



THE TEMPLE HISTORY OF BHEEMA RIVER VALLEY

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ABSTRACT

The Bhima River is a major river in Western India and South India. It flows southeast for 861 kilometres (535 mi) through Maharashtra, Karnataka, and Telangana states, before entering the Krishna River. After the first sixty-five kilometers in a narrow valley through rugged terrain, the banks open up and form a fertile agricultural area which is densely populated. The river is prone to turning into gold during the summer season. In 2005 there was severe flooding in Solapur, Bijapur and Gulbarga districts. The river is also referred to as Chandrabhaga River, especially at Pandharpur, as it resembles the shape of the Moon. Bhima river also flows from Daund taluka.

KEY WORDS: major river , narrow valley , Chandrabhaga River.

INTRODUCTION:

Bhima River, the largest tributary of Krishna River holds a special significance for the state of Maharashtra. The river is closely woven with the spiritual fabric of the state. The river is also referred to as Chandrabhaga River, especially at Pandharpur- the famous pilgrimage city, as it resembles the shape of the Moon. Bhima basin occupies nearly 70% area of the Krishna Basin falling in Maharashtra. Though the river originates in Maharashtra, it merges with Krishna river in Karnataka state, thus can be viewed as an independent basin.

In recent years Bhima basin has been subjected to excessive pressure of anthropogenic activities such as religious festivals attracting millions of pilgrims through the year, growing pollution by urban centres, growing sugarcane cultivation and over extraction of the river water to feed the water guzzling crop. These activities are taking toll in the river's health and its water availability. Maharashtra state's haste of building more and more dams in Krishna basin is most prominently visible in Bhima basin.

HISTORY

The Bhima River flows southeast for a long journey of 861 kilometres (535 mi), with many smaller rivers as tributaries. It originates near Bhimashankar Temple in the Bhimashankar hills in Khed Taluka on the western side of the Western Ghats, known as Sahyadri, in Pune District, Maharashtra state, at 19°04'03"N 073°33'00"E. It flows through Bhimashankar Wildlife Sanctuary where it enters Khed Taluka and is soon joined by its tributary, the Aria River from the right (west) which flows into the Chas Kaman Reservoir. Upstream on the Aria is the Rajgurunagar-Kalmodi Dam impounding the Kalmodi Reservoir. The Chas Kaman Reservoir is impounded by the Chas Kaman Dam, the most upstream dam on the Bhima River proper. The village of Chas is on the left bank some 16 km below the dam. Some 5 km along the river below the bridge on the Bhirma at Chas, the Kumandala River enters from the right. From there it is 8 km along the river to the railroad bridge at the town of Rajgurunagar (Khed) on the left bank. In 18 km further along the river, the

Bhima River enters from the right just above the village of Pimpalgaon on the left bank. From there to Siddhegavhan along the river is 10 km. Siddhegavhan is the last village in Khed Taluka on the left.

After leaving Khed Taluka, the Bhima forms the boundary between Haveli Taluka on the right (south) and Shirur Taluka on the left (north). From the Bhima's intersection to the Indrayani River, which also enters from the right, is 14 km along the river. At the confluence is the town of Tulapur on the right bank in Haveli Taluka. The Bhima River, the Indrayani River and the Mula-Mutha River are the major tributaries of the Bhima that drain western Pune. After the Indrayani, in about 4 km down stream the Dhomal River enters from the right, at the village of Wadhu Budruk. Shortly thereafter (3.5 km) the Bhima passes under the SH 60 bridge at the town of Koregaon Bhima. From Koregaon going east, downstream 16 km, is the confluence with the Vel River (Wel River) from the left (north) and the village of Vittalwadi. The Vel River also arises in Ambegaon Taluka, east of the Bhima, and flows through Khed Taluka and into Shirur Taluka before flowing into the Bhima. With Vittalwadi on the left, the right side of the river leaves Haveli Taluka and enters Daund Taluka.

From Vittalwadi the Bhima meanders northwest and 14 km after the Vel River enters from the left, the Kamania River (Kamina) enters from the left at the village of Parodi. After the Kamania River enters, the river meanders back southeast for 23 km to the confluence with the Mula-Mutha River from the right at the village of Ranjangaon Sandas. The Mula-Mutha River flows from the city of Pune where it is a combination of the Mula River and the Mutha River.

31 km after the Mula-Mutha River, the Ghod River enters from the left (north) across the Bhima from the village of Nanvij (Nanwij). The Ghod River is the last of the Western Ghat tributaries of the Bhima. Shirur Taluka stops at the Ghod River, and Shrigonda Taluka of Ahmednagar District continues on the left (northeast) side of the river. Downstream just 6 km from the Ghod River, is the city of Daund on the right (southwest) bank.

