

# A Study on the Flood problems of Jammu and Kashmir

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## Abstract

*Kashmir valley is famous for its scenic beauties and infamous for relentless terrorist activities. Lives of people of the region are not at all in peace and most of them are suffering from some kind of mental distress. Besides on going militant activities, natural disasters like floods are another serious threat to the people of the region. Kashmir valley had faced massive floods in the month of September, 2014, that time Jammu had also affected.. The Centre for Science and Environment of India in its report had stated that the floods were caused by a combination of intense rain, mismanagement, unplanned urbanization and a lack of preparedness. The aim of this paper is to make a focus on how an unplanned urbanization and gradual degradation of eco-system makes the regions of Jammu and Kashmir vulnerable to floods and to understand the effective measures that experts have suggested to implement urgently to minimise the occurrences of flood and its effects.*

**Key Words:** Flood, water-waste, solid-waste, Deforestation, Urbanization

**Abbreviations:** J&K (Jammu and Kashmir), CSEI (The Centre for Science and Environment of India),

## Introduction

Jammu and Kashmir (J&K) once was the northern-most state of India which covers an area about 222,236 sq km. The state consists of three regions: Jammu, Kashmir valley and Ladakh. However, since 31<sup>st</sup> October, 2019 the state of J&K has been officially divided into two Union Territories, i.e., the Union Territory of Jammu and Kashmir (J&K) and the Union Territory of Ladakh. We shall exclusively concentrate in this paper about the flood problems of J&K. The climate of J&K varies considerably with its topography. The climate is primarily temperate. Important rivers flowing through the region include the Indus, the Chenab, the Jhelum, the Tawi and the Ravi. Kashmir popularly is known to be “The Paradise of Earth” (*Bhuswargam*) for its natural beauties. It is one of the most beautiful and charming places in the world. Unfortunately now it is considered to be one of the most disturbed zones in the Earth. It is now infamous for a centre of militant activities and geo-political tension.

Besides experiencing the brunt of prolonged armed violence, the region because of its geographical character is prone to face natural disasters specifically floods and landslides. One such a disaster occurred in September 2014 that leads to a devastating physical and

psychological damage of the residents of the region. Official records had shown that the floods took the lives of 283 people and displacement or damage 2.53 lakh houses. The districts of Srinagar, Budgam, Anantnag, Pulwama, and Kulgam were the worst affected. During flood, people of those areas had suffered a lot not just because of becoming homeless but also by epidemic diseases caused by stagnant water. The situation was worsened as nearly all the major hospitals were adversely affected and rendered defunct. (1)

### Causes of Floods

The Centre for Science and Environment of India (CSEI) had pointed out that the floods in Kashmir in 2014 follow a recognizable pattern of heavy rainfalls that was previously seen in other parts of India, such as in Mumbai (2005), Leh (2010) and Uttarakhand (2013). CSEI had further pointed out that the region geographically flood prone but it was not just the intense rain caused the flood but gradual environmental degradation, unplanned urbanization and a lack of preparedness fuels the floods and its causalities. (2) Humayum Rashid and Gowhar Naseem, the two notable local scientists, had indicated much earlier in 2008 that the natural discharge system in the valley has been continuously deteriorating that could prevent water from flowing out of the valley, which may result floods. (3)

### Floods Prone Geographical character of J&K

The regions of Jammu and Kashmir geographically are flood prone areas. Going through the records of J&K, it is found that the places had faced natural calamities of floods and landslide time to time. Sir Walter Roper Lawrence had made an authoritative work on Kashmir and that was published as a book entitled “The Valley of Kashmir”, where he had made a special emphasis on the floods history of Kashmir. He had mentioned and described numbers of devastating floods of the region in his book. (4) It is mentioned in the book that a major flood had occurred in Kashmir valley in AD 879. Long after, such a major ones happened in 1841 and later in 1893. The valley after 10 years had faced a massive devastating flood in 1903, which was classified as “The greatest flood ever known.” Saligram Bhatt, in his book entitled “Kashmir Ecology and Environment: New Concerns and Strategies”, had spoken of that flood. (5) Later, a flood occurred in 1929. After that the valley had been stayed relatively flood-free for the next two decades. Nevertheless, immediately after independence, Kashmir was hit by a flood in 1948. Two years later, in September 1950, another major flood hit the state, which takes lives of nearly 100 people as per the record. Another major flood was recorded in Jammu and Kashmir in 1957. The floods almost submerged the entire valley. Two years later, in July 1959, the state witnessed yet another massive “glacial” flood, perhaps it’s worst ever at the time, when four days of incessant rains lashed the valley and Srinagar. The region did witness floods thereafter in the following three decades. Out of that the one that had occurred in 1992 was unprecedented in terms of its fury. It had been reported that in 1992 flood, over 200 people lost their lives and the floods left over 60,000 people marooned in several north-western border districts. Generally floods in the region are triggered by mainly a combination of heavy rainfall and landslides. Very latest in the month of September, 2014 J&K had faced a serious flood that mainly affected the Kashmir province. These all

