

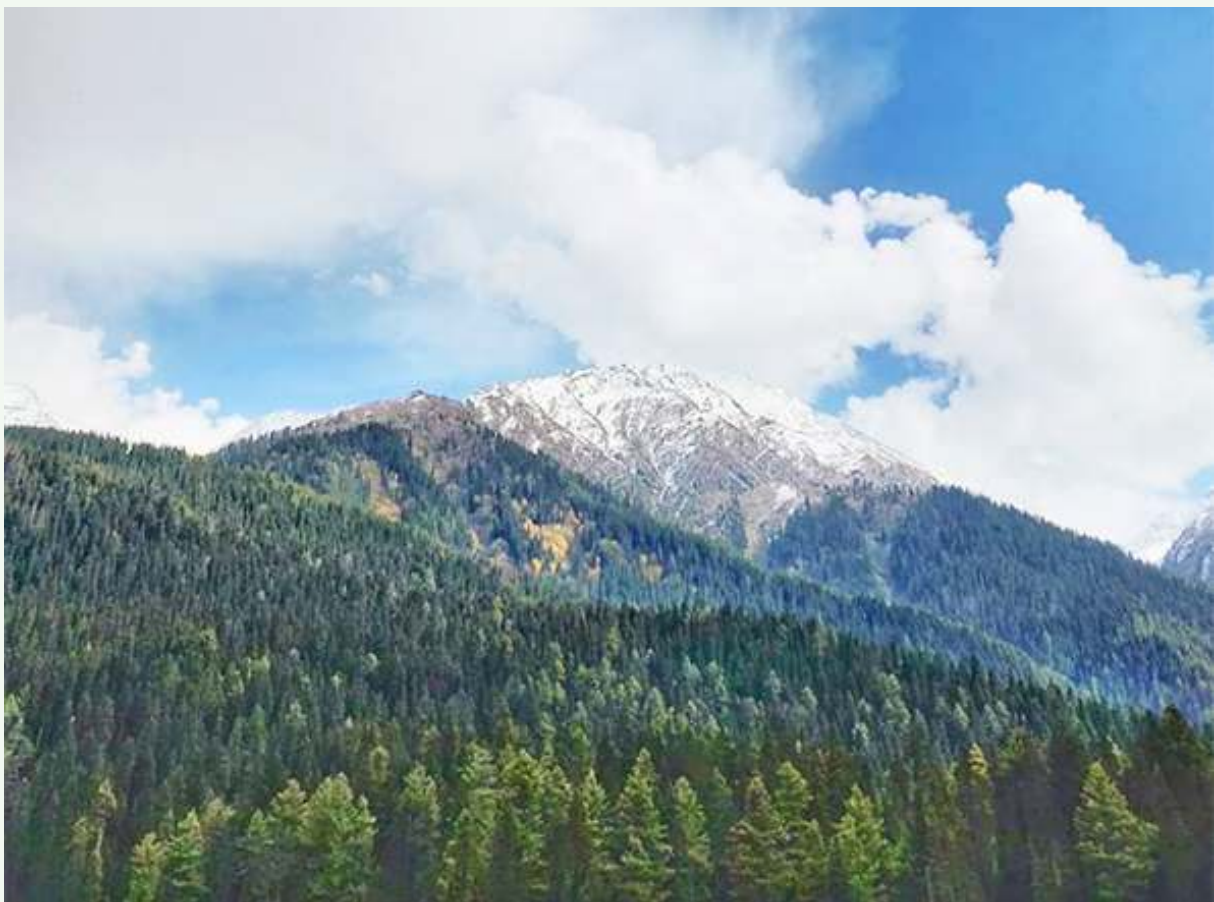
**2020**  
**ANNUAL**  
CONFERENCE



INDIAN  
NATIONAL  
ASSOCIATION

# **JAMMU & KASHMIR and LADAKH**

New Opportunities for a Green, Inclusive  
and Highly Prosperous Future



A Report by The Club of Rome  
Indian National Association

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# EMERGENCE OF NEW UNION TERRITORIES

By a stroke of unprecedented political commitment, the Jammu and Kashmir Reorganisation Act, 2019 passed by the Parliament of India, 9th Aug 2019 has opened unique new opportunities for revitalising the economy of the former State of Jammu & Kashmir. The State has been restructured as the two new union territories of Jammu & Kashmir and Ladakh, seamlessly integrated within the Union of India. This long-stagnating region is now in a position to become an integral part of the country's effort to build a modern, prosperous, green and inclusive economy, and simultaneously get full advantage of the nation's natural, human and financial resources to expedite this effort. Doing so should enable this region more proactively and meaningfully to capitalise on its own unique resource base, while drawing on the extraordinary ingenuity, genius and energy of its people in fulfilling their own aspirations and also contributing to the national economy as a whole.



**Figure 1: Political Map of India**

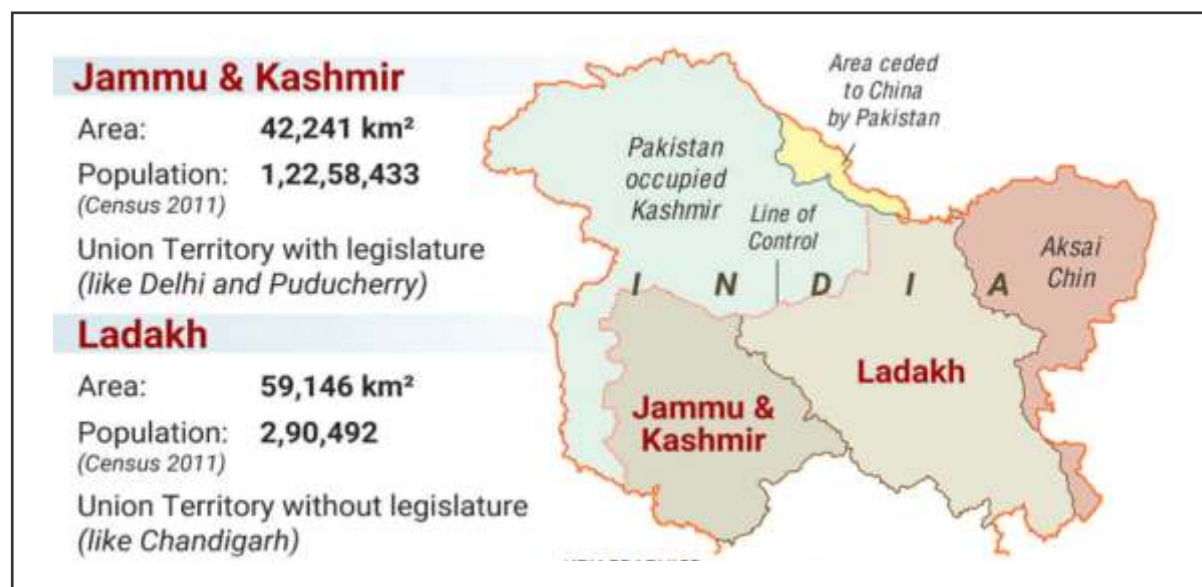
The region is proverbial for the wealth of its natural and human resources and is known worldwide for the range and quality of these assets. Its minerals, waters, soils, biodiversity, topography, scenic beauty and geographical location have given it an iconic status and legendary position among the rare and special places on Earth. And its people have demonstrated the highest achievements in government, business, the arts and sciences, not just in their homeland but all over the world.

Yet, for many decades, these states and territories have suffered from a seriously malfunctioning economy, a gross lack of jobs and massive destruction of their environmental resources, greatly intensified by externally generated security threats and economic disruptions. With some redirection in the goals and strategies for development, these regions can quite quickly kick-start a rapidly growing economy that is both socially just and environmentally regenerative. This would greatly benefit not only the local population but the entire country.

Towards carving out an innovative developmental road map for inclusive, green and sustainable prosperity of the Union Territories (UTs) of Jammu & Kashmir and Ladakh, the Indian Association of the Club of Rome held a two day conference in Delhi in January 2020, to bring together top leaders from national and state governments, businesses, non-profits, academics and culture and the arts. The purpose was to identify the most pressing development-related issues and challenges facing the region

and, where possible propose, specific solutions for these. The initial goal of the meeting, which was intended to evolve as the discussion rolled out, was to address such issues as how to:

- (a) jump-start rapid and sustainable economic growth in the union territories,
- (b) enhance the quality of life and livelihoods of communities of the region,
- (c) consolidate climate resilience by accelerating the transition to a green economy.



