourism activities (both on farm, off farm and wild) while mapping the same with different products and services under ecotourism that cater to local livelihood enhancing options. Ecotourism needs massive community involvement to maintain the authenticity of the property and the services that flows from it.

There is a need to develop & create clearly demarcated ecotourism circuits. The circuits will be based on physical and environmental characteristics like land use cover,

scenic beauty, species diversity (abundance and density of unique and endemics species), protection of species and socio-economic factors like accessibility (distance from roads and possibility for human mobility), community's settlement size and willingness to participate. Infrastructure, connectivity, skill development and accreditation of the services would be a key to offer a distinct ecotourism experience on this count. Experiential attribute to a place can be the prime mover in creating a distinct brand under different sub-themes.

An integrated approach to planning these circuits, along with a comprehensive development approach to ensure the availability of all the requisite facilities (infrastructure for reach, connectivity and amenities) in these circuits, is essential (Ref: Uttarakhand vision 2030). For this, coordination between two key departments (Tourism and Forest) and with the other stakeholder departments holds the key for attracting investment. The development of mountaineering policy with all environmental safeguards integrated for regulated mountaineering in 2005 (revised in 2022) is one such example of inter-departmental coordination between Tourism and Forest Department. Apart from the above, the initiatives that can attract investments are:

- Skill development on eco-tourism activities such as wild life tourism, bird watching, heritage walk, trekking, nature trail walks for nature bath and tea tourism etc.

- Market research and investment in fast-moving usable souvenirs (e.g. flasks and straw from bamboo vis-à-vis additional bamboo baskets) form local bio-resources.
- Mentoring, hand holding and investing in skilled youth for entre preneurship in eco-tourism value chain.
- Partnerships with Indian and foreign tour companies dedicated to eco tourism and getting their suggestions.
- Training youth of eco-tourism destinations in Ayurveda, Yoga and Naturopathy.
- Promotion of home stays and agri - tourism in eco tourism circuits with proper regulation for standard operating practices (SoPs).
- Waste management in eco-tourism both at community and individual level.

1.3 Green construction

Due to climate change and Covid like situations, people from the cities, especially the capital city of India, Delhi, would now like to reside in the small towns and nearby villages of Uttarakhand hills. This is a big opportunity to equip the state with policies and practices of green building as this brings a vast array of practices, techniques, and skills to reduce and ultimately eliminate the impact of construction on the environment and human health. This has the huge potential to create aspirational job for the youth.

This will emphasize renewable resources, e.g., using

sunlight through passive solar, active solar and photo voltaic equipment, and using plants and trees through green roofs, rain gardens, and reduction of rainwater runoff. Keeping in view all these, green infrastructure planning and skilling of the local youth in green building would be important. This will give many sustainable green jobs. Use of latest technologies in planning and executing picturesque landscaping and reviving traditional architecture in homes with the efficient use of traditional material (wood and bamboo) will add a tremendous value to the esthetics of the state while creating local employment. Areas which need attention to attract investments are:

- Pro actively plan and execute green building policies especially in prospective green township areas in the state.
- Provide best practices, techniques, and skills to local youth on green jobs pertaining to green building.
- Promote local entrepreneurship (individual or collective) around various green building products and services.
- Link green building Initiative of Uttarakhand with other high-end investments such as Green Med City and Health City, Green Film City, Eco-friendly Education City for Hi Tech Disciplines, etc

2. The imperative of growth enablers:

Green economy cannot be attended in isolation. It needs

growth enablers to create a positive ecosystem for impact investment. The key enablers as already mentioned earlier are:

2.1 Health of the commons and the community institutions

The quality of civic institutions managing natural resources and their ability to harness ecological services through common consensus (social capital) would go a long way to enable them participate effectively environment market, such as, Access and Benefit Sharing (ABS) under Biodiversity Act and REDD+ market instruments. But this calls for the Government to have long term engagement with the public with accountability engrained for sustainable management natural resources through right based approach to involving local communities as the proximate custodians of these open common resource.

In this regard, it will be pertinent to bring the mention of 11217 Van Panchayats located in 11 hill districts of the state, which are involved in the management of 4527 square kilometer forest area. These forests are linked to the source of agriculture and forestry-based livelihood of more than 10 lakh rural families. Van Panchayats have the huge potential to get integrated with the carbon market and other ecological services market to provide sustained green credit directly to the local people. Such a sustained green income only can help mobilize the cooperation of locals in preventing encroachment, prevent forest fire in local Panchayati forests and as well as in nearby reserved and protected forests. But all is not well in the management of Van Panchayat due to years of dual control and

management by Revenue and Forest Department supplemented by sub-optimal accountability of both the Departments for good governance of Van Panchayats. A comprehensive evaluation of the policy gaps in the management of Panchayati Forests had been done and suggestions have been made to the Govt. for governance reforms in Van Panchayats in the form of an overhauled Panchayati Van Niyamawali (2023) during my tenure as PCCF Van Panchayat (from 2020 to '23).