signify that the region of J&K geographically and geologically a flood prone area and its historical records of flood establish the fact (6)

### **Deforestation in J&K**

The total geographical area of Jammu and Kashmir is 2,22,236 sq km (including Leh and Ladakh region) out of which 78,114 Sq Km. is under the illegal occupation of Pakistan and 37,555 Sq km. under China. However, after the Leh-Ladakh region has been cut off from J&K on 31<sup>st</sup> October, 2019, as a separate Union territory of India, the total geographical area of J&K (formed as a new Union Territory of India on 31<sup>st</sup> October, 2019) stands as 163090 sq km (including Pakistan and China occupied Kashmir region). Out of total geographical area of J&K (including leh-ladakh and the areas POK and Akashi chin) the total forest cover, including trees outside forest area, is only 29,089 sq km. it should be noted that Leh-Ladakh mainly dry hill areas, where the greenery naturally is very less. Hence, the forest cover mainly belongs to J&K but the point is that the forest cover area has been gradually shrinking. Environmentalists believe the reckless felling of trees, which started after 1947, is the main reason behind depleting forests and it is contributing to global warming and other related impacts. "Before 1947, forests of J&K were very dense and those of Doda district were considered the best in Asia. Earlier, there was a demarcation between villages and forest areas and the in-between area was called the buffer zone. But when the forest department opened different divisions, felling of the green gold started unabated," said Bhushan Parimoo, an environmentalist who has been worked tirelessly to stop deforestation in the state. (7) Let us see the recent status of forest cover of J&K

### **The situation of Kashmir valley**

It is the fact that both Jammu and Kashmir have been gradually losing their forest areas since long. The Kashmir division or Kashmir valley comprises the districts of Anantnag, Pulwama, Baramulla, Bandipora, Kupwara, Srinagar, Shopian, Kulgam Ganderbal, Budgam. The Geographical area of Kashmir valley is 15.948 lakh ha including 8.128 lakh ha of demarcated forests (as per working plan 2011). The Green wash forest cover of Kashmir valley comprise, very dense forests, (1.421 lakh ha), moderately dense forest (1.747 lakh ha) and open forest (1.861 lakh ha). From 2009 to 2015 Kashmir has lost 12,300 ha of very dense forest, 11,500 ha moderately dense forest and 5,200 ha of open forest. From 2005 to 2015 (one decade), 74,600 ha of moderately dense forest and 72,000 ha of open forests have vanished from green wash forest cover of Kashmir valley. The records state a pathetic situation of losing green cover of Kashmir valley that is a serious threat to its ecological balances and environment issues. (8)

### **The Situation of Jammu**

Jammu Division with geographical area of 26.293 lakh ha has 12.066 lakh ha of demarcated forest (as per working plan 2011). However as per forest survey of India

2015 report, its green wash forest cover is only 10.845 lakh ha including 3.704 lakh ha of open forest. 1.1221 lakh ha of this demarcated forest has already changed to wasteland and 3.704 lakh ha is looming towards desert formation. Present green wash cover of Jammu division is comprised of 1.295 lakh ha of very dense forest, 3.422 lakh ha of moderately dense forest and 3.704 lakh ha of open forest. Very dense forest of this division has decreased by 2,100 ha, moderately dense forests by 1.018 lakh ha and open forests 4,400 ha from 2013 to 2015. The situation of Jammu is as similar as that of Kashmir division. (9)

Deforestation increases in the regions of J&K mainly for two reasons: urbanization and timber smuggling. Continuous armed conflict and political turmoil also fuels deforestation in some extent. It is found in a study that the deforested hills have been the prime cause of the heavy siltation of wetlands and water bodies in Kashmir. That the changes of pattern of land use and water scarcities have further aggravated the erosion process in catchment of Jhelum River. Climate change has also been playing its part. It reflects that gradual deforestation is one of the primary causes of flood in J&K.

