National River Conservation Directorate
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APPROACHES AND ACTIVITIES OF RIVER-PEOPLE CONNECT IN KRISHNA RIVER BASIN

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National River Conservation Directorate (NRCD)

The National River Conservation Directorate, functioning under the Department of Water Resources, River Development & Ganga Rejuvenation, and Ministry of Jal Shakti providing financial assistance to the State Government for conservation of rivers under the Centrally Sponsored Schemes of 'National River Conservation Plan (NRCP)'. National River Conservation Plan to the State Governments/ local bodies to set up infrastructure for pollution abatement of rivers in identified polluted river stretches based on proposals received from the State Governments/ local bodies.

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Centres for Krishna River Basin Management Studies (cKrishna)

The Centres for Krishna River Basin Management Studies (cKrishna) is a Brain Trust dedicated to River Science and River Basin Management. Established in 2024 by NIT Warangal and NITK Surathkal, under the supervision of cGanga at IIT Kanpur, the centre serves as a knowledge wing of the National River Conservation Directorate (NRCD). cKrishna is committed to restoring and conserving the Krishna River and its resources through the collation of information and knowledge, research and development, planning, monitoring, education, advocacy, and stakeholder engagement.

www.ckrishna.org

Centre for Ganga River Basin Management and Studies (cGanga)

cGanga is a think tank formed under the aegis of NMCG, and one of its stated objectives is to make India a world leader in river and water science. The Centre is headquartered at IIT Kanpur and has representation from most leading science and technological institutes of the country. cGanga's mandate is to serve as think-tank in implementation and dynamic evolution of Ganga River Basin Management Plan (GRBMP) prepared by the Consortium of 7 IITs. In addition to this, it is also responsible for introducing new technologies, innovations, and solutions into India.

www.cganga.org

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Preface

In an era of unprecedented environmental change, understanding our rivers and their ecosystems has never been more critical. This report aims to provide a comprehensive overview of our rivers, highlighting their importance, current health, and the challenges they face. As we explore the various facets of river systems, we aim to equip readers with the knowledge necessary to appreciate and protect these vital waterways.

Throughout the following pages, you will find an in-depth analysis of the principles and practices that support healthy river ecosystems. Our team of experts has meticulously compiled data, case studies, and testimonials to illustrate the significant impact of rivers on both natural environments and human communities. By sharing these insights, we hope to inspire and empower our readers to engage in river conservation efforts.

This report is not merely a collection of statistics and theories; it is a call to action. We urge all stakeholders to recognize the value of our rivers and to take proactive steps to ensure their preservation. Whether you are an environmental professional, a policy maker, or simply someone who cares about our planet, this guide is designed to support you in your efforts to protect our rivers.

We extend our heartfelt gratitude to the numerous contributors who have generously shared their stories and expertise. Their invaluable input has enriched this report, making it a beacon of knowledge and a practical resource for all who read it. It is our hope that this report will serve as a catalyst for positive environmental action, fostering a culture of stewardship that benefits both current and future generations.

As you delve into this overview of our rivers, we invite you to embrace the opportunities and challenges that lie ahead. Together, we can ensure that our rivers continue to thrive and sustain life for generations to come.

Centers for Krishna River Basin Management and Studies (cKrishna)

NIT Warangal, NITK Surathkal

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1. Introduction

The Krishna River also known as Krishnaveni is one of the longest rivers in the Deccan plateau is the third-longest river in India, after the Ganges and Godavari. The Krishna River is a significant river in India, originating in the Western Ghats near Mahabaleshwar in Maharashtra. Flowing eastward across the Indian states of Maharashtra, Karnataka, Telangana and Andhra Pradesh, it eventually empties into the Bay of Bengal. Spanning approximately 1,400 kilometres, the Krishna River has a drainage basin covering around 258,948 square kilometers.

In the case of the Krishna River Basin, cities have been a major contributor to its decline, but they also hold the key to its restoration. Currently, around 34% of India's population resides in urban areas. Over the years, both the number and size of Indian cities have grown significantly. According to the 2011 Census of India, the country had 7,935 towns and cities, showing a significant increase from 5,161 in 2001 (Census of India, 2011; IIPS Working Paper No. 17).indicate that this urbanization trend is likely to continue in the future. Urbanization is often linked to economic growth and development. However, these advancements frequently come at an environmental cost. One significant consequence is the degradation of riverine systems due to unchecked water extraction and pollution of rivers and water bodies. The Krishna River Basin has been experiencing these adverse effects at an increasing rate.

The Krishna Basin extends over the states of Andhra Pradesh (29.81%), Maharashtra (26.36%) and Karnataka (43.8%). It is having a total area of 258948 sq. km which is nearly 8% of the total geographical area of the country. The basin has a maximum length and width of about 701 km and 672 km and lies between 73°17' to 81°9' east longitudes and 13°10' to 19°22' north latitudes. The basin is roughly triangular in shape and is bounded by Balaghat range on the north, by the Eastern Ghats on the south and the east and by the Western Ghats on the west. The Western Ghats form the main watershed in the Region between the Bay and Arabian Sea rivers.