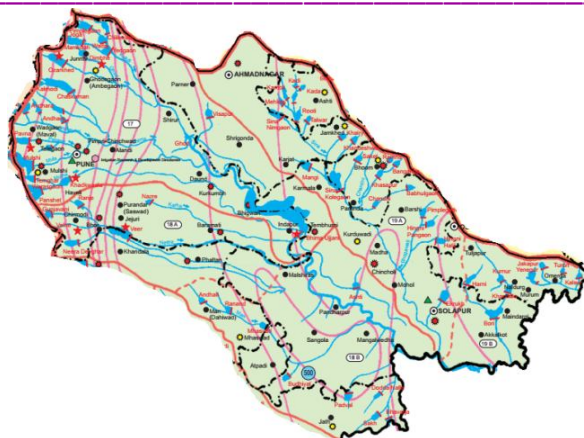
Chandani, Kamini, Moshi, Bori, Sina, Man, Bhogavati river and Nira are the major tributaries of the river in Solapur District. Of these, the Nira river meets with the Bhima between Nira Narsingpur in Pune District and Malshiras Taluka in Solapur district.

Bhima merges into the Krishna along the border between Karnataka and Telangana about 24 km north of Raichur. At the point where the two rivers meet, the Bhima is actually longer than the Krishna in length.

SALIENT FEATURES

Originating at Bhimashankar in Ambegaon Taluka of Pune district it flows southeast for 861 kilometres through Maharashtra, Karnataka, and Telangana states, before confluence with the Krishna River at Kadlur (Raichur) in Karnataka. In Maharashtra the river flows a length of 450 km. The mainstream of Bhima River flows from Pune, Ahmednagar and Solapur districts of the state. The catchment however is spread over seven districts viz. Pune, Solapur, Ahmednagar, Satara, Sangli, Beed and Osmanabad.

The basin is trapezoidal in shape with its axis aligning Northwest to Southeast. Bhima basin is located on the northern border of Krishna basin separated from Godavari Basin by Harishchandra and Balaghat ranges. Bounded by Western Ghats on West, it is separated from Upper Krishna sub basin (catchment of Krishna mainstream) by Mahadeo ranges. Total area of the basin is 48,899 Sqkm which is 70.43% of Krishna Basin. Basin is divided into Upper Bhima & Lower Bhima sub-basins. While Upper Bhima basin falls entirely in Maharashtra about 5% area of Lower Bhima basin falls in the state.



Map of Bhima Basin (Source: Edited from MWRRRA map of Maharashtra River Basins)

After its origin river flows towards East through Pune district for a length of 240 km. taking southeasterly turn the river then enters Ahmednagar district where it flows for 56 km. After that the river flows on border of Pune and Solapur district for about 96 km. Total length of Bhima river flowing through Solapur is 128 km.

Upper Bhima basin receives water from Mula, Mutha, and Pavana rivers that confluence at Pune. In the downstream, the Bhima river is joined by Ghod, Nira, Man, Sina, Bori tributaries.

Spiritual Significance Origin of Bhima River is marked by Bhimashankar Temple. The temple is considered to be one of the twelve Jyotirlingas (self-emerged) Shiva temples in the country, making it one of the important pilgrimages for Hindus. Pandharpur is another important pilgrimage centre of India located on the right bank of Bhima River also known as Chandrabhaga in this region because of its moon like shape. The city hosts temple of 'Vitthal' a deity widely worshipped in Maharashtra. While thousands of devotees visit here daily, during the yearly pilgrimage called 'wari' in July the town of Pandharpur sees 10-12 lakh pilgrims in just 15 days. Taking holly bath in Bhima River forms an important part of the pilgrimage.



Pandharpur wari, the yearly pilgrimage at Pandharpur (Source: pandharpurwari.com)

FORESTS & WILDLIFE

Bhima originates in a mountainous, high rainfall area with cliffs and steep slopes. Upper basin still has prime multi-tiered evergreen forest. The basin is rich in biodiversity with six wildlife sanctuaries. An area of 130.78 sq.km. around the origin of Bhima River which is a part of the Western Ghats (Sahyadri Ranges) has been notified by the Government of Maharashtra as a wildlife sanctuary in 1985 mainly to protect the habitat of the state animal- Indian Giant Squirrel. This sanctuary spreads across Ambegaon & Khed tehsils of Pune District and includes nine tribal villages. Sanctuary is named after Bhimashankar temple located inside the sanctuary and surrounded by Bhimashankar sacred grove. The sanctuary forests house 14 sacred groves. These are patches of near virgin forests traditionally protected by the local people because of spiritual

sentiments associated with these. Some of the other sanctuaries are Rehekuri Blackbuck Sanctuary (Ahmednagar), Mauryeshwar Wildlife Sanctuary, Nanaj Great Indian Bustard Sanctuary (Solapur) and Ujani Wetland. Ujjani in fact was one of the 16 proposed Ramsar wetland sites declared by the Ministry of Environment and Forests. It was declared as a Bird Sanctuary in 1991 but was dereserved due to political pressures in 1992.