**Figure 2: Geographical Profile of the Region**

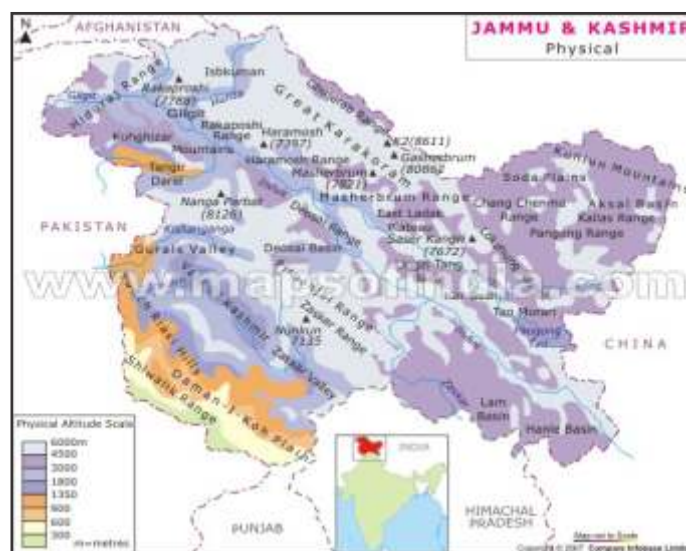
(Source - <https://www.deccanherald.com/>)

Following a brief background on the Geography of the region, this note presents a summary of the suggestions and recommendations made by participants at the meeting on the most urgent priorities that must now be addressed to achieve the above goals and an outline of a road map for accelerating and consolidating future development of the UTs.



## GEOGRAPHICAL SCAN

The Union Territories of Jammu & Kashmir, and Ladakh are located in a region that has a highly complex political geography and demographic history. The geography, resources and the river systems have influenced the lifestyle, culture, livelihood, and development of the region over the millennia. A good understanding of the local geography of the region is therefore essential for designing optimal interventions for the future. It is nestled in the great north-western, complex of the Himalayan ranges with extreme relief variation, snow-capped summits, antecedent drainage, complex geological structure and rich temperate flora and fauna. As part of the Himalayan mountain system, this region is located in a geologically young and highly variable terrain and comprises six physical divisions, namely the outer plains, the Shivaliks, the middle Himalayas, the Kashmir valley, the Greater Himalayas and the plateau of Ladakh. It has a large presence of volcanic mountains that make it seismically active. It is also strategically important, as it borders the neighboring countries of Pakistan, Tibet and China and is at the confluence of many nationalities and cultures. Towards the south and west are the neighboring States of Punjab and Himachal Pradesh.



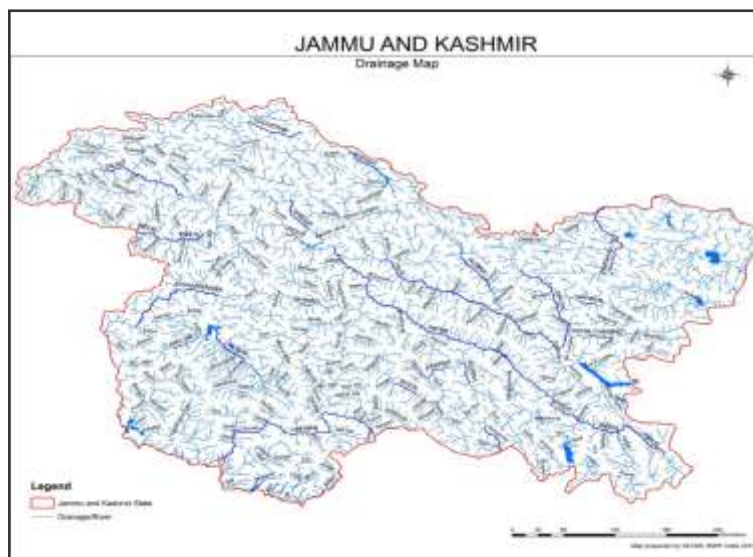
**Figure 3: Mountain Ranges**  
(Source - <https://www.mapsofindia.com>)

It has three mutually exclusive sub regions serviced by major river systems that emanate from the glaciers and mountain springs. These river systems, with their unique climatic conditions at different altitudes, influence the local produce and correspondingly the livelihoods of the local inhabitants. The rugged terrain, coupled with governmental lethargy, has resulted in inadequate to poor road connectivity and support infrastructure.

The Kashmir or the Jhelum Valley is situated between the Pir Panjal and the Zaskar range. Average height of the valley is 1850 metres and abounds with springs and lakes. The surrounding mountains, vary from three to four thousand metres and a large number are snow capped most of the year. The Jhelum basin has 24 tributaries that drain into the main river from the slopes of the Pir Panjal and Himalayan range. Towards its north is the union territory of Ladakh, that extends from the Siachen glacier in the Karakoram to the Great Himalayas in the south. It is enclosed by the Karakoram and Kyunlun Ranges on its north and north-east, separating it from the Russian Turkistan and Tibet, with parts of the Hindukush on its north west. The Baltistan area on the western edge of Ladakh is under Pakistan occupation since independence and the Aksai Chin plains on the eastern edge under Chinese control, since 1962. It is the highest plateau in India with multiple valleys formed by the upper Indus river system and has a large portion that is over 3,000 m. It is one of the most sparsely populated

regions, with population centred in the river valleys of the Indus, Shyok and Nubra of Leh district and the Suru, Dras and Zaskar in Kargil district. The mountain slopes support the pastoral Changpa nomads famous for rearing the animals for the finest Pashmina and Yak wool varieties in the world.

Jammu region is adjacent to and southwest of the Kashmir valley and is a revenue and administrative division of the union territory of J & K. Most of the land is hilly or mountainous, including the Pir Panjal Range, which separates it from the Kashmir Valley and part of the Great Himalayas in the eastern districts of Doda and Kishtwar. Its principal river is the Chenab with a large number of smaller rivulets and the Tawi. It is home to some of India's most popular Hindu shrines. It extends southwards up to the river Ravi.



**Figure 4: Drainage Map of Jammu Kashmir and Ladakh**

While Kashmir has a moderate climate, Jammu is a sub-tropical region, with its southern plains experiencing a climate similar to Punjab, and Ladakh is a cold desert with extreme temperatures. Kashmir has probably the best climate of the state, with four clearly demarcated seasons, with each of them being moderate and pleasant. The valley receives rains during the spring season. Jammu has abundant sunshine, hot and rainy summers and cool winters. Whereas, its mountain regions have weather similar to Kashmir. Ladakh mountains are bare and barren, climatically dry, with a long and severe winter. It experiences extremes of temperature, from as low as minus 40 degrees during winters to hot summers. From an energy resource viewpoint, it is fortunate to experience approximately 300 cloud-free days of sunshine a year.

Given its climate, resources, culture and skills, the economy of the region is predominantly dependent on farming, horticulture, tourism, adventure training, handicrafts and allied activities. The Kashmir valley is known for its sericulture, cold-water fisheries, saffron, handicrafts, embroidery, rugs, shawls and high-quality Kashmir willow cricket bats. Horticultural produce includes apples, peaches, cherries, pears, plums, almonds and walnuts. The cropping diversity of grains includes corn, wheat, barley, millet, rice, sorghum and vegetables. The lakes and water bodies provide a rich produce of lotus stems and water chestnuts. Vast swathes of land in the Nubra valley and the Indus valley near Leh, have the potential to yield significant crops of the highly valuable Sea buckthorn berry, etc. Adventure and religious tourism has been limited due to available infrastructure and security concerns. Whereas, the heavy industries, are limited to only hydro power generation.

This region, nestled in the fragile Himalayan ecosystem, is highly vulnerable to climate change, biodiversity loss, deforestation and depletion of water resources. This poses serious threats to the traditional livelihoods, flora and fauna, and habitats, requiring proactive analysis to prevent large deficits and losses.

