

A Study on Water Bodies of District Srinagar, their Role and Challenges

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ABSTRACT

Kashmir, popularly known as paradise on earth is gifted with numerous water bodies comprising of rivers, lakes, streams and springs. We discuss in this paper various water bodies of district Srinagar of Kashmir valley, their present status and role. Data was collected from published resources, internet and field surveys for this study. It was found that once clean water bodies of district Srinagar, i.e., Dal lake, Anchar lake, Khushalsar lake, Gilsar, Nigeen lake, Jhelum, have fallen victim to extensive encroachment, garbage dumping, climate, over-extraction of ground water, change and the release of untreated sewage. Water bodies play a vital role in the region's ecosystem, human settlements, support local ecosystems, agriculture sector, fisheries, and tourism which play a significant role in Jammu and Kashmir's economy. Water Pollution, Siltation and Deforestation, Climate Change are the main challenges water bodies are facing in district Srinagar. It is the responsibility of all stake holders to protect these water bodies used as drinking water sources, an important component of our lives.

KEYWORDS

• Srinagar • Kashmir • Climate Change • Dal Lakes • Jhelum • Nigeen Lake

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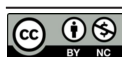
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INTRODUCTION

In J&K there are around 1230 water bodies including major water bodies such as Wular, Dal, Manasbal etc. River Jhelum which is covering about 15,856 km² including numerous tributaries, is the main river in Kashmir. Lakes provide a multitude of uses and are prime regions of human settlement and habitat. Kashmir is indeed rich in water bodies, boasting numerous lakes, rivers, and springs. Over the last century under the pressure of rapid, and badly managed, urbanisation, half of the water bodies of Srinagar have disappeared. Srinagar, hosts a diverse network of freshwater ecosystems including Dal Lake, Anchar Lake, Nigeen lake, Brari Nambal, Khushalsar, Gilsar, and Hokersar Wetland. It was found that these aquatic systems, primarily located along the floodplains of Jhelum, have historically functioned as ecological hotspots and supported vital socio-economic activities such as agriculture, fisheries, tourism, and transportation (Pandit, 1982; Romshoo & Rashid, 2014; Bano *et al.*, 2018). Dal Lake of Srinagar stands as the most prominent and culturally iconic water body in the region which has economic importance (Lawrence, 1895; Ahmad *et al.*, 2020). Unfortunately, it has experienced severe ecological degradation over last few decades (Mushtaq *et al.*, 2020a; Rashid *et al.*, 2017). It was reported that the deterioration is evidenced by declining dissolved oxygen levels, reduced water transparency, and increased concentrations of pollutants such as phosphates, nitrates, and heavy metals (Kundangar & Abubakar, 2004; Gulzar *et al.*, 2020; Rather & Dar, 2020a). Further, the spread of aquatic weeds and nutrient loading has driven the lake toward a hyper-eutrophic state, threatening its biodiversity and diminishing both its aesthetic and economic value (Khan & Ansari, 2005). The researchers reported that despite interventions including the establishment of sewage treatment plants (Qayoom *et al.*, 2021), de-weeding measures, and dredging activities (Mir *et al.*, 2018), the Dal lake of Srinagar continues to decline due to fragmented governance and the absence of long-term ecological monitoring (Mushtaq *et al.*, 2015). At present, Dal lake consists of approximately 10.5 km² of open water, 8.64 km² of aquatic vegetation, 2.89 km² of floating gardens, and 2.02 km² of settlements (Rashid *et al.*, 2017a). The presence of about 1,200 houseboats continues to be a major contributor

to untreated sewage and nutrient load (Tanveer *et al.*, 2017).

The other water bodies of Srinagar like Anchar Lake, Brari Nambal, Hokersar etc suffered from drastic shrinkage and ecological stress (e.g., Lawrence, 1895; Najar & Khan, 2012; Wani *et al.*, 2014; Mukhtar *et al.*, 2014; Bilal *et al.*, 2025). In view of the literature available, present study was carried out in district Srinagar with the aim to access the present status of water bodies of Srinagar district, their role and the challenges we face in restoring these water bodies.