### Unplanned Urbanization

Urbanization is a key component of a human civilization. It plays a significant role to the life of people because it radically changes the basic necessities. A society can attain sustainable development through implementation of successful urban planning. However, a society would be gradually unsuitable for living if the urbanization process is unplanned and haphazard. We shall focus here how the process of unplanned urbanization throughout J&K makes the reign vulnerable for natural disasters. Such an unplanned urbanization gradually develops in Kashmir based on Srinagar and its outskirts, which increases the possibility of occurrences of natural disasters in two ways: (a) destroying water bodies and (b) mismanagement of waste. (10)

#### (a) Destruction of Water bodies

Urbanization has been developing in Srinagar by making a wrongful compromise with environmental resources since last four decades. The quality of environment is rapidly degrading because of the rapid growth of population and haphazard urbanization. There were more than three thousand big and small wetlands spread across the region of J&K. A study entitled "Urban Sprawl of Srinagar and its Impact on Wetlands" reveals that between 1911-2011, more than 50 per cent of wetlands areas have vanished as the city has grown 12 times in terms of population and 23 times in terms of area.

Changing spatial status of Lakes around Srinagar city (1971-2010)

Lake	Area (Km <sup>2</sup> ) 1971	Area (Km <sup>2</sup> ) 2010	Net Loss (Km <sup>2</sup> )
Dal lake	11.34	11.11	0.23
Hokersar pond	1.63	0.29	1.34
Anchar lake	2.49	1.15	1.34
Nigeen lake	0.76	0.65	0.11

Source: Sol Toposheets (1971) and LANDSAT-ETM (2010)

Changing spatial status of Wetlands around Srinagar city (1971-2010)

Wetlands	Area (Km <sup>2</sup> ) 1971	Area (Km <sup>2</sup> ) 2010	Net Loss (Km <sup>2</sup> )
Anchar	17.50	11.24	6.26
Dal littorals	20.53	13.63	6.90
Hokersar	20.7	9.50	11.2
Nambli-Narkara	3.42	2.61	0.81

Source: Sol Toposheets (1971) and LANDSAT-ETM (2010)

Source: <file:///C:/Users/Dell/Downloads/Nissar2.pdf>

An author and climate activist Arthar Parvaiz referring to J&K State Policy Document on Land Use, made in December, 2016, mentions that the then state Government had taken a series of projects of constructing government offices, hospitals, and residential complexes over wetlands in areas like Bemina, Barzulla, Hyderpora, Sanat Nagar, Rawalpora and Natipora that put a heavy adverse impact on the ecological balances of Kashmir valley. He categorically points out that faulty land policy and unplanned urbanisation are the main causes of recent natural disaster of J&K. (11) The shrunk of wetlands in Narkara area is a prime instance of it. Narkara is just 12 km away from Srinagar and one of the significant wetland areas in Kashmir valley. The study finds that the total wetland area in Narkara has shrunk to 261 ha in 2010 from 342 ha in 1971. (12) The State revenue records reveal that originally the wetlands area comprised of 97 kanals, now it has shrunk to bare 15 kanals and the rest of it has been seemingly grabbed. This type of wrongdoing with wetlands does not just disturb the ecological balance of the region; it also put the entire region vulnerable to natural disaster like flood and create a serious threat to the valley in question of sustainability. (13)

It is the fact that during urbanization proper research had not been made regarding water bodies and their connecting ecosystems that should do in detail. As a consequence, most of the wetlands are in serious conditions along with their shoreline. Unfortunately, the flood plains including the wetlands have been urbanized that makes the city of Srinagar more vulnerable to natural disasters. It has been noticed that the wetlands and flood

absorption basins have become the soft targets for urbanization. And for obvious reason the inhabitants of the valley had to pay its cost expensively by facing massive floods in 2014. The floods had exposed the vulnerabilities of the city and the inevitability of a cautious and structured planning process for its economic and physical sustenance. It is found that out of the total area of 766 Sq. Km, almost 34% of the planning area (262 sq. km.) was under floods in 2014. And the submerged areas come under different categories of flood zonation. Out of total submerged areas 125 sq. km fall under undevelopable areas whereas about 136.50 sq. km are vulnerable to floods. However, the point is that locality and urbanization has been spreading in those areas. (14)

### Mismanagement of Waste

Mismanagement of waste is a serious concern not limited to Kashmir but to all over India. A study says that less than 15% out of total waste water generated in J&K are treated, the rest mixed with rivers and water bodies. The problem is multiplied day by day because of rapid urbanization and increasing population. Experts claim that three-fourth of the surface water resources are polluted and 80 % of that pollution is created by sewage alone.