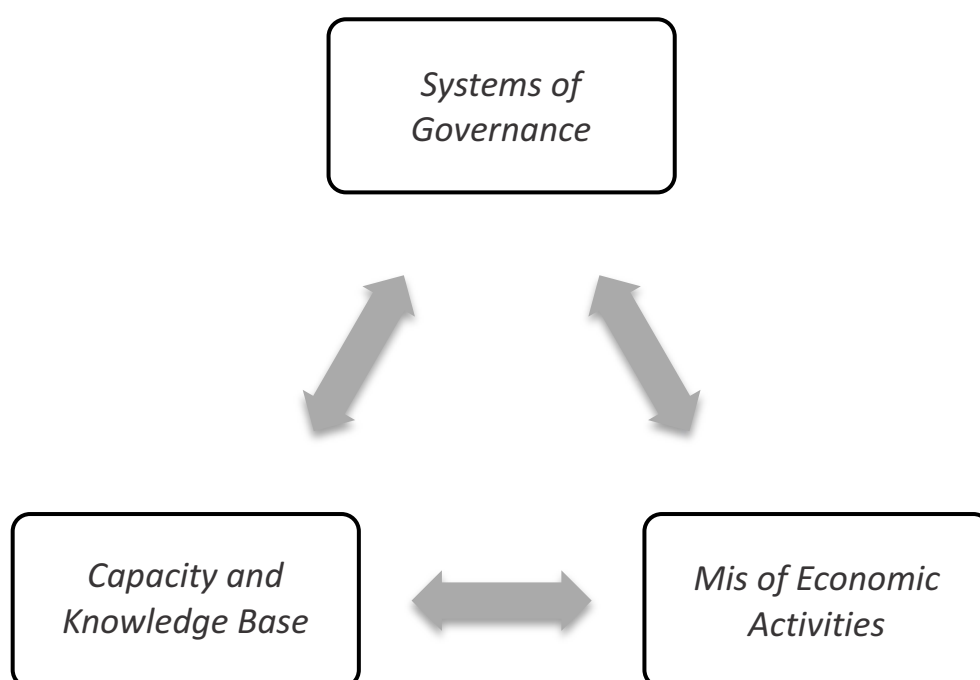
## PRIORITIES ADDRESSED

With the context described above, the Club of Rome–India’s two-day Annual Conference brought together more than one hundred experts from government, academia, media, business and civil society to help define an aspirational vision and practical strategies to create and build momentum for achieving a sustainable future for the Region. Concerns and knowledge relevant to the two Union Territories were well represented at the meeting and enabled the group to forge meaningful proposals for policy and action.

Towards increasing livelihoods and ensuring balanced growth, there were overwhelming calls for development initiatives that accord priority to the setting up of green industries, natural farming methods and sustainable service sector businesses. To enable these sectors to grow and flourish, two types of pre-requisite action were identified by participants for both Union Territories:

- a. improving access by consumers and producers to better shelter, mobility, connectivity, communications, power and water,
- b. improving access by producers to green technology, green finance and effective markets within and outside the region.

Participants agreed that the goals mentioned at the end of the introductory section above, provided a good guide for structuring the discussions in the CoR-India Annual Conference, i.e., to propose specific and concrete ways by which the newly formed territories could speed up the transition to a future that was economically prosperous, socially equitable and environmentally sustainable.





The specific and concrete suggestions made during the course of the two-day meeting can be grouped into three broad sets of priorities:

- A. *Systems of Governance:*** The first priority is to strengthen the policies, institutions and infrastructure, i.e., the systems of governance, that will enable citizens to have fulfilled lives and their communities to flourish and enable meaningful livelihoods. On the ground, these systems of governance have to make these regions highly attractive for businesses to invest in local production and marketing activities, for civil society to set up services to help communities to become self-reliant and for educational and training entities to provide world class knowledge and skills for taking up desirable and dignified jobs.
- B. *Capacity and Knowledge base:*** An equal, top, priority has to be given to developing capacity in the regions to assess and evaluate how their resources can be used for optimal impact on the economy and society – and to provide the foresight and insights needed to avoid the (sometimes huge and negative) unintended consequences for people and nature that have afflicted many development efforts in the past.
- C. *Mix of Economic Activities:*** The third priority, as important as the first two, is to evolve a mix of economic activities that use the ample resource endowment of the regions to speed up the growth of the area's economy and ensure the equitable distribution of its benefits. This will need substantial departure from current economic thinking in several dimensions: the kinds and scale of the economic activities that are adopted: the right mix of Big and Small (for towns, industries and infrastructure); the right blend of Sectors (agriculture and land-based occupations, industry and services); and the right combination of factors of production (labour, land, capital and knowledge).

These three high priority areas of action by governments at the Central and State level appeared to the participants in the meeting to be the quickest and most effective steps that would yield immediate and, in the longer term, most sustainable momentum for economic growth in the region.

## KEY POLICY INITIATIVES

### A: Systems of Governance

The region has paid enormous costs because of profound threats to the security of its people and for other externally-caused disruptions to its functioning. Even so, it cannot be denied that there has been a huge shortfall between what its vast human, natural and financial assets could and should have delivered over the past seven decades and the actual improvements achieved in the wellbeing and prosperity of its people. Moreover, it would be difficult to argue that the same institutional systems that produced this shortfall can now be suddenly made capable of overcoming it. So, *the first steps that the new regimes in the union territories must take are to set up and nurture institutions that can deliver tangible, real economic and social progress, in palpably urgent, real-time.*

First, these institutions, most of which are either non-existent today or very weak, have to be designed to *revive full transparency and people's confidence* in the workings of public agencies. To do this, they must pro-actively facilitate full participation by citizens in decision making and maintaining close oversight of these agencies. It is now empirically demonstrated and widely accepted that extreme poverty, environmental destruction and public corruption – whether in official or private dealings – act as massive brakes on social and economic development. These steps are fundamental for restoring the health of both democracy and the market in this region, as they have been in all others.

To enable the governments of the union territories to bring about such transparency and accountability, *they need to strengthen and spotlight institutions for public grievance redressal, such as vigilance offices, right-to-information bureaus and, even, ombudsmen able to deal with violations of acceptable conduct, practices or behaviour.* Given the enormous gaps in knowledge and power between officialdom and the lay public, it is all the more important that mechanisms for understanding citizen's rights, interpretation of laws, and provision of advice be administered objectively, rather than being left to self-seeking dalals and brokers.

Rigorous implementation of the 73rd and 74th Amendments to the Constitution will go a long way to building the decision-making processes at the local, village or Mohalla level, enabling both rural and urban communities to strengthen the relationships and linkages that are critical to building effective governance and markets. In the age of climate change, biodiversity loss, disease pandemics, not to mention natural phenomena such as earthquakes, floods and forest fires, it is the local community on the front-line who have to be first responders and carers. Their ability to perform well needs not only training but also basic equipment and infrastructure.

*Basic frameworks for decision making are needed that can enable local communities to react sensibly to economic opportunities or sudden emergencies.* These would include well designed zoning and land use regulations and mechanisms for ensuring compliance as well as enabling appropriate adjustments to them. Information about appropriate building materials, knowledge about seismic-proof construction, drinking water and sanitation systems, waste management, etc, needs to be made available widely, including through the educational programmes.

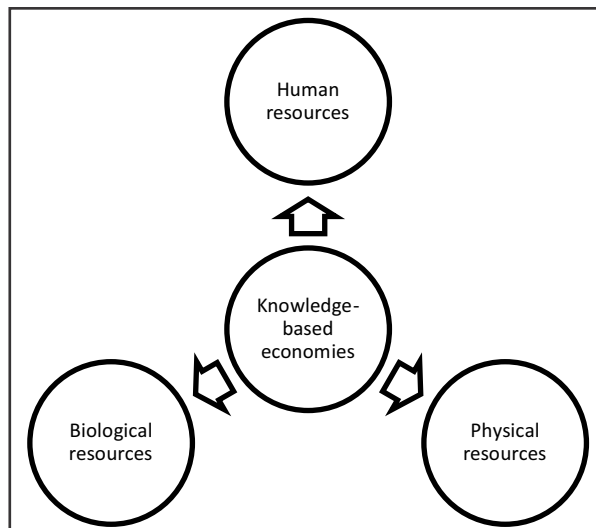
Clean and pro-active government needs to be supported by multiple mechanisms representing various types of stakeholders within the region, which can extend, implement and multiply the activities into the larger network of communities that comprise the region, in this case the union territories. *Within the broad framework of “civil society”, it is the NGOs, voluntary agencies, women’s empowerment groups, charitable organisations working on community development, education, health and nutrition, disabilities, aging and other social issues and public services that government agencies promote but cannot by themselves deliver.* In comparison with other parts of the country, such initiatives are extremely weak in the newly formed union territories and need to be encouraged and nurtured by government with extra resources and care.

NGOs and other civil society organisations are often seen as threats and of major nuisance value by official agencies. In the case of a few, (usually very few) “activist” ones, this may be a problem if they represent parochial or particular vested interests. However, in a democracy like India’s, there are generally different viewpoints, many of them fully legitimate that need to be exposed and it is the job of a democratically-elected government to ensure that they are properly heard and addressed. Economic activities often come into conflict with social and/or environmental imperatives and only a proper dialogue and resolution mechanism can properly help find a balanced, legitimate solution. In this region, as in the rest of India, governments must maintain the highest discipline in getting the basic laws and rules set by the legislature, the compliance and implementation of these done by the executive and any conflict resolution needed done by the judiciary. All this can happen truly in the best interest of society if there is a strong, vibrant and vigilant civil society acting as educator, facilitator and advocate.