RESEARCH METHODOLOGY

In this paper, we collect the information from secondary sources like published journals, books, internet during 2024-25. The primary data was collected from field surveys, experts, group discussion with people who reside around these water bodies. Further, the information for this research paper has also been collected from the government sources available online on their official websites.

RESULTS AND DISCUSSION

Jammu and Kashmir is well known worldwide for some of its significant water bodies. These water bodies and the surroundings nearby are often used to spend quality time in quiet atmosphere. Further, these water bodies of Srinagar act as a catalyst of revitalization away from the daily dull life routines. These water bodies not only display the breath taking beauty they possess but the visitors can also engage in a variety of adventure sports to make the most out of their water bodies site experience. Some of the activities are as under:

Picnic Spot: The surroundings around the water bodies of Srinagar are usually lush green making it suitable for people to spend time with family and friends by just spreading a small sheet, wrapping up meals in a picnic basket and enjoy the serene beauty.

Photography: To make memories out of the visit to these beautiful water bodies, the best way to capture the moment forever is by clicking the pictures and storing them in the mobile phones or the camera. The picturesque surroundings attract every nature lover to capture stunning shots so that they can share

it with others. This not only creates a memory but also displays the beauty of the place to people who see it and crave to explore the place as soon as possible. In a way it's a personal experience helping to promote the tourist rush to the site.

Relaxation: The melody in the sound of moving water and the peace and serene atmosphere around gives a sort of solace to a human soul. People can just close their eyes, lie back and forget about the worries and stress of life and relax as if there is nothing between them and nature just peace and only peace around.

In this study, we try to bring to fore the importance of water bodies of district Srinagar, Kashmir and their impact on the valley economically and socially.

Hokersar: Hokersar, Once known as the

'Queen of Wetlands', is situated at an altitude of 1500 m a.s.l. with geographical coordinates 340-052 N, 740-432 E, about 10 km west of Srinagar city. Once a fresh water body is drained by a channel to Jhelum at Sozeth Narbal village and is fed by permanent streams, the Doodganga, Sukhnag and flood waters. Hokersar wetland under Ramsar Convention on 8th November, 2005 was declared as Conservation Reserve as per Jammu and Kashmir Wildlife (Protection) Act, 1978. At present, a number of management programmes including the construction of bunds and installation of a sluice gate are in progress, yet the wetland continues to be under the biotic stress. The encroachment of wetland have reduced its area from original 1300 ha to 900 ha and due to cultural eutrophication the Hokersar wetland is deteriorating at an alarming rate. This water body of Srinagar is in worst condition as per researchers, if not cared.



Gilsar Lake: Once a well-known clean water body of Srinagar is situated in old Srinagar, connected to Nigeen Lake and Dal Lake through Nallah Ameer Khan. It was surrounded by springs locally known as Mukhta Pokhar, Haji pokhar, Doodh Poakhar, YandeaJuwin Poacher

and Vechernaag which were flowing through Nowshera, Chana Mohalla, Renzu Sathoo and thereafter meets Gilsar lake which flows from Gil-Kadal and there it meets with Khushal - Sar and reaches Anchar-Sar.



These water bodies until the 1990 as per elders of the area remained true to their names. Gilsar was once habitation not only for birds but for a large fish species with good production of Nadru (lotus stem) which was a source of economy for people living around this water body of Srinagar. This water body is

on the verge of death as all the springs which were the source of fresh water to the wetland have lost their route due to construction of new roads and encroachments. In order to preserve this water body of Srinagar, once a clean water body upto 1990 as per local teacher Mr. Bhat Sir, much more care and protection is needed.