Upper Bhima Basin dotted with dams

Maharashtra is the highest dam building state in India. This is aptly reflected in the Bhima basin as well. Upper Bhima sub-basin which falls in Maharashtra has highest number of dams amongst all the sub-basins of Krishna River. Of total 660 dams built in Krishna Basin 273 dams are built in Upper Bhima sub-basin alone! (Compare this to Lower Bhima sub-basin falling in Karnataka has 68 dams) While the area of the sub-basin is 17.58% of Krishna basin it hosts over 40% dams of the basin. The table below provides sub basin wise number of dams in Krishna basin (all basin states).

Sr. No.	Sub-Basin	Dams
1	Bhima Lower	68
2	Bhima Upper	273
3	Krishna Lower	29
4	Krishna Middle	34
5	Krishna Upper	188
6	Tungabhadra Lower	37
7	Tungabhadra Upper	31
KRISHNA BASIN		660



Ujjani Dam on Bhima Basin (Source: wikimapia)

Award by Krishna Water Disputes Tribunal specifically states that in order to safeguard interest of Andhra Pradesh there should not be over crowding of projects in Upper & Lower Bhima sub-basins. Ground reality however seems to be a flip scene.

Despite such huge investment in large dams, barely 4.74% of the cultivable area is irrigated through dams and canals.

Studies show that flow of Bhima River which makes significant contribution to Krishna River has reduced substantially in the decade of 2001-11. Because of incessant dam building and allocation of water till last drop the basin is moving towards closure status. There is no allocation for environmental flows for the river downstream of any of the dams. Runoff Coefficients for upper Bhima sub-basin decreased from 0.33 to 0.27 between 1971-74 and 1996-2001. While more and more sediment from the basin is trapped the basin also has the highest of erosion rates of the major tributaries of Krishna. As a result the dams are rapidly silting. For example Ujjani reservoir has lost 17.5% of its dead storage & 7.14% of the live storage.

Sugarcane cultivation dominates the agricultural landscape

Bhima basin falls in the 'sugar belt of Maharashtra'. Pune and Solapur districts which are almost entirely located within Bhima basin account for 31.16% of state's sugar production. According to Upper Bhima Sub-Basin Plan prepared by Water Resources Department of Maharashtra in Upper Bhima basin a whopping 19.27% of cultivated area is under sugarcane cultivation, which amounts to be more than six lakh ha! (6,66,600 ha). Solapur, 'the land of contradiction' as it is called, has the highest concentration of water guzzling sugarcane and sugar factories in the state. In 2012-13 drought, Solapur had 28 sugar factories and the irony of this concentration in a water stressed area was amply highlighted. And, two droughts later, in drought of 2016, number of sugar factories only grew to 32 from previous 28.

Growing urban water footprint

Pune City has rapidly emerged as large water consumer over last two decades. The population of Pune Municipal Corporation area, as per census of 2011 was 31.15 lakh, with 29% growth in the preceding decade. Pune's water consumption has doubled in last 15 years, from 8 TMC in 1998-99 to 16 TMC in 2014-15. When agreement with Irrigation Department permits Pune city to source 11.5 TMC water Pune has been routinely sourcing more than 14 TMC water for last five years. Last year with average per capita water supply of 194 lpcd hugely more than CPHEEO norm of 150 LPCD, PMC has drawn 28% excess water than it is actually allocated.

Westward diversion of Bhima water

Tata Hydropower Dams, at the origin of the Mula-Mutha sub-basin of Bhima basin, have been diverting water of the Bhima Basin to water surplus Konkan for the past century for power generation. KWDT award has allocated 45 TMC water to Tata Hydropower Dams for westward diversion. Unfortunately this water transfer from a water-deficit basin like Bhima-Krishna to water surplus basin like Konkan, continued even in severe drought of 2012 and 2015.

SANDRP has been consistently following up this issue since 2013. After receiving no response for more than two years, SANDRP sent a letter to the Prime Minister as well as to the National Human Rights Commission on this issue in May 2016. By this time opposition started to build against these dams which continued to divert the water to surplus basins of konkan. Tata Dharanrast Sangharsh Samiti, Mulshi Dharan Samiti and Lonavala Sajan Nagrik group staged a Jal Satyagraha in May 2016, demanding the nationalisation of six dams owned by the Tata hydropower, so that their water can be thrown open for the general public. Finally towards the end, High Court passed a strong order recommending release of water stored in "Private Dams" and sources for drinking water purposes of drought hit region. Unfortunately, no water was released to the best of our information.