As explained in the next section, for the new union territories, an educated and innovative workforce will be the keystone of the flourishing economies they deserve and can have. For this, the schools, colleges and universities are critically important. The existing educational institutions, with a few notable exceptions, are in a state of deep decay and will need urgent revival for the sake of the region’s future. As important, the research and development infrastructure of the union territories will have to be strengthened enormously. The returns on investment in education and research are among the highest in an economy like that of India and perhaps second only to investments in the direct eradication of poverty.

## B: Capacity and Knowledge Assets

Given the nature of this region's human, physical and biological resources, and of the possible economic occupations these resources make possible, strong understanding of the inter-relationships among people, resources and the environment become essential. Jammu & Kashmir and Ladakh are ideal examples of *knowledge-based economies*, a fact that places both opportunities and constraints on what the region can do to reach its full potential for achieving human wellbeing and economic wealth on a sustained basis.



Other economies that are similar in size, geology and geomorphology, ecosystems, climate and other factors (though perhaps less so in demographics) include Switzerland, Slovenia, Upper Austria, the Basque Region of Spain, the Piedmont/Lombardy region of Northern Italy and, more recently, the Helsinki/Espoo region of Finland. These countries and regions have developed very effective models of industrialisation, that appear to be highly relevant for the two new union territories.

### Similar Economies in Europe

- Switzerland
- Slovenia
- Upper Austria
- Basque region of Spain
- Piedmont/Lombardy of Northern Italy
- Helsinki/ Espoo Region of Finland

What characterizes all these hugely successful economies is high investment in innovation and continuous technology modernisation, precision machines and tools, focus on design quality, use of local resources and cultivation of skills for fine and detailed work. All of them have a wide range of products, ranging from fruits and vegetables to sophisticated machinery. And all of them depend significantly on the service sectors such as tourism, sports, exports, etc to further raise and stabilize incomes.

The J&K and Ladakh region has been able to maintain a few educational institutions of quality, but these need greatly to be strengthened, at all levels from primary school to post-graduate universities. Adult literacy and vocational skill development, particularly among women, is of the highest importance and should be given top priority in the early stages of rebuilding the economy of the region. The quality of the region's middle and high schools has suffered drastically in recent decades and deserves massive support for modernisation and effectiveness.

One of the biggest missing links, particularly in the Kashmir Valley and Ladakh is the lack of research institutions addressing the economic problems and potential of the state. CSIR, ICMR, ICAR and other research Councils do have a few outposts but their true contributions to the region's economic challenges remain minimal. In Section C below, which addresses the opportunities available to jump start the region's economies, each type of activity deserves a world-class research and extension system to take full advantage of the local resources and global markets.

Better knowledge management is key to the solving the highest priority challenges of the region: youth employment, women's empowerment, disability rehabilitation and disaster management. For each of these pervasive problems, sophisticated solutions are needed, each of which require indepth knowledge of interdisciplinary subjects. Both for researchers and practitioners, much more is needed to modernise the teaching required in these fields.

Disasters in these regions, vary from natural ones (such as earthquakes) through mixed ones (such as floods and drought) to manmade ones (such as conflicts or epidemics). Since one or another type of disaster so dominates life in the region, it is imperative to develop knowledge and the tools to minimize the damage they do and, indeed in most cases other than the earthquakes, to prevent them from happening in the first place. Much of the science for prevention and adequate response is already well-known, so the institutions needed are to expand awareness and build the skills widely.

The emerging areas of knowledge that responsible citizens of the region must acquire in depth include the hydrology of rivers and wetlands and their relevance to floods and drainage; the biodiversity and geology of mountain ecosystems, the importance of wildlife and the relevance of climate change in their lives and to their communities.

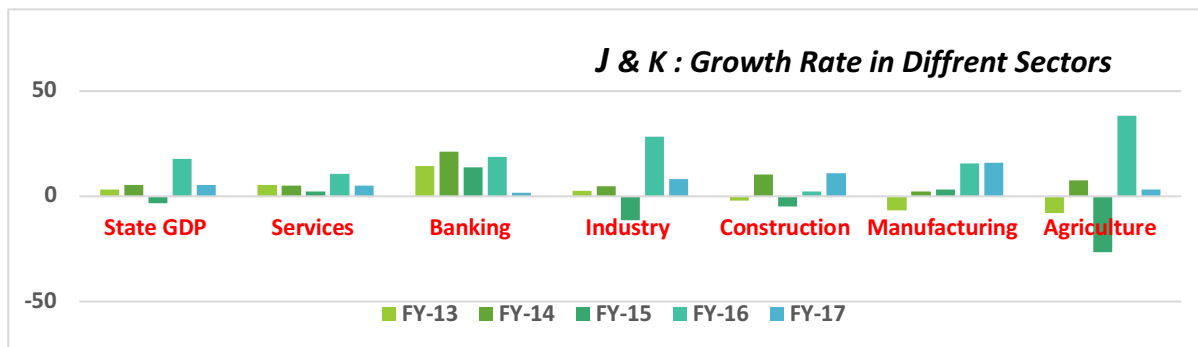
## **C: Mix of Economic Activities**

### **AGRICULTURE AND LAND-BASED OCCUPATIONS**

The agribusiness sector offers vast opportunities for generating huge incomes for farmers, traders and marketing companies – and large revenues for the union territories. This sector, which offers excellent possibilities for adding high value locally, deserves the highest priority for infrastructure and business investment. There are several examples, which could be greatly multiplied, of big returns on investment in high value crops and agricultural products (e.g., honey and flowers, mushrooms and medicinal plants), as well as in creating clusters for secondary support systems that build the value chain, e.g., cold storage, packaging, processing, transportation, etc.

There is a need for considerable investment in science and research, e.g., to rejuvenate the crop diversity of the region and to develop new uses of local materials. The Kashmir valley once





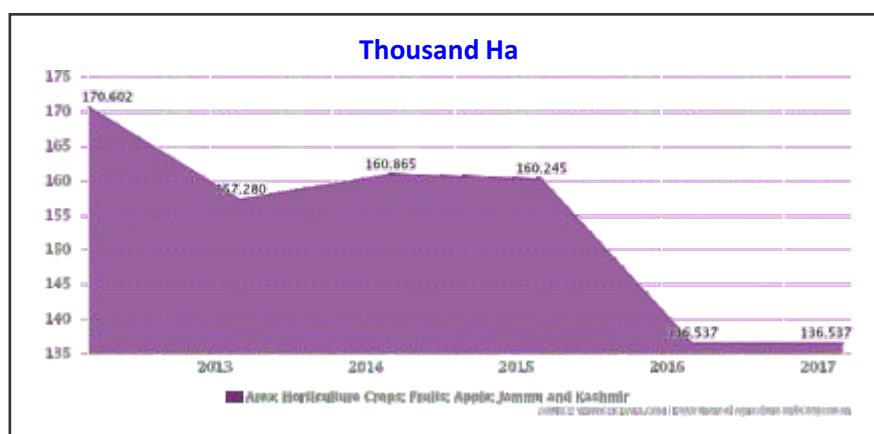
**Figure 5: Sectoral Growth Rate**

(Source - RBI GoI)

had nearly 30 different varieties of rice, but most of these have disappeared because of increasing reliance on monoculture. Moreover, the products of region are not protected by intellectual property rights, so local businesses do not get the potential additional earnings from branding and positioning in high margin markets. Therefore, 'geo-Indexing' and 'geo-tagging' of grains, cashmere, pashmina and other products, along with e- marketing, will add significant value to the products of the UTs.

Some of the key economic sub-sectors for creating livelihoods and social equity are:

- **Horticulture.** The greatest advantage of the UT of J&K is that it straddles the temperate, sub temperate and sub-tropical climatic zones, empowering it with a very wide variety pf horticulture produce. It is estimated that the horticulture industry of Kashmir, which presently has a turnover of Rs. 12,000 - 15,000 Cr per annum, could quickly and easily be doubled, with only some minor investments. Take the case of the apple industry, a major source of income, since Kashmir produces approximately 70% of the apples in the country. Yet, the productivity of its apple orchards is only 11 tonnes per hectare in comparison with the global average of 60! Worse, there is a significant fall in the area under apple orchards from 170,600 Ha in 2012 to 136,540 Ha in 2017.