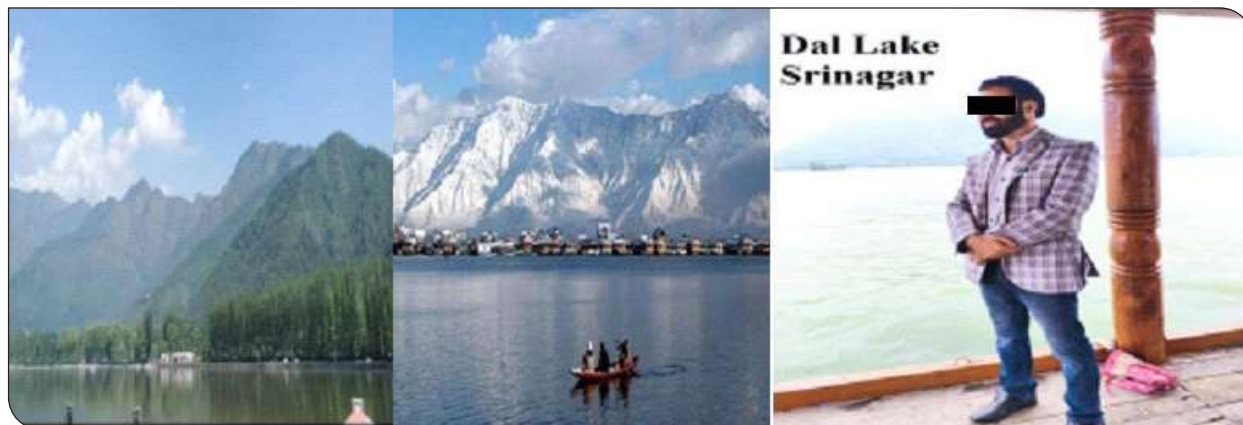
Khushal Sur: It is located in district Srinagar of Kashmir valley, spreading from Zoonimar area upto Aali Masjid and via small water channel it is connected to Anchar Lake, its primary outflow. This water body was earlier used as the medium of transportation and people used to collect the food and other exploitative materials from it. The water was fresh, tasty and people residing adjacent to this wetland used to drink this water. The elders of this area revealed during group discussion

that people used to enjoy the serene view of this water body, it served as a habitation not only for birds but for a large species of fish. The wetland is at present in worst condition as all the springs which were the source of fresh water to the wetland have lost their connections under the water table and lost the track, thereby stopping supply to the wetlands. It is very important to take care of this water body otherwise it will disappear very soon.



Anchar Lake: Anchar, once a pristine jewel in the Kashmir Valley, now stands as an ecological disaster, its demise marked by severe pollution, rampant encroachment, and unauthorized constructions around the banks of lake. Despite being a vital part of the local hydrological system, the lake's irreversible decline, exacerbated by the clogging of crucial water channels, has rendered it a shadow of its former self. It is very important to lake of the Anchar lake, connected to Khushal-Sar which meets Gilsar at Gil-Kadal and further meets Nallah Ameer khan which is connected to Dal-Lake. The Lake of Srinagar has its authenticity

and covers a vast area in the vicinity, starts from Soura and there by extends to Ali-Jan road and meets further with Wular lake, district Bandipora. Anchar lake was used as the medium of transportation by people, by riding boats in them and used to collect the food and other exploitative materials from it. It served as a habitation not only for birds but for a large species of fishes. Nadru as well as fish which were source of economy for the local people and at present the water body has been converted into Garbage dumping spot so needs much more care to preserve it.



Dal Lake: It is the remnant of a Pleistocene oligotrophic lake as per few geologists who believed that whole Kashmir valley was once covered by it. Dal was formed due to flood spillage from the Jhelum River, is other theory of origin of this lake of Srinagar. Water supply to Dal lake comes from several channels like Daachigam stream etc. The primary inflow channel of Dal lake is Nallah Telbal which is carrying water from a lake, Marsar lake situated in Tral, Pulwama district. Further, there are many springs in Dal lake of Srinagar. In a recent study, on water quality status, spatial distribution, and temporal variations along the Dachigam stream, it was found that physicochemical parameters examined in this study suggests a significant decline in water quality downstream, although water quality remains within acceptable limits for various purposes like drinking purpose, irrigation, washing, agriculture, and fisheries purpose. It was observed that pollution level increases from upstream to downstream due to anthropogenic influences in downstream regions (Hafsa *et al.*, 2024). The primary outflows of this urban lake are Dal Gate and Nallah Amir Khan. Dal lake also known as “Jewel in the crown of Kashmir” or “Srinagar’s