The same is true in case of solid waste management system. Solid Waste Management is a major problem for most of the urban local bodies in India, where urbanization, industrialization and economic growth have resulted in increased municipal solid waste generation per person. Effective solid waste management is a major challenge in cities with high population density. Inefficient waste management system has put negative impacts on the environment. In a report submitted before National Green Tribunal (NGT) few years back it has been said that J&K has 100% open dumping of Municipal Solid Waste by Srinagar Municipal Corporation. Where in case of Jammu Municipal Corporation and other Municipal Councils are concerned that are more than 90%. J&K had ranked 31<sup>st</sup> in India in question of Solid Waste Management policy. The city of Srinagar used to generate nearly 450 metric tonne solid waste daily. The Srinagar Municipal Corporation (SMC) has failed to implement the 'Solid Waste Management Rules' (SWMR) aimed to dispose of the bio-degradable and non-biodegradable waste on scientific lines. It results that such a huge solid waste has been dumped in river, wetlands and other water bodies which reduces water reserves capacity and increases the possibility of floods occurrence. (15)

### Necessary Measures

A standard urbanized and developed society is desirable simply because it helps economic development and poverty reduction. In order to achieve the same we need to be hygienic and eco-friendly. It is the demand of time that people are learning through their experiences. J&K is geographically a flood porn region. So, the planning process of development in that



region has to be comprehensive and hierarchical using the scientific data in the form of layers based on flood zonation, eco-fragility and seismic vulnerability.

**Protection of water bodies:** It is an urgent need to formulate a policy that will protect the water bodies including rivers, wetlands, and lakes to keep biodiversity intact. Water bodies are vital in recharging of ground water supplies and controlling urban temperature that play a key role in preventing urban flooding. Judiciary also has expressed its concern about the matter. The high Court of J&K in its landmark decision on August 2017 has directed the then State Government to demarcate the wetlands and take measures to conserve water bodies in the Valley. The court also ordered immediate demarcation of wildlife rich forests, wildlife sanctuaries and conservation reserves by the concerned authority. The court also ordered Commissioner & Secretary Irrigation Department to convene a meeting and submit action plan regarding building interconnections between wetlands and rivers. The Court further asked, concerned Principal Development Authority to file fresh response about the details of map and network of wetlands interconnected with River Jhelum. (16)

**Plantation of trees and preserving forest cover:** Implementing planned afforestation by planting trees and making gardens as much as it is possible. More and more plantation not only will make the air clean, it will also control the intensity of climate; prevent soil erosion and protect the environment from natural calamities and greenhouse effect. J&K has a large density of forest cover. That had deforested for urbanization and timber smuggling. The government should initiate steps to afforest the area again. (17)

**Planned urbanization:** It should be ensured that new developments of residential buildings and shopping malls to take under consideration of the preservation of biodiversity, wetlands, valuable lands, watersheds and other resources viz. antiquities, reservoirs and forests. Transportation planning should be congestion free and environmental friendly. The existing drainage system should be reformed and to establish new drains and retention pond to solve the water logging problem in the municipal area. (18)

**Waste Management:** Proper and holistic waste management system from collection of garbage to its end use should be ensured. The whole processes have to be eco-friendly. Special attention should be given to construct the waste-to-energy plant. If such a plant materializes, the city's 450 metric ton solid waste would be converted into low-cost electricity and also facilitate productive disposal of the harmful waste. (19)

### Concluding remark

It is the fact that the J&K is flood prone and the history tells us that the region had faced many massive floods before 2014. It is also true that the region will face flood and other natural calamities in future. Nevertheless, the fact is that if we develop our city and outskirts maintaining the balance of eco-system and keeping the bio-diversity intact, the causalities

because of floods would be much less and the tenacity of floods will be under control. And floods will appear less in number. The present Government of India abolishing article 370 in Kashmir has divided the state of J&K into two different Union Territories. One of the main reasons behind the abolishing Article 370 is to faster economic growth and development of the region. Without sustainable development the long term economic growth cannot be achieved. We may believe that the Government of India will prepare a thoughtful land policy for a planned urbanization and development of J&K that would be sustainable and supportive for a long term financial prosperity of the region.

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