Disturbed Landscape in Fragile Ecologies

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Kashmir Valley is an extremely fragile ecological vulnerable region. It is prone to repeated floods of varying intensity, due to its peculiar bowl-shaped geography. The valley floor is relatively flat with very steep rising mountains and only a single outlet for the entire watershed to drain. Over the last few decades, the direct impact of rising global temperature can be witnessed in the glacial melt, abrupt seasonal changes and changing character of each season in Kashmir Valley.

The wetland maps of over 100 years and particularly last three decades show sharp decline in its size. Severe fragmentation of the network of wetlands has made the situation extremely vulnerable to flooding. This is off course become more alarming due to the high siltation in the lakes, rivers and spill channel of the river Jhelum. Over the years many of the water bodies have turned in marshes, later into plantation and eventually reclaimed as landmass for construction.

The existing water bodies have become toxic due to leaching from excessive use of inorganic fertilizers, pesticides from improper agriculture, floriculture and horticultural practices. Further, improper waste disposal, leaching from landfill site and direct discharge of sewerage into water bodies have made many of the urban bodies toxic and disturbed the ecological balance to an alarming level.

Historically, wetlands in the Kashmir valley have played an important role in maintaining the ecological balance and minimizing the damage due to recurring floods. The intricate system of forests, streams, lakes, marshes, rivers and especially Asia's largest fresh water lake, the Wular created a geography which gave rise to a unique culture where food, textile, arts, crafts, navigation was a by- product of this wetland system.

Over the years, the water streams have become narrower or channelized, covered or their embankments lined with stone, concrete or a combination of both. This has disturbed the riverine ecology and aquatic habitat so important and essential for our wellness and survival. The aquatic flora and fauna provided direct and indirect income to a large cross section of society. It sustained a nature dependent arts, crafts and food industry that is vanishing rapidly. The loss of wetlands, meadows, deciduous forest cover meant, loss of raw material for different communities associated with various guilds. Many guilds have become vulnerable and the unique skills and crafts that gave Kashmir a unique identity stagnant, declined or threatened.

Not only has the loss of wetlands made us prone to higher frequency and greater magnitude of floods but it has significantly disturbed or destroyed the water-based mobility patterns of the past and future possibilities. Along with it we lost skills for water-based transportation, entrepreneurship, revenue and employment possibilities.

Most of the reasons for fragmentation of the water systems are manmade as planning and design do not take regional topography and drainage as its key determinants. The way we design our roads and other infrastructure has critically altered the drainage system with the watersheds of various water bodies and tributaries of Jhelum. Consequently, today we are left with an altered and unmapped drainage system on ground. We do not understand the flows, volumes and patterns of this altered system and are unprepared in terms of disaster mitigation and management making the lives and livelihood of our people completed vulnerable to a gigantic manmade chaos.

Our forests have degraded and so has its coverage as can be inferred from the decadal maps over the last few decades. Erosion and landslide have increased significantly resulting in increased siltation in our lakes, wetlands and river systems. Our habitat has extended into steeper slopes, into meadows, river edges, lake edges thereby enhancing the erosion into adjoining water bodies and riverine systems.

Our wildlife habitat and corridors have shrunk or have been altered and consequently the species and numbers both have reduced significantly. While the wildlife has reduced and disturbed the ecological balance, on other hand the number of domestic animals for dairy and other needs have increased significantly. This change in land-use, reduction in wildlife habitat, increase and concentration of domesticated animals creates another kind of conflict for grazing in our meadow both alpine and around the tourist destinations. The meadows have shrunk and degraded thereby altering its inflorescence and visitation of insects and bees, so significant for pollination for agriculture and horticulture crop production and live hood associated with it.

Our mountains are also quarried for building material and for associated industries. Quarrying needs to be done in a manner so that the slopes and the quarries can be restored immediately, with vegetation cover, thereby preventing loose debris and rocks from rolling down incessantly. Quarrying releases huge amount of particulate matter in the environment, which are harmful for the lungs and biotic life. Good practices in quarrying need to be carried out to prevent release of particulate matter in the air. In quarrying areas in Kashmir PM 2.5 and PM 10 in winter has been more 3-4 times higher than the recommended air quality index.

In order to make lives comfortable during all seasons for people, our buildings and construction industry needs to be progressive and ‘green’. It should consume lesser fossil fuel and be energy efficient, both in terms of embodied energy as well as operational costs, particularly in cold winters. Crude and inefficient practice of heating during winters, releases huge amounts of particulate matter in winters, there by adversely affecting the air quality in the Kashmir Valley, both in urban and rural areas. Practices of leaf and litter burning, kangri, coal, hammams, diesel vehicles, improper construction practices all add to the high particulate matter thus affecting the air quality severely and increasing the vulnerability to COPD and pneumonia especially amongst the elderly population.

We have moved away from the vernacular idiom of construction that provided better insulation during winters and responded well to the vulnerability of earthquakes. New and progressive paradigms haven't evolved in the valley in building industry that can respond progressively to the changed aspirations and environmental imbalances.

The new building construction needs to respond to the unique challenges of flood, earthquake, fire and cold winter months. A more sensitive building typology needs to be developed for various micro-climate, regional and topographical variations and socio-economic needs of the Valley. There are so many smaller valleys and not much thought has gone into developing building typology that is ecologically sensitive and responsive to energy and local context. World over the narratives have changed and progressive societies are looking at passive energy solutions, low on carbon footprints and technological innovations for building and energy solutions. If the valley embraces this narrative it would create new avenues, entrepreneurs and youth employment opportunities. It would herald a new work and cultural ethos much like the other temperate climate cultures especially in winters. It would provide a radical departure from the present-day buildings that are damp, cold and inhospitable.

This would mean bringing in a new narrative of development, one that is environmentally sensitive and looks at the local issues as the prime determinant for planning and development. One that is people centric and work from bottom up. It would mean a significant amount of capacity building and hand holding at various levels of planning and development and departure from the conservative and inefficient systems of the present at the level of politics, administration, organizations and institutions for betterment of its own people. A model of engaging and parallel induction of knowledge, wisdom and technology at various institutional, organization and administration level.

We are at a very critical threshold, where we need to act now, to reverse the down slide. Our survival, health and quality of life of our people in the valley depends on the health of the environment in Kashmir.