Jewel” covering an area of 18 square kilometers with shore line around 15.5 kilometres, part of a natural wetland covering about 21.1 square kilometres, is very important from tourism point of view, fishing as well as water plant harvesting in Srinagar. Gagribal, Lokut Dal, Bod Dal and Nagin (Nagin, as an independent lake as per researchers) are four basins of Dal lake. There are small islands named as Rup Lank (or Char Chinari) and Sona Lank in Lokut-dal and Bod-dal respectively. The houseboats in Dal Lake provide accommodation to tourists in Srinagar. *Schizothorax niger*, *Schizothorax curvifrons*, *Pethia conchonus*, *Botia birdi*, *Labeo dero*, *Schizothorax micropogon* and *Schizothorax esocinus* fish species are present in Dal lake. Once a clean water body, Dal lake as reported by residents around Dal lake is at present in polluted condition. The author recalled his childhood when childrens used to bath in this water, womens using this water for washing clothes and people were fishing around the banks of Dal lake. To save this important water body Government as well NGo’s, local people, religious scholars needs to take much more steps for it’s preservation as it is one of the important drinking water source in srinagar.



Nigeen Lake: It is a deep blue water offshoot lake of Dal Lake that is interconnected by a thin causeway, located to the east of the city of Srinagar, at the foothill of the Zabarwan Mountain in Srinagar. This lake is known as “nageena”, means “the jewel in the ring” because in the surrounding of this lake, a number of willow and poplar trees are seen. Nigeen lake, deeper, less crowded than

other lakes of Srinagar is a famous lake for swimming, fishing, houseboats and shikaras. The field survey revealed that like other lakes of Kashmir, this lake also suffers from encroachments and pollution. The government of J&K, NGO's, local people have to work together to restore this precious water body to its original glory.



Brari Nambal: It is an important part of Dal lake Srinagar, once a freshwater lake, sometimes referred as Bab Demb or lagoon of Dal. According to historians, 14th century King Zainulabidin, popularly known as Budshah, was so impressed by the beauty of Brari Nambal that he built Hamams on banks of Brari Nambal. The lagoon possessed crystal clear waters and for many centuries people used to have steam and herbal bath in Hamams there. The Hamams have vanished under encroachments and heaps of garbage dumps. The lagoon was an example of engineering excellence. The waters of Dal which originated from Dachigam Rakh flowed to the Brari Nambal via Nowpora Srinagar. Sultan Zain-ul-Abidin, King of Kashmir, closed the lagoon's three peripheries and dug up a new canal known as Nallah Mar, stretching from Baba Demb to Aanchar making a water way through a cluster of houses and shops alongside its banks. Lagoon, before filling up of Nallah Mar, was a part of main outflow channel of Dal lake which was helping to regulate Dal waters and save its inhabitants from floods. The lagoon was also a major route of inland water transportation system in Srinagar.

Brari Nambal until the 1970's, was in good condition but due to land-filling of Mar Canal this lake lose its glory as per locals living around this water body. The restoration of Brari Nambal is considered to be ecologically

important as it helps to regulate hydrology of Dal lake by releasing its surplus waters into river Jhelum via a conduit at Fateh Kadal area of district Srinagar. The conservation measures taken by Govt. like dredging of Brari Nambal and other outflow channels will help to restore natural drainage of Dal Lake and improve its water quality.