**Figure 6: Area Under Apple in Jammu & Kashmir**

Today's revenues of Rs. 8,000 crore could easily be doubled within five years simply by improving product quality, rejuvenating orchards, adopting high-density technology-intensive planting, and introducing better varieties including the older exotics such as the 'quince' apple. To build resilience in the supply chain, a network of small, low cost cold storage containers, that can preserve apples for upto 3 months, stronger market linkages and suitable transportation facilities are urgently needed. The GoI provisions, which offer 50% - 75% subsidies for large cold storage warehouse investments and loans by public sector banks, need to be extended for setting up multiple small storage facilities in Kashmir. These steps will increase productivity and shelf life of the apples, bringing in stability, better pricing and enhanced exports. Success stories from other nations, indicate that improvements in horticulture crop production and marketing, will reduce post-harvest losses, enhance product quality and the revenue potential of the horticulture industry. There is therefore a need to critically review earlier studies related to productivity of apples in Kashmir Valley and apply the empirical lessons on ground. This will also have a positive impact on the other horticulture produce of the UT, be it other fruits (particularly pears, plums, etc), nuts (almonds, walnuts, etc), saffron, medicinal plants and spices. They can be promoted as per agro climatic conditions and zones of the UT.

AGRO CLIMATIC ZONES (FRUIT CROPS BASIS)		
ZONES	AREAS	PRODUCE
Temperate Zone	Kashmir Valley; Parts Of Districts (Dist) Of Poonch , Rajouri, Doda, Kathua & Udhampur Of Jammu Division	Apple, Pears, Cherry & Walnut, Almond, Chestnut, Strawberry, Stone Fruits & Grapes Etc.
Sub Temperate (Mid Zone)	Parts Of Districts Of Kathua, Poonch (Surankote), Rajouri (Rajouri & Kalakote) Doda, Reasi & Udhampur; Ramban & Kistwar District and minor locations in Uri Tehsil (Baramullah Dist) & Karnah Tehsil (Kupwara District)	Stone Fruits (Like Peach, Plum & Apricot), Almond, Pears , Pecan nut, Olive & Kiwi..
Sub Tropical Zone	Jammu Dist; Parts Of Dist of Kathua, Rajouri & Udhampur; Lower parts of Reasi and Doda dist (Ramban)	Mango Citrus, Guava, Litchi, Bear, Amla & Grapes.
Arid Temperate Zone	Districts of Leh and Kargil	Grapes (resin type), Prunes & dry variety of Apricots, Seabuck Thorn & cultivation of Apple, Walnut, currants in certain parts.

**Figure 7: Agro Climatic Zone**  
(Source - Department of Economics - University of Jammu)

- *Floriculture.* The climatic conditions in both Kashmir and Ladakh provide a huge ready-made business opportunity in Floriculture, with improved livelihoods for the residents. India already is one of the leading, if not the largest cultivator in this sector, yet exports are only 0.5% in a USD 55 billion global market. In J&K there is untapped potential for creating flori-clusters near transportation nodes to facilitate market linkages. To optimise land utilisation, floriculture, especially orchids, can also flourish in thinly forested land. However, this would require suitable amendments in the Forest Act. The following key actions are recommended in the hill areas of J&K and the arid plains of Ladakh:
  - Identify the species of high quality flowers that grow at different agro-climatic regions within the Uts.
  - Identify land areas with robust access to water and electricity. Thereafter, seek government assistance for making clusters. An economically viable cluster should be established in an area of 300 - 400 hectares.
  - Developing a 'flower bulbs' industry, which is currently worth USD 1 billion worldwide and controlled almost entirely by the Netherlands (which also provides the bulbs for the tulip gardens of Kashmir). There exists a huge demand for bulbs, both for the domestic and international market.
  - Protection of the flower gardens of Kashmir valley.
- *Apiculture.* J&K and portions of Ladakh have a unique bouquet of plants and flowers that can produce high quality honey. This provides an excellent opportunity for expanding honey production into a very high value industry. The region's famous acacia trees that were a major resource for this activity, are fast disappearing because of urbanisation pressures. Therefore, it requires governmental intervention for increasing the density of acacia and similar plant species, that are needed for this industry to flourish. The Apiculture department has only 2,500 registered bee keepers, with 63,000 bee-colonies with an aggregate yield of 350 tonnes last year. According to experts, this is less than half the existing potential. The production of high quality honey can be increased significantly if floriculture gains impetus and there is sustained and planned afforestation. Moreover, by cultivating specific plant types, it is estimated that a minimum of 20% increase can be gained in production, with much higher value addition because of improved variety and quality. A change in the bee hive design to 'langstroth hives' will facilitate 4-5 harvests per year with an average yearly yield of roughly 50-60kg per hive. Presently the small scale farmers rarely move their hives and harvest only 1-2 times per year (10-20kg per hive).
- *Medicinal & Aromatic Plants.* The region has a rich diversity of medicinal and aromatic plants that are presently being under exploited. Companies like Baidyanath and other ayurvedic enterprises, are already using these resources for their products, both for medicines and cosmetics.

- *Essential Oils and Food Processing.* Essential oils from flowers have a huge domestic and global market. Also, organic produce across sectors will also have a niche market that is willing to pay more.

## HANDICRAFTS

There is a wide variety of handicrafts, like ‘papier-mache’, walnut furniture, embroidered linen/ dresses/ suits/ tableware etc, unique woollen items from pashmina, toosh, yak and sheep wool and carpet weaving. All of these are areas, where exponential growth is possible with specific policy initiatives. The pashmina industry is an emblematic example of the successes that can result from the community culture of the hills. It provides high value livelihoods to a large percentage of the population in both the UTs. Its sourcing is from Ladakh, but value addition to a great extent is in the Kashmir valley. To promote and protect this sector, there is a need for the following interventions:



**Figure 8: Northern Plains of Changthang**

- Strengthening of the value chains (flock management, grazing and pasture management, grassland development, improved strains, quality maintenance). Development of pastoral land requires careful policies and for increasing the production capacity of pashmina, and may need differential policies such as zero grazing and pashmina production at lower altitudes.



**Figure 9: Changthang Plains**

- Design innovation - blending traditional designs with contemporary consumer tastes
- Diversifying products of other types of wools - e.g. focus on products from yak and sheep wool, by ensuring better quality, consistency and visibility. Total reliance on pashmina pushes up demand and increased livestock for the wool will negatively impact the sustainability of grass lands.

- Strengthen forward linkages in the industry with sellers, exhibitors, expos to broaden awareness and exposure of Indian pashmina products.
- Pashmina saree industry can be promoted for the 'executive market segment', but requires scaling up in a sustainable manner.

There is a need to develop ancillary skills to increase the value of products manufactured in the region, like packaging, processing, dyeing and other skill-sets. E marketing and use of the digital medium for increased visibility will facilitate market penetration. There is a need to protect the skills of this very industrious sector, for future generation by recording and setting up state sponsored craft centre, something akin to what the Tibetans have done in Dharamshala.

## TOURISM

The sensitive security environment in J&K State since 1989, has negatively impacted the potentially huge tourism industry. The table below highlights the dismal state of tourist footfall in the erstwhile state of J&K.

Year/s	Kashmir (Lakhs)	Jammu (Lakhs)	Ladakh (Lakhs)	Total (Lakhs)
2012	19.3	103.9	1.8	125
2013	15.3	92.9	1.4	109.6
2014	15.4	78	1.8	95.2
2015	12.8	77.8	1.5	92.1
2016	14.3	68.2	1.8	84.3
2017	13.1	57.4	2.6	73.1

**Table 1: Tourist Arrivals (in Lakhs)**

There is now a renewed possibility to rejuvenate this high potential, but under-exploited, sector, for far greater economic impact. Increased numbers of visitors will also give a fillip to the other green economic ventures of the region. The infrastructure required will have to be tailored for the desired type of tourism. Tourism can be classified as under:

- *Traditional Tourism.* The scenic and climatically favourable environment of Kashmir and Ladakh are very popular tourist destinations. However, this needs to be controlled, so that it remains 'ecologically sensitive', in a manner similar to the 'Bhutan model'. This is extremely critical for Ladakh region, as it has a very fragile ecosystem.



- *Experiential Tourism.* This could be based on ‘home stays’ in different parts of the region to experience the life style of the local tribes.
- *Adventure and Sports Tourism.*
- Tourism of reserved parks in Ladakh, to experience the unique ‘flora & fauna’ of arid temperate zone. There is a need for facilities that are non-intrusive and protect the fragile eco system and habitat of the existing wild life.
- *Birding.* The region is a delight for the bird watchers as it is visited by a variety of species of migratory and transitory birds.
- *Religious Tourism.* The holy shrines of Jammu & Kashmir valley and the Buddhist monasteries of Ladakh, are popular pilgrimage and tourism destinations. The footfall of pilgrims to the holy shrines of Vaishno Devi and Amarnath, generates jobs and revenue. The Vaishno Devi Yatra alone contributes Rs. 475 crore to the local economy each year.