Similarly, sustainable management of non-timber forest produce (NTFP) from the Panchayati and Reserve Forests necessitates a well-managed system of extraction quotas complemented by ex-situ production pipeline of medicinal and aromatic plants through planting and re-planting, and reduction of wastage in the value links. In the absence of clearly articulated and properly managed common property resource regime with the forest fringe villagers, the forests as open resources are liable to get degraded soon. Uttarakhand is blessed to have Van Panchayat institutions, which can form a vital platform for self-regulation of stakeholder public provided one Department meant for such purposes work dedicatedly with the Van Panchayats. The present regulation on Van Panchayats is not amenable to such reforms and the regulation suggested to the Government to bring such reforms is yet to be taken up by the Government.

2.2 Renewable energy

Renewable energy plays key role in driving the economy in a

decentralized manner that empowers the community by enabling them to lower their input cost in the production process. The share of renewable energy in the total energy demand of Uttarakhand has been planned for expansion, from the current 3.2 percent to 15.1 percent by 2030. This has mostly relied on expansion of mini-hydro and solar capacity additions. This needs an adequate in-depth study of solar irradiance, land availability, and water resources (Uttarakhand Vision 2030).

Initiatives that can attract investments are:

- Mapping of various forms of renewable energy usage points/clusters intargeting the youth for training with customized technologies for local use in various economic activities. Awareness building in public on economic and environmental benefits of renewable energy and energy conservation.
- Provide/Procure renewable energy equipment at community level such as Gram-Panchayat, SHG Business Federation, etc.
- The value chain integration of renewable energy in the branding exercise of Uttarakhand with green label would bean important step to take for ward this sector.
- Invest in state of art technologies in renewable energy efficiency.

2.3 Water: Conservation, harnessing and harvesting

The water sources are under severe strain in the state with continuously declining per capita water availability, increased over-exploited areas, accelerated demand for

water with Industry, change of consumption and distribution pattern with the growing economy, growing quality and equity concerns, etc. Climate change has affected very large temporal and spatial variation in rain fall. This, along with change in land use pattern, has led to drying of many water points in the recent past at an alarming rate.

Water, besides being our survival necessity, is lifeline for harnessing on-farm biodiversity for livelihood sustenance. Till date many central, state and externally aided projects have invested in water and watershed management programs of Uttarakhand since 1985 with varied results.

Awareness in the community to conserve catchment area by freeing it from open grazing is the key to sustain perennial sources of water in the watershed area apart from the soil and water conservation through mechanical and bio treatment. The spring-shed and water-shed treatment method followed by the state is still gross which incurs a huge cost. There is an urgent need to bring down this cost with the use of state-of-the-art technologies to achieve a scale in spring-shed treatment. Equally important is to save water most importantly in all tourism destinations. It would be equally important. The interventions that can attract investment are :

- Smarter way to augment and use water – use of latest technology for scientific analysis of spring water dynamics through spring-shed approach in hilly districts.

- Smarter way to save and re-use water through hightech methods.
- Rainwater Harvesting both for rural and urban households to maximize capture of run-off for surface storage as well under-ground recharge.
- Skilling to create water entrepreneurs/ service providers at local level for water survey and water augmentation (e.g. geo-hydrology graduates along with barefoot technicians), water conservation and usage systems (water entrepreneurs).
- Need to explore the role of the community in market-based models of water conservation including under 'Payment for Ecological Services'. Also search out market models for skillful harnessing of water, safe water supply, judicious water usage, and other value additions in water management systems.

2.4 Recycling of solid and liquid waste:

Tourism in Uttarakhand can not be thought without its waste management imperatives. Uttarakhand has sedentary population of 1.2 crores, tourist in Char Dham and Hemkund is 15 lakhs, tourist in Haridwar and Rishikesh in normal times 3 crores, tourist during Kumbh 10 crores, tourist destinations 1crore, others 10lakhs (Refer: Uttarakhand Urban Sector Investment Development Program). Per capita waste generated in Uttarakhand is 250gms/day. Out of which 20 gms /capita/day is plastic waste generated in tourist areas (Ref: Uttarakhand Urban Sector Investment Development Program). This also includes laminated

polymers used in packing food material. Irresponsible disposal of waste in tourist areas is as is the source of man-wildlife conflict in the present.

The areas needing investment for improvement are:

- End use disposal facility for mixed plastics without incineration or burn technology.
- Facility to utilize laminated polymers through recycling in to utilities.
- Infrastructure inputs like compactors for cheap transportation from high Hills.
- Technology to handle sanitary waste at community level.
- Investment for compliant sanitary land fills in the plains.
- Investment in mass education of children for managing solid and plastic waste.
- To promote public awareness about the need for maintaining cleanliness, public health.