Nallah Amir Khan: A natural water channel that connects several lakes, including Nigeen Lake, Khushal Sar Lake, and Gil Sar Lake. Unlike man-made structures, Nallah Amir Khan, part of natural hydrological system, plays a crucial role in maintaining the ecological balance of these lakes. The channel which used to receive water supply from various directions, supports the aquatic life and ecosystem of the connected lakes. *Mukhta Pukhri* and *Dodh Pukhri* at present are polluted drains due to negligence of people in affairs as per local residents. It was predicted by 'Alamdar-e-Kashmir' (Flag Bearer of Kashmir), a famous 15th century saint of Kashmir who says "Waethe Hokhan Haener Grazan Teli Maale Aasi Wandar Raaj" (Rivers running dry and gutters roaring would be the result when the apes are in control). The locals of the Nalbal area told that LAWDA needs to work more as accumulation of the garbage is proving hazardous to their health. Elders of the area told that cleaning the Khushal Sar and Gilsar is of no use unless and until the upper side Gilsar is thoroughly

cleaned. The elders informed during our field visit that they used to drink water from this Nallah and we used to catch fishes from this Nallah in huge quantity. They, further informed fish production decreased due to

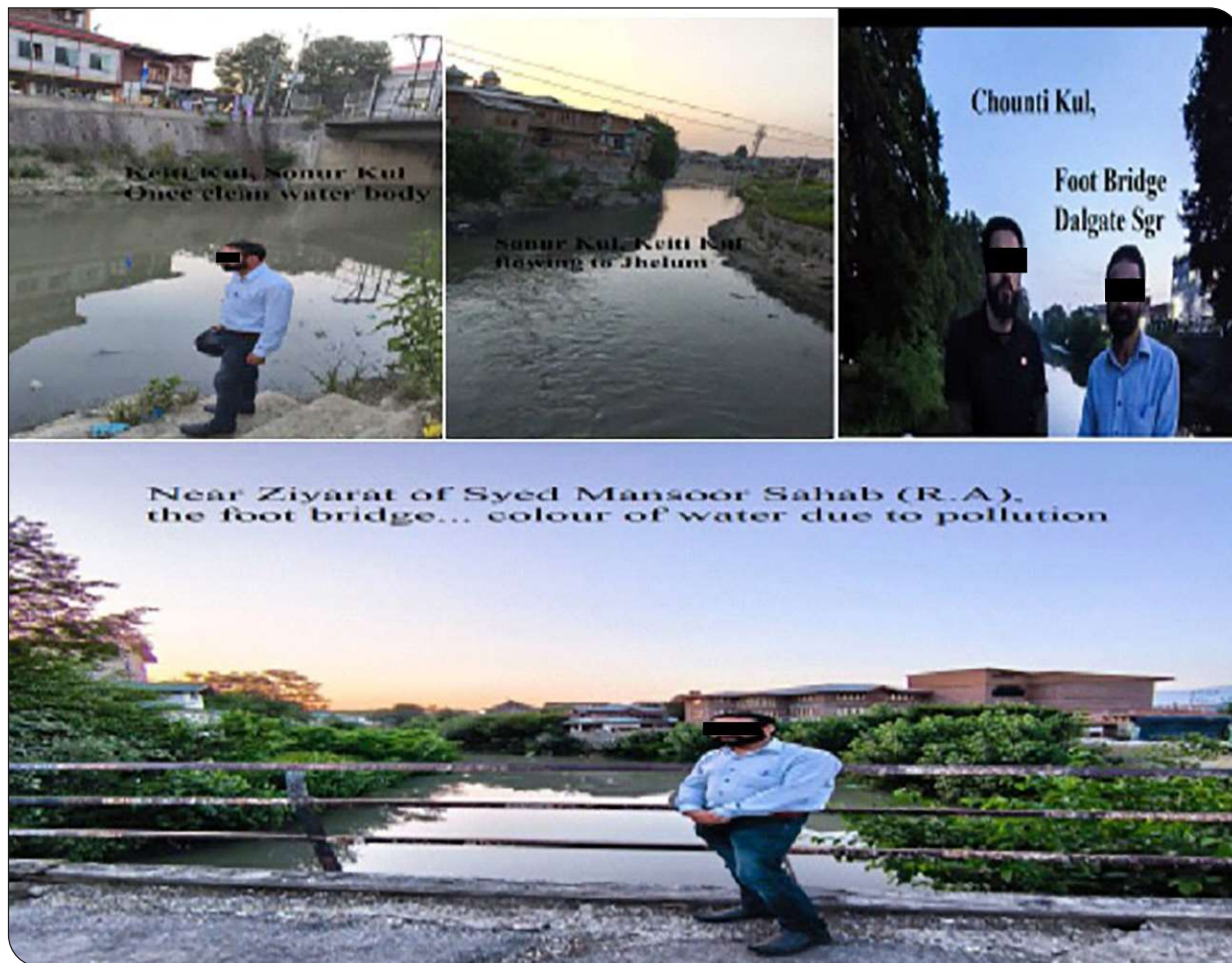
pollution, encroachment, unlimited pesticide use and overfishing. To save this water body, authorities must take appropriate measures to deal with pollution and other problems.