The key areas related to tourism are :

- Developing of tourist friendly infrastuture, including hotels, for different economic groups. To protect the fragile eco system in Ladakh there is a need to control the footfall of tourists. This can be achieved by restricting entry while issuing permits / ILP and only developing limited hotels.
- Tourist infrastructure to be aesthetically designed, while respecting tradition, culture and architectural legacy of the Uts.
- Heritage palaces and buildings need to be restored as historical museums or luxury resorts. The Mubarak Mandi Palace complex in Jammu, old monasteries, temples and selected old buildings, need to be developed as tourist attraction.
- Develop alternate destinations for sustainable tourism. Areas of Kisthwar and Badharwah in Jammu region, are equal if not more scenic then the Kashmir valley. But it is presently handicapped due to poor connectivity and negligible infrastructure. The concept of ‘home stays’ need to be given an impetus for experiential tourism. There is a need to connect the Kisthwar and Badarwah in Doda district, through the ‘Sinthian pass’ to Kashmir valley and from Chamba into Himachal Pradesh.
- Develop world class infrastructure for winter sports, trekking and adventure activities at the scenic locales of the UTs. These could be built up on the existing skiing and golfing facilities, eg, Gulmarg, Pahlgam etc.
- Exponential growth in this sector is a function of connectivity. Therefore along with the on-going projects of road and rail linkages, there is a need for increased air connectivity in the region. Schemes like UDAN need to be innovatively exploited to increase the number of all-weather airfields and heliports. The entire present reliance on the airports of Srinagar, Jammu and Ladakh, in the region, is woefully sub optimal.



**Figure 10-13 : Additional Circuits Exist Potentially Both in Jammu and the Valley and Need to Be Developed Le Jammu-Patnitop-Bhaderwah-Bani- Basohli-Jammu**

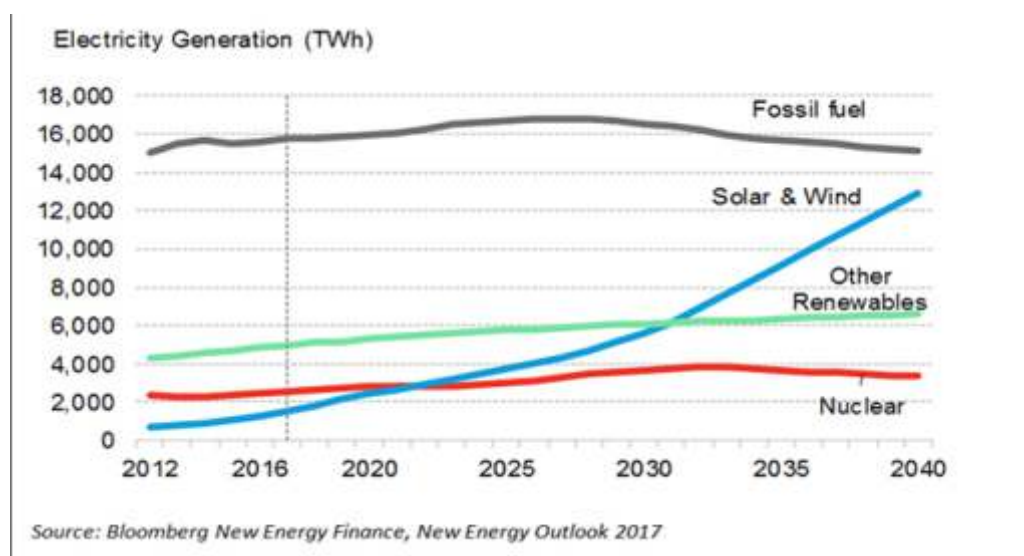
- Need to institute measures to prevent ‘tourism pollution’, that can destroy the pristine environment. Towards achieving this, use of electric passenger vehicles be made mandatory, especially for Ladakh. Develop ropeways and cable cars for accessibility to difficult and attractive tourist spots.

# NATURAL RESOURCES

## Renewable Energy

Globally, few places are more ideally suited for renewable energy generation from solar and wind power than Ladakh. It has swathes of unused land, low population density, deep valleys and over 80% of 'sun' days. It therefore lends itself to establishment of large solar and wind farms. Another critical requirement for renewable power generation, is the requirement of a 'stabiliser', i.e., another source of power to overcome the fluctuations in solar power generation. The availability of 'hydro' power, in situ, addresses this critical requirement. It is assessed that over 20% of national objective of solar energy can be generated in Ladakh, which has a potential of 23 GW of solar energy. Thus far, only projects harnessing 7.5 GW of the potential have been planned.

Wind energy is another area for renewable energy generation. The assessed potential is about 100 GW. However, until the connectivity in Ladakh's remote areas improves, the costs of setting up large wind farms will be prohibitive. For both solar and wind, a basic road network is essential, and the returns on investment will be enormous.



**Figure 14: Projected Global Energy Dependence Profile - 2040**

## Forests and Biodiversity

The region is a biodiversity hotspot and ideal for setting up research centre for Bio-Sciences. These research centres, suitably staffed will be able to undertake seminal work. However, 'institutional inflexibilities' need to be addressed. Mapping of these resources needs to be carried out for developing a systematic plans for their extraction. Mining and road building when necessary needs to be done without damaging the environment. Nothing is more essential than to retain, restore and regenerate the forest cover. Aspects of the 'Clutterbuck'

plan for afforestation need to be kept in mind for the Deodhar forests of the valley and other parts of the UT. Wrong policy initiatives need to be rectified for protecting the environment. Like the case of setting up of sheep farms in Dachigam, Srinagar. The animal is alien to the valley and is damaging the habitat, because of its grazing habit and needs to be closed.

Ecological Security is a fundamental component of national security everywhere, and even more particularly in Peninsula India. Water supplies and biodiversity are integrally dependent on the health of the forests, soils, wetlands and other biomas. In the subcontinent, the non-monsoon flows of rivers are almost entirely determined by the melting of glaciers and therefore by their regeneration and stability. The productivity of crops for food, materials or energy is directly linked to the vitality of ecosystems. Ecological health is also a major contributor to the cultural foundations of a nation, which are essential in nurturing the societal cohesion and the health and wellbeing of citizens that are ultimately the basis of national security.

Ecological security is also essential for maintaining productive lands for a variety of economically important uses: farmlands, forests, grasslands, fisheries, and even deserts, all of which can make very large contributions to the GDP. Any development strategy that aspires to be sustainable must actively generate economic value through a wide range of industries and occupations, while minimizing the footprint, particularly by avoidance of practices imported from elsewhere with very different ecological circumstances.

Given the importance of livestock in the economies of both Jammu & Kashmir and of Ladakh, special care has to be taken to protect the grazing lands from land use change and destruction and also to protect the animals from predators, such as the snow leopard, which, as a rare and apex species, in turn needs to be protected from extinction. The complexity of meeting such conflicting goals calls for sophisticated institutional, technical and financial innovations so that the relevant regions, particularly Ladakh and Kargil can bring about win-win outcomes for the local industries (e.g., wool and pashmina), local communities (e.g., security from attacks by wildlife) and the local ecosystems. Calling on the age-old knowledge and wisdom of the shepherds and other tribals in the regions would greatly enrich the planning process for rapid development of the local economies.

## Water & Waste Management

Climate change, population pressure, unplanned developmental activities in villages and towns and absence of proper sewage disposal, has made water a critical issue in J & K and Ladakh. Encroachments into the river basin, lakes and water tanks is leading to drying and disappearance of water bodies. Whereas, urbanisation, industrialisation and the near absence of sewage treatment plants are leading to contamination of the water sources and negatively affecting the availability of safe drinking water. Also, blatant disregard of the 'hydrology' and natural water management systems of the Kashmir valley, has resulted in two major floods in



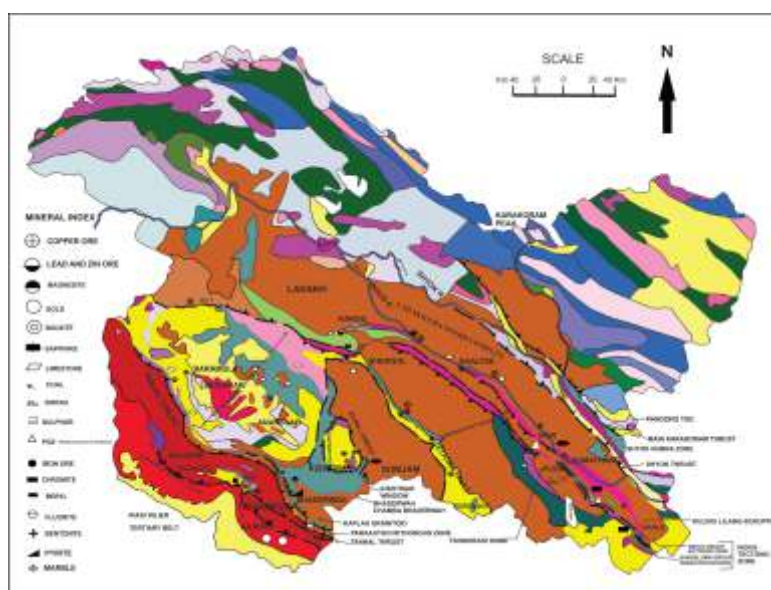
recent years, causing devastation. Therefore, restoring the wetlands and other water management methods is one of the highest priority needs of the valley.