2.5 Information Technology

Digital economy goes hand in hand in creating opportunities for Uttarakhand to sustainably leverage its rich natural and human resources towards green, decentralized and self-reliant economy. Information technology is increasingly becoming indispensable for the communities to interact with the market in a free, fair and transparent manner both as suppliers and at the demand side. Infrastructure such as access to broad-band, digital education and skill sets are important bottlenecks as of now

in the state. Few Gram Panchayats in Uttarakhand still do not have access to internet network such as 3G and 4G mobile connectivity and other private connectivity. The network is mostly available uninterrupted only in major cities in the foothills and in the towns in the hills.

The interventions for which there is a need to attract investments are:

- Make the state of Uttarakhand a fully digitized and networked.
- Connecting or strengthening all village institutions such as Village panchayat, Cooperatives and Business Federations and other relevant organizations with internet facilities. At least the Common Service Centre needs to be well connected and fully equipped.
- Promote use of Information Technology (IT) in various sectors: in key growth sectors and enabling sectors as mentioned above.
- Capacity building & training of local youth in IT sector.

2.6 Institutional infra structure and collaborative eco system:

In addition to the above, the institutional infrastructure and collaborative ecosystem would play a major role to build traction for growth drivers. The collaborative partnership among five sets of institutions would be: Government, Corporate Sector and the market, Civil Society, Capital Market and Knowledge Institutions – all of these would be required for this. The government has the power to make policy to direct resource allocation in various sectors,

spatial locations and for the benefit of certain segments of the population.

The corporate sector, because of its fundamental concern with cost efficiency and return on investment, plays a role in the production, sale and distribution of goods and services, including providing necessary technical support. Civil society Organizations (CSOs) mobilize and organize the people, develop norms of working, and train the people on aspects of eco-restoration and livelihoods generation. The contribution of knowledge organizations, think tanks, universities and other research bodies are required to draw on concepts and incubate Uttarakhand specific innovations in climate resilience and green economy in relation to potential drivers and potential enablers.

2.7 Role of finance – philanthropy and Investments

If we analyze the possible source of investments in individual social enterprises and community based social enterprises dedicated to the green economy, neither the government nor the corporate sector is the largest player. Despite a large amount of self-financing done by collective enterprises or individual Start-ups and Scale-ups, vast amounts of financial resources would be required to adopt and scale up their initiatives. For this, one would need philanthropic capital like CSR fund and individual philanthropy or main stream capital from banks and from private investors. The inflow of mainstream finance needs to be tempered with social and environmental concerns,

which could be brought in their ESG balance sheets.

Apart from the mainstream finance, Govt. of India has jumped many regulations over last 12 years to facilitate investments for social and environmental cause from private sources starting with Alternate Investment fund (AIF) regulation in 2012, Corporate Social Responsibility mandate in 2013, Social Venture Capital Fund brought under AIF in 2014, Blended Finance to support sunrise sectors in Climate-tech and Agri- innovations in 2021 and opening of Social Stock Exchange in 2022.

All funders interested in deploying capital for impact broadly fall within one of the three categories:

- (1). ESG & Sustainable Finance (E.g. NABARD's Green Climate Fund to finance sustainable agriculture),
- (2). Impact Investment (*Social impact bond* - E.g. Educate Girls Bond) / (*Environmental impact bonds* - E.g. Green bonds in different forms promoted by RBI and the Govt. to encourage investments in renewable energy, energy efficiency, sustainable agriculture and other projects that promote environmental sustainability).
- (3). Blended Finance (E.g. MUDRA has mixed Govt. schemes with private banks to serve affordable loan to low income people) / Venture Philanthropy(E.g. Funding for Kinara Capital, a financial service company providing loans to small businesses).

The financing spectrum of capital mainly contained in the above three investment segments operates with increasing

levels of social and environmental impact and decreasing focus on financial returns. Each of these segments has a distinct set of funders with different risk-return-impact preferences and decision-making criteria for allocating capital. The green finance ecosystem that includes products like green bonds, loans, insurance, and funds, all intended to facilitate the shift toward a low-carbon, resource-efficient economy cuts across these three segments of financing.

In the above regard, it would be interesting to analyze the nature of capital raised by 162 recognized Start-ups listed in the Uttarakhand startup portal. This would give us insights if any of these Start-ups are working on a Social Enterprise mode for promoting the Green Economy in Uttarakhand. It would be equally important to know how debates/ discussions and the dissertations /researches are being organized across the Universities in and out of Uttarakhand for social/ environmental innovations for promotion of green economy and for climate resilience of Uttarakhand, and how such researches are being channelized as a proof of concept for social enterprise startups to take off and scale-up.