Chount Kul, Sonar Kul, Keiti Kul: In Srinagar city there were a number of clean fresh water bodies like Chounti Kul, Sonar Kul, Keiti Kul etc. which were used by local people for various purposes. The water of these streams at present are almost on extinction and the garbage mostly polythene could be seen piled up on the embankments as well as in the water. During discussion with the elders living around these water bodies revealed that water of these streams before 4-5 decades were used for drinking, bathing and women folk used to wash clothes or utensils in these water bodies. The charm and glory are no longer visible as canals of downtown Srinagar are in a very bad shape even as previous political dispensations have assured the people living around these water bodies that they would go for beautification and cleaning of these water canals. It was observed during our field visits and interaction with elders living near Ziyarat of Syed Mansoor Sahab (R.A), the

foot bridge established over it looks like an unclean drainage system, solid waste is being deposited in all water canals which were once having clean water, thus aqua system has been completely destroyed because of filth around these water bodies. The people living around these water canals of Srinagar want either the government to close down these water tributaries or get them back in the clean shape. The scientists of SKUAST-K and University of Kashmir told that major departments including Irrigation and Flood Control (I&FC) and LAWDA must play their crucial role in saving these water bodies. Professor Kundangar told that the Chounti Koul of Srinagar, basically the exit channel Dal and river Jhelum, was also being used for water transportation while Sonar Koul was a tributary of river Jhelum. The scientists told that it is the duty of Lakes and Water Ways Development Authority (LAWDA), SMC, NGOs, locals etc to speed up the rehabilitation process.