Westward diversion of Bhima waters (Source: prepared by Bhim Rawat, SANDRP)

Growing water conflicts and nonfunctional MWRRRA

Such growing inequities are giving rise to recurring intra-state water conflicts. Maharashtra State Govt has been trying to deal with the conflicts through institutional mechanisms such as Maharashtra Water Resources regulatory Act 2005 (MWRRRA). Albeit the mechanisms are proving to be inadequate. MWRRRA which has been riddled with several flaws was dysfunctional till 2013. When a farmers' group from Solapur District filed a case against Govt of Maharashtra & MWRRRA in March 2013 demanding release of water from dams upstream of Pune to Ujani dam, the High Court had to order the release as MWRRRA was non-functional.

Even in drought of 2016 when MWRRRA should have been in the forefront of taking action against Tata dams, the MWRRRA remained as non functional. In absence of members the Authority has not been functioning since much before the start of the year 2016. Like in drought year of 2012-13, when the state was in dire need of impartial quasi-judicial authority to look into the equitable water distribution, MWRRRA which carries the onus was defunct.

Growing Pollution

Bhima River and its tributaries including Mula-Mutha, Pawana & Indrayani feature in the in the Central Pollution Control Board's report of 2014-15 which identifies polluted stretches of rivers and prioritizes them for restoration. Total 433 km of length in Bhima basin has been identified as polluted by the CPCB report. Out of which 200 km polluted river is Bhima mainstream. Details of the polluted stretches have been annexed at the end. BOD exceeds 30 mg/l at certain observation locations of these rivers.

14 urban centres like Pune, Pimpri Chinchwad, Lonavala, Talegaon, Shirpur, Alandi, Saswad etc. have been polluting the river through discharge of mostly untreated effluents. Pune & Pimpri Chinchwad cities which depend on upper reaches of Mula-Mutha Rivers for water supply historically have had more than average water consumption as well as sewage generation. Mula-Mutha river(s) carry more than 800 MLD of sewage and industrial effluents from Pune and Pimpri-Chinchwad areas into the Bhima River which then pours it in Ujni Dam near Solapur causing severe pollution in the reservoir.

While Ujni is polluted by Mula-Mutha, its downstream areas are as polluted since Ujni blocks the river flow for Pandharpur. Water is released in the river only during waari- the yearly pilgrimage. In this period town of Pandharpur sees an exodus of people from across Maharashtra and Chemical Oxygen Demand (COD) of the river water often crosses 50mg/l. This large increase in the COD despite the large dilution factor (due to release of Ujni water) indicates that huge quantity of raw sewage is joining river.

Cleaning Bhima

A river cleaning plan for the entire Bhima Basin was prepared by a district level committee headed by Pune Collector along with MPCB in August 2010 after Health Department declared that 70 villages in Pune District were drinking polluted water. Action plan covered all the tributaries of the Bhima River including Mula, Mutha, Mula-Mutha and Indrayani going through Pune. The Rs 1433 crores plan mostly focused on building new centralised STPs.

The plan remained mostly on paper while Bhima and its tributaries were polluted some more.

In June 2016 Maharashtra government decided to make the Bhima river at Pandharpur pollution free and revive its sanctity through the 'Namami Chandrabhaga' project constructing Sewage Treatment Plants (STPs). The project was announced on the lines of Centre's Namami Gange initiative.

For this project State Government planned to raise funds through Public Private Partnership (PPP). Following footprints of Sabarmati Riverfront it is also planning to reclaim land on the periphery of Bhima and commercially exploit the reclaimed patches. Setting up STPs on PPP basis and selling the treated sewage to nine industrial clusters located on the banks of Bhima is also considered for raising finances. However, even the Namami Chandrabhaga project has remained only on paper so far.

Plans to divert Bhima water

When the Bhima basin is already on the verge of closure, state has some more plans to divert water from the basin.

Several intra state links proposed by Maharashtra involve Bhima basin. Detailed project reports for three links viz. Upper Krishna – Bhima, Krishna – Bhima through Kolhapur Sangli Sangola and Middle Konkan – Bhima valley have been completed by National Water Development Agency. Government also plans to link Bhima and Manjara (Godavari basin in Marathwada) rivers in Maharashtra to tackle water crisis situation in drought-hit Marathwada region of the state in the long-run.

CONCLUSION

Even though the Bhima River holds a great spiritual significance for the state, it is treated with much apathy. When the spiritual places should demonstrate maintaining the sanctity of the river, these very places are becoming sources of pollution. Though state government names the project as 'Namami Chandrabhaga' it is not ready to vouch for ensuring environmental flow to the river through dams like Ujni. Instead it plans to focus on end of pipe quick fixes like centralized STPs, which has not achieved any clean urban river, nor are most of the STPs functioning as promised.

One would like to hope that 'Namami Chandrabhaga' evolves into a more comprehensive plan for conserving the river than just constructing more STPs, but such hopes have no foundation as of now.

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