2.8 Role of public servants:

To build traction for specific outcome for any societal projects, there is a need for a close cross sectoral collaboration by the state with the market, knowledge institutions and Civil Society Organisations. Here the Govt. has to play a major role as a regulator, as a facilitator and as a market participant. It would be important to analyze how

green and biodiversity concerns are getting integrated in public funding by the state through various relevant programs and schemes of related sectors that has either positive or have very less and/or mitigable unintended negative impact on the green economic development.

The clarion call to Uttarakhand's public servant is for precisely spotting and skillfully handling the needful strategic alliances, collaborations, convergence and advocacy with the concerned stakeholders from market, knowledge institutions, Civil Society Organisations (CSOs) and others to mobilize resources and expertise to address diverse system building issues on the ground and at policy level with much needed impetus on expertise to create impact on green economy with depth and scale.

Given the scope of green economy in the state, in the present-day context, the traditional regulatory role of Forest Department as the manager of a territorial entity based on technical knowledge of forestry, wildlife and environment, although important, has limited opportunities to take care of ever depleting natural resources and serve the livelihood interest of the people. Same holds true with the other stakeholder departments dealing with land, water, energy and waste disposal where people centric approach to promoting green economy can only build traction for social and environmental impact investments for societal level projects.

3. I would like to conclude with these points:

I. Policy framework advocated by the Government in

Vision Uttarakhand 2030 document make it a good case for making Uttarakhand investment friendly for impact investors. Time is here now act on this.

- ii. Role of civil society organizations and community organizations are crucial in mobilizing social capital to create green economy at a scale by mitigating the business risk. This will help organize a better collective bargaining power for green financing.
- iii. It is the health of the commons maintained by public disciplining through rewards and deterrence and a strong sense making of this, in the public policy and Govt. practices is going to uphold the brand value of Uttarakhand to attract green funds.
- iv. If the commons are protected, a number of bio-resource based enterprise can thrive and prosper in Uttarakhand. This has the huge potential to create decentralized jobs which Uttarakhand is needing today. This has huge potential to rehabilitate COVID returnees.
- v. The role of the Government would be crucial to enable interdisciplinary, interdepartmental and collaborative economic decision-making involving State, Market and Civil Society stakeholders to develop traction for investment from banks and financial institutions. There is vast scope for improvement for such convergence within and outside the government for infrastructure, skilling and entrepreneurship to revive the local green economy.
- vi. There are a number of externally aided projects in Uttarakhand dedicated to livelihoods promotion. Some

of the livelihoods promotion fund can be augmented to invite impact investment (as Social Venture Fund) in needful areas to leverage much needed capital, expertise and talent from the market (from impact investors and social entrepreneurs) to take the present community initiative to a greater height in terms of reach, depth and inclusion in promoting the green economy.

vii. There is a need to map the supportive programs and policy instruments of State and Central Government including the externally aided projects that can give a conducive environment to hedge some of the critical risk for inviting impact funding.

viii. Departments exercising regulations on land, forests, water, environment, energy and urban development need to review their organizational functions and organizational culture to work closely with public proximate to the resources to attract green investment for Uttarakhand.

Reference: Uttarakhand Vision 2030 published by Institute of Human Development, New Delhi for Planning Department, Government of Uttarakhand, published on 07.12.2021

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JYOTSNA SITLING
(IFS Retd.)

Brief introduction:

Jyotsna Sitling , currently Member of Advisory Committee to SEBI on Social Stock Exchange is former Indian Forest Service officer, Uttarakhand Cadre with an illustrious career of 35+ years, has served at the helm of both state and central governments. She hails from Kalimpong, West Bengal bordering with Bhutan. She has also served in Jammu and Kashmir in the initial 3 years of her IFS career.

Known for her social innovation in public service, she has assiduously worked to find sustainable solutions to diverse equity and environment related problems through participatory institutions, policies, instruments and programs in areas of livelihoods, entrepreneurship, agribusiness, skills, biodiversity, watershed, climate change, pollution, poverty and gender.

During these works, she has been associated in multilateral/ bilateral projects with WFP, European Union (EU), GIZ, IFAD, IDRC, ICIMOD, UNESCO and World Bank. She has been actively involved in promoting Social Entrepreneurship policies in the Government since 2014 when she joined as Joint Secretary in the Ministry of

Skill Development and Entrepreneurship. She has also remained the member of MUDRA Board from 2015 to 2019.

Ms. Sitling is the recipient of prestigious Indira Gandhi Paryavaran Puraskar (Indira Gandhi Environment Award) 2004-05 and Prime Minister's Award for Excellence in Public Administration 2006-07 for her outstanding contribution to the environment and to the public service. She is also the first female tribal Indian Forest Service officer.

Ms. Sitling continues to work passionately at the intersection of market, equity and environment for creating social and environment impact on the ground in her current role.