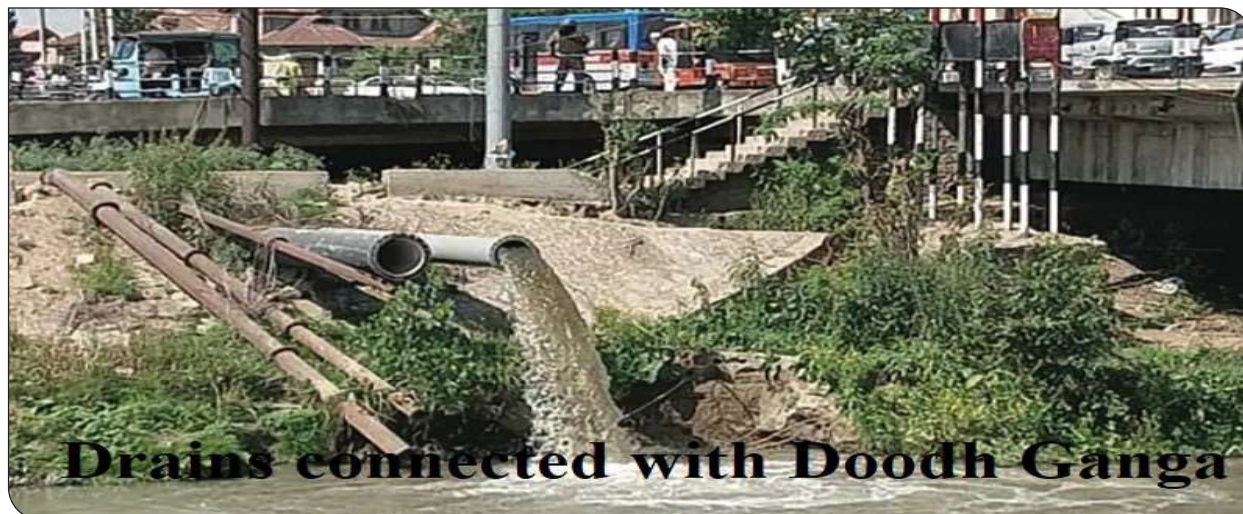




Rakh-e-Arth. Rakh-e-Arth, once a wetland at Bemina, has been turned into a site for rehabilitation of Dal dwellers shifted from the water body for its preservation. J&K government in 2007, declared to displace Dal dwellers and rehabilitate them with all modern facilities at Bemina, Rakh-e-Arth. However, as reported by locals lack of health, education and transportation facilities is causing immense hardships for residents. During discussion

with elders of the downtown Srinagar, it was found that Bemina wetland was changed into residential colony in early 1990s by a powerful group of people at that time. The wetland was sold at very low cost at that time as told by some people. The field visit revealed that Bemina wetland is turned into residential colony now. The pictures of Bemina Nambal once known still tells its story that once it was a big water body in district Srinagar of Kashmir valley.





Doodh Ganga: Doodh Ganga river, meaning “milk river” in hindi, originates from the Pir Panjal glaciers, a major tributary of Jhelum river in Kashmir valley, is flowing through district Srinagar of Kashmir valley. It is an important drinking water source for Budgam and Srinagar’s uptown areas, once a gushing river with crystal clear waters is facing significant challenges including pollution, encroachment and illegal mining. During our field visits it was found that Doodh Ganga looks like a sewage canal as in absence of

required Sewage Treatment Plants, all the drains in the twin districts empty into Doodh Ganga. It was found that till few years ago, one of its canals passed through Batamaloo, shockingly this was gradually buried under concrete structures, parks and bus stands from Batamaloo to Shalteng in the full glare of authorities. What remains of the river in district Srinagar is just a name Doodh Ganga Road. It is encouraging that Govt. has initiated a project to restore and clean Doodh Ganga in Srinagar, with the National Green Tribunal.



Jhelum River: It is also called as Vyath in Kashmir, originates from the Verinag Spring, located in Pir Panjal range of district Anantnag of Kashmir valley is the main river flowing through district Srinagar. Jhelum river, a famous tourist place in Kashmir, Jhelum flows nearly 203 kilometers in Jammu Kashmir region out of its total length of 725 km. It flows through Srinagar and Wular lake before entering PoK and eventually merging with the river Chenab. Jhelum showcases spectacular views while coursing through the valleys and terrains of this region.

CONCLUSION

In Kashmir, all major water bodies like Anchar Lake, Dal Lake, and the Jhelum River

are connected. The quality of water remain consistently clean and suitable for drinking at all times due to the continuous flow of water in Kashmir. Water bodies of Kashmir are, in true sense, unison of nature and soul. The sounds of water falling and the solace a human soul feels is truly divine. Dal lake, Anchar, Hokersur etc of district Srinagar were well known for their role since long. The researchers reported that water quality has worsened since 1970 because liquid and solid waste enters in water bodies from the catchment areas. The majority of the people during discussion reported that role of policy makers in not satisfactory as water bodies are deteriorating day by day. We need to protect our water bodies as they have importance in our lives and people should

take a lead in this otherwise we are doomed. It is concluded from our study that it is the responsibility of Researchers, LAWDA, SMC, NGO's, Locals etc to tackle Water Pollution, Siltation and Deforestation, Climate Change, the main challenges these water bodies face at present.

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