The challenges for Ladakh are more complex as low population density and large distances between population centres, is creating strain on proximate water sources. Ladakh is also prone to increasing droughts, due to disruption of traditional weather patterns. However, the problem of availability of water can be managed through better planning/ management or by adopting Chewang Norphel's innovative solutions of creating 'artificial glaciers'. Further infrastructure development should be in coherence with water availability.

Comprehensive sewage management systems are the need of the hour in urban centres of both Jammu & Kashmir and Ladakh. Septic tanks need to be designed adequately to prevent run-off into existing water systems, waste needs to be processed and there is a need for proper fecal sludge management systems. This is to avoid contamination of traditional water bodies, lakes or the river Jhelum. Technology needs to be exploited for sustainable solutions. Towards this 'sustainable sanitation' and 'decentralised waste water treatment systems' offered by organisations like BORDA (Bremen Overseas Research and Development Association) are necessary. It has already installed bio degradable sanitation plants in Ladakh. Needless to state that waste management should be a priority in cold climate areas and increasing urbanisation.

## Mineral Resources

The region is also mineral rich with a variety of deposits, including high grade 'Paddar Sapphire' in Kisthwar/Doda. It also has deposits of limestone, magnesite, bauxite, graphite and coal in parts of J & K. Ladakh has deposits of borax, natural sulphur, magnesite, fluorite and chromite, including large reserves of good quality gypsum.



**Figure 15: Geological Map of Jammu and Kashmir**



In addition, several other non-metallic, metallic ores and other minerals, are found in the UT but not in mineable concentrations. The region as stated earlier, has a limited quantity of ‘anthracite’ coal, with high calorific value, compared to the bituminous variety available in the rest of the country.

MINERAL	OCCURRENCE	RESERVES (Mn Tonnes)	USES	MINING LEASE GRANTE
Gypsum	Baramullah, Kathua, Ramban & Doda Dsitric	150	Cement, Fertilizer, Filler in Paper, Paints, Rubber, Textile Industry, Plaster of Paris & Sanitary Ware	19
Bauxite	Udhampur & Ramban	8.6	Manufacture of Aluminium its products and aircraft industry	1
Coal	Udhampur, Rajouri (Kalakot)	9.5	As Fuel	1
Lignite	Nichome, Handwara and Kupwara	8	Thermal Power & Low Grade Fuel	Nil
Magnesite	Udhampur	7	Refractory Bricks for furnaces, Pharmaceuticals	1
Slates	Poonch, Kathua, Doda & Baramullah	9.6 mn cubic meters	Building Material	Nil
Sapphire	Doda (Paddar)	2 Kms mineralised zone	Precious Stone	1
Quartzite	Anantnag, Baramullah and Kupwara	2	Glass & IT industry	Nil
Dolomite	Rajouri, Udhampur, Reasi	12.37	Refractory bricks	Nil
China Clay	Doda, Udhampur	28	Ceramics, Pottery	1
Graphite	Baramullah	62	Crucibles, foundary, refractory, paints	Nil

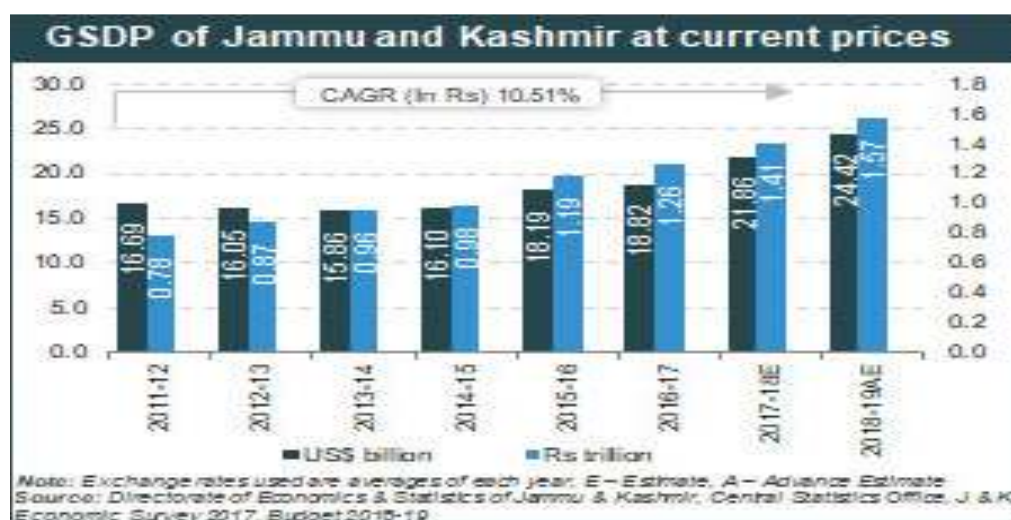
**Table 2: Main Minerals in Jammu & Kashmir**

## Industry, Government Support, Research & Capacity Building

The manufacturing and services sector has been developing at a modest pace, in the Jammu region, with several consumer goods companies opening manufacturing units in the area. Concurrently, ASSOCHAM in conjunction with the union and local government, is working towards setting up of 'industrial parks' and 'special economic zones'. There is a need to ensure that Industrial development avoids using the traditional approach of heavy engineering, so as to protect the abundant bio resources and dense forest cover of the region.

Implementation of the current socio – economic schemes of the Ministry of MSME and others through local bodies like the KVI (Khadi and Village Industries), will facilitate scaling up of the traditional economic enterprises in the rural areas and support 'village industry' of handlooms and handicrafts. It will support the functional Self Help Groups (SHGs) and facilitate setting up of new enterprises. SFURTI (Scheme of Funding for Regeneration of Traditional Industries), designed to organise traditional industries and artisans into clusters and make them market oriented and competitive, can make a major difference. However, it requires a concerted effort for dissemination and guidance of locals to take advantage of the provisions of the schemes. Setting up of 'Honey clusters', provision of 'solar' charkhas for the weaving industry, 'electric' pottery wheels, replacement of old equipment, setting up of common facilities, development of new products, designs, packaging, market promotion, capacity building, etc. are financially supported by SFURTI and other such governmental initiatives. The Union Minister during his address at the conference, assured priority allocation, of upto 25% of future projects for the Uts.

Therefore, for appropriate policy initiatives by the GoI, lessons of similar developmental initiatives executed earlier, need to be vectored in designing and implementation of future projects for connectivity, infrastructure development and industrialisation. The Union Minister



**Figure 16: GSDP of Jammu and Kashmir at Current Prices**

Source : Economic Sur.report

for road transport highlighted, primacy being accorded for green initiatives, in the construction of roads and allied projects, adoption of 'best practices' and reliance on tunnelling and ropeways for connectivity. Points made during the conference for future development are:

- Promotion of only low-pollution, hi-tech industries and increasing the footprint of service industry in the two UTs .
- Enhancement of cold storage facilities across J & K on priority. The region presently has only 36 large cold storage facilities from a total of 6000 in the country.
- Rethink on how cities can be conceptualized for sustainability and resilience by adopting innovative but simple solutions (e.g. systematic sewage waste management systems, strengthening public transport infrastructure, etc).
- Need for extensive in-depth research, on impact of climate change on agriculture, allied activities, urban settlements and natural resources. So as to develop comprehensive strategies for building resilience in these sectors.
- Ensure climate resilience in living spaces and Infrastructure development, by adopting traditional designs and materials, for maximum sustainability.
- Priority to be accorded for improved rail, road and air connectivity, for seamless integration of the region with the rest of the country.
- Need for up to date macro and micro data of various sectors, for meaningful economic initiatives.
- Existing processes across sectors in the region need to be supported by 'knowledge based solutions' and not 'capital intensive solutions'. It is essential that micro planning incorporate local people, experts, academia & academic Institutions, concerned line departments and elected representatives for real time audit and project planning. Exploit local expertise for low cost solutions.

## RECOMMENDATIONS

The key recommendation being proposed is for creation of an 'Upper Himalayan Development Council' at the macro level and developing Jammu as a major resource and communication centre. In addition there is a need to harness the positive gains of the ICT revolution for sustainable growth and development. A realistic assessment of the national development initiatives highlights that the results of a large number of projects have generally been sub optimal. The major reasons for this seems to be lack of coordination and possible synergy in the planning and execution and differing priorities, between the State and the Centre, between the Nodal Ministry and other Ministries, and between political jurisdictions within the State or with neighbouring States. It is also a result of duplication of initiatives by different agencies. This to an extent is an outcome of our governing structure cum political system. To mitigate these shortfalls and to achieve coherence in planning and execution of projects, the GoI for its 'Look East' and later 'Act East' policy, established the Ministry of Development for North East Region, in 2001.

It is responsible for coordinated execution of development initiatives in the eight NE States. This has been successful, though endemic and legacy issues have impacted its overall performance. The geographical/ environmental scan earlier in the note, indicates how the Himalayan mountain system with the five major River systems creates an umbilical linkage not only between the two UTs, but also with the States of Punjab and Himachal Pradesh. Therefore taking lesson from the Ministry for NER, it is strongly recommended that at the macro level future development initiatives be planned comprehensively, without looking at sub division due to state boundaries. It would lead to comprehensive development plans along the riverine basins in the himalayan complex and give maximum bang for the buck. Therefore, it would be appropriate to create a 'Ministry for Upper Himalayan States' for planning, execution and monitoring of future projects. This will also ensure sustainable and environment friendly development.

The other recommendation is to develop Jammu as a major economic and logistic node for northern India. Geographically it is the communication hub and the resource base for despatch of complete range of supplies for the upper valleys of Kashmir and Leh. It logically can also be the terminal point for the proposed TAPI (Turkmenistan- Afghanistan- Pakistan- India) gas pipeline project. The TAPI project was conceived in the 1990s, Inter-governmental agreement (IGA) was signed in 2010 by the heads of four member nations, 'Gas Pipeline Framework Agreement' (GPFA) was contracted in 2010 by the four petroleum ministries and the 'bilateral gas sale agreement' was ratified in May 2012. Enunciation of this in the national vision document will give a quantum leap to the development of Jammu and its adjoining areas and positively impact the economy of the region.

The role of science, technology and innovation in promotion of sustainable and inclusive development is vital for speedier regional development. There is therefore a need to adopt new and appropriate technologies for improvements in living conditions of the most vulnerable populations, productivity gains for rising incomes, environment protection, containment of health epidemics, and mitigating the impact of climate change.

The conclusions drawn from the discussions at the 2020 Annual Meeting of the Club of Rome-India highlighted that with detailed macro-level planning and micro-level implementation, in the context of existing strengths and future opportunities, will lead to a sustainable and green developmental road map. For this there is a requirement to ensure concurrent development of all the five forms of capital – human, social, natural, physical and financial.

## THE NEXT STEPS

The Indian Association of the Club of Rome (CoR-India), is fully committed to helping accelerate sustainable and harmonious development of the Nation, and proposes early follow up on the many valuable actions and opportunities identified in this report. For maximum effectiveness and impact, it would be best for this process to be carried forward under the guidance and patronage of the governments of the Union Territories and Niti Aayog. CoR-India is prepared to offer its services in providing full support to the process.

The urgency for moving forward with the insights covered by this Report is greatly enhanced by the “Perfect Storm” we now face from so many threats to the regions converging together at the same time: pandemics, joblessness, extreme poverty, biodiversity loss, climate change and extreme events such as floods and drought.

CoR-India proposes that the respective governments convene, before the Monsoons, three separate discussions at Srinagar, Leh and Delhi bringing together domain experts, policy makers, corporates, academic institutions, civil society organisations and Foundations. The purpose of the meetings would be to prioritize the domains of action to be addressed, quantify the work and budgets needed, identify the partners needed to steer development, particularly in the rural and backward areas of the UTs; and to prepare the outlines of a realistic and meaningful ‘Implementation Plan’.



## LIST OF THE SPEAKERS

1. Chief Guest. Mr. Nitin Gadkari, Minister for Road Transport & Highways, Minister of Micro, Small and Medium Enterprises, Government of India.
2. Guest of Honour. Mr. Radha Krishna Mathur, Lieutenant Governor of Ladakh.
3. Special Invitee. Dr. Karan Singh, Former Governor, Jammu and Kashmir.
4. Special Invitee. Mr. Ratan Watal, Niti Aayog.
5. S. Ramadorai, Chairman, Club of Rome – India .
6. Dr. Ashok Khosla, Trustee, Club of Rome – India, Past Co-Chair, International Resources Panel and Chairman, Development Alternatives
7. Mr. Ranjit Barthakur, Secretary General, Club of Rome – India, Adviser, Tata Consultancy Services (TCS), Trustee, Balipara Foundation
8. Lt Gen Arun Sahni, Former Army Commander, DG, The Club of Rome in India
9. Mr. Ravi Singh, General Secretary and CEO, WWF-India
10. Mr. Vijay Mahajan, Director, Rajiv Gandhi Institute for Contemporary Studies.
11. Mrs. Harjinder Kaur Talwar, President, FICCI Ladies
12. Mr. Rohit Kansal, Principal Secretary Planning J&K (Could not attend)
13. Ms. Sheetal Nanda, Secretary, Dept Rural Development & Panchayati Raj, Govt of J&K.
14. Mr. G. Prasanna Ramaswamy, Additional Secretary, IAS
15. Mr Skandan Krishnan, Former Advisor Governor J&K
16. Mr. RK Padmanabhan, IPS
17. Mr. Vivek Menon, Founder, Trustee, Executive Director and CEO-WTI.
18. Mr. Sonam Wangchuk, Director, Students' Educational & Cultural Movement of Ladakh
19. Mr. Sharad Marathe, President and CEO, UTS
20. Mr. Ashish Khanna, TATA Power
21. Ms Laila Tyabji, Chairperson and founder member of Dastkar
22. Mr. Pankaj Pachauri, Editor in Chief, GO NEWS
23. Prof. Dipankar Sengupta, Department of Economics, Jammu University
24. Mr. Arunabha Ghosh, CEO, Council on Energy, Environment and Water (CEEW)
25. Prof. Pankaj Srivastava, Department of Geology, Jammu University
26. Mr. Parveen Saxena, CEO, Skill Council for Green Jobs
27. Mr. Manas Rath, BORDA
28. Mr. Faraaz Ahmed, Director ,Tanflora Infrastructure Park limited, Bengaluru
29. Mr. Chewang Norphel, Iceman, Ladakh
30. Prof. Anindita Roy Saha, IP College, DU
31. Mr. Ashwani Singla - Founding Managing Partner – Astrum
32. Mrs. Abhilasha Bahuguna, Co-Founder, Looms of Ladakh
33. Mrs. Regzen Yangdol, CEO, Looms of Ladakh women's cooperative
34. Mrs. Gurmeet S Rai, Cultural Resource Conservation Initiative
35. Mr. David A. Devadas, Indian Journalist
36. Mr. Sanjeev Nair, Director General, NE Centre for Technology Application & Research
37. Dr. Arivudai Nambi Appadurai, India Adaptation Strategy Head, WRI



## ORGANISER

**Padma Bhushan Mr. S. Ramadorai**

Former CEO & MD,  
Tata Consultancy Services &  
Chairman, Indian National Association  
for the Club of Rome  
ramadorai.office@tcs.com

**Lt Gen Arun Kumar Sahni**

PVSM, UYSM, SM, VSM  
Former Army Commander, IA &  
Director General, Indian National  
Association for the Club of Rome CoR  
ltgen.arunsahni@gmail.com  
ltgen.arunsahni@clubofrome.in

**Dr. Vishal Massey**

Social Scientist &  
Chief Operating Officer  
Indian National Association for  
the Club of Rome  
vmassey@clubofrome.in

**Dr. Ashok Khosla**

International Environmentalist,  
Chairman Development Alternatives &  
Trustee, Indian National Association for  
the Club of Rome  
akhosla@devalt.org

**Mr. Ranjit Barthakur**

Social Entrepreneur,  
Chairman Balipara Foundation &  
General Secretary, Indian National  
Association for the Club of Rome  
ranjit.barthakur@tcs.com





INDIAN  
NATIONAL  
ASSOCIATION

Established in 2011, The Indian National Association for the Club of Rome (CoR-India) is a non-profit organisation, which aims “to act as a global catalyst for change through the identification and analysis of the crucial problems facing India and the communication of such problems to the most important public and private decision makers as well as to the general public.” The broad goal of the national chapter, CoR-India, is to help design an agenda for governments in India, the business sector as well as all its citizens’ organisations that could enable everybody in this country to live a full life in harmony with their surroundings by the centenary of the nation, 2047.

([www.clubofrome.in](http://www.clubofrome.in))

Contact: [info@clubofrome.in](mailto:info@clubofrome.in)

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### Indian National Association for The Club of Rome

B-32, TARA Crescent, Qutab Institutional Area, New Delhi-110016, India  
<http://clubofrome.in>, <http://www.clubofrome.org>