2. Current nature of people-river interactions in Krishna River basin

To understand the current nature of people–river interactions in the Krishna River Basin, a survey was conducted in several villages located along the middle and lower stretches of Krishna River and its major tributaries such as the Musi, Munneru, and Tungabhadra rivers. Additionally, a stakeholder meeting was organized for the Upper Krishna stretch and the Bhima tributary. The survey focused on capturing local perspectives regarding the river, including how communities use river water, the changes they have observed over time in terms of pollution and water availability, whether household waste is discharged into the river near their villages, the cultural importance of the river, and the extent of their dependence on it. Figure 1-8 shows the glimpses from the surveys carried out at different locations along the Krishna River and its major tributaries. The outcomes derived from these surveys are summarized in the subsequent section.

Figure 1: River people Connect Survey in villages adjacent to munneru, musi and and Krishna

Figure 2: River people Connect Survey in Kudli, Shivamogga, Karnataka

Figure 3: River people Connect Survey in Venegaon, Maharashtra

2.1 Reliance for Krishna River for livelihood

The Krishna River is one of the most dammed rivers in the country, playing a crucial role in sustaining communities across its basin. Agriculture remains the primary livelihood, supported by numerous major and minor irrigation projects that ensure water supply for cultivating a wide range of crops. In addition, the river and its tributaries provide important resources for fishing and sand mining, while several communities also depend on the river for drinking water after purification.

At the same time, urbanization has placed considerable pressure on the river system. Major cities such as Hyderabad (along the Musi River) and Pune (along the Bhima River) discharge large volumes of treated and untreated sewage into the tributaries. Similarly, urban centers like Vijayawada (Lower Krishna), Khammam (along the Munneru river), Shivamogga (along the Tungabhadra River) and other growing towns along the main Krishna channel also contribute wastewater inputs. Beyond these cities, many smaller towns and peri-urban communities release household and municipal waste directly into nearby tributaries, further compounding the pollution load.

Apart from domestic uses, the Krishna River is also a vital water source for industries, including power generation, textiles, sugar, paper, and chemical industries located across the basin. While industrial reliance on the river supports regional economies, it also adds to the challenges of managing water quality and maintaining ecological balance.

2.1.1 Agriculture activities

Agriculture across the Krishna River Basin varies significantly with geography, climate, and water availability, making it one of the most diverse agricultural regions in India. In the upper basin covering parts of Maharashtra, particularly in districts like Pune, Satara, Sangli, and Solapur, sugarcane, bajra, groundnut, and jowar are the dominant crops, supported by canal irrigation from reservoirs such as Khadakwasla and Ujjani. Moving into northern Karnataka districts like Belagavi, Bagalkote, Vijayapura, and Raichur, irrigation from the Almatti, Narayanpur, and Tungabhadra projects sustains the cultivation of cotton, maize, pulses, and sugarcane, alongside rainfed crops like millets in drier tracts.

In the middle basin, particularly in Telangana, districts such as Nalgonda, Mahabubnagar, and Khammam rely on irrigation from the Nagarjuna Sagar and Jurala projects, where rice, cotton, and maize dominate, with castor and groundnut grown under semi-arid conditions. The Bhima sub-basin supports rice and pulses in irrigated stretches but remains largely dryland farming with sorghum and pearl millet.

The lower basin and delta region in Andhra Pradesh, including Krishna, Guntur, and Prakasam districts, is one of the most fertile stretches, heavily dependent on the Prakasam Barrage and Krishna Delta irrigation network. This area primarily cultivates rice as the staple crop, along with chillies, tobacco, and oilseeds, making it an agricultural hub of the basin.

2.1.2 Industrial activities

The Krishna River Basin hosts diverse industrial activities, shaped by water availability, resource distribution, and urban development across its sub-basins. In the upper krishna basin of Maharashtra, districts such as Pune, Satara, Sangli, and Solapur are major hubs of sugar industries, textile processing, and distilleries, largely dependent on irrigation networks from the Krishna and its tributaries. These industries not only support regional economies but also contribute to significant water demand.

In northern Karnataka, particularly in Belagavi, Bagalkote, Vijayapura, and Raichur, the presence of sugar factories, cement plants, and agro-based processing units is prominent. The Raichur Thermal Power Station, located on the Tungabhadra River, stands out as a key industrial establishment, while cement industries around Bagalkote and Kalaburagi rely on the region's limestone deposits.

In Telangana, industries are concentrated around Hyderabad and along the Musi River, where pharmaceuticals, IT, and bulk drug industries have flourished. However, untreated or partially treated effluents from Hyderabad industries and sewage inflows make the Musi one of the most polluted tributaries in the Krishna system. Districts like Nalgonda and Khammam also host cement, ceramics, and mining-related industries supported by local mineral resources.

In the lower basin of Andhra Pradesh, particularly Krishna, Guntur, and Prakasam districts, aquaculture and seafood processing industries dominate, with Andhra Pradesh emerging as India's largest producer and exporter of shrimp. In addition, textile units, food processing, and tobacco industries thrive around the Krishna Delta region, supported by agricultural surpluses and irrigation networks such as the Prakasam Barrage.

Overall, industrial development across the basin is diverse, ranging from sugar, cement, and textiles in the upper and middle reaches to pharmaceuticals and aquaculture in the lower basin, reflecting both the natural resource endowments and strategic use of Krishna waters.

2.1.3 Fish and Fishery activities in Krishna River Basin

The aquatic life in the Krishna basin is notably diverse, with a rich variety of freshwater fish species, including Indian carp and catfish. A total of 195 fish species have been identified in the Krishna River system, of which 187 are considered validly occurring. Table 1 shows the families of fishes mostly occurring in the Krishna basin. Figure 9 show some of the types of fishes in Krishna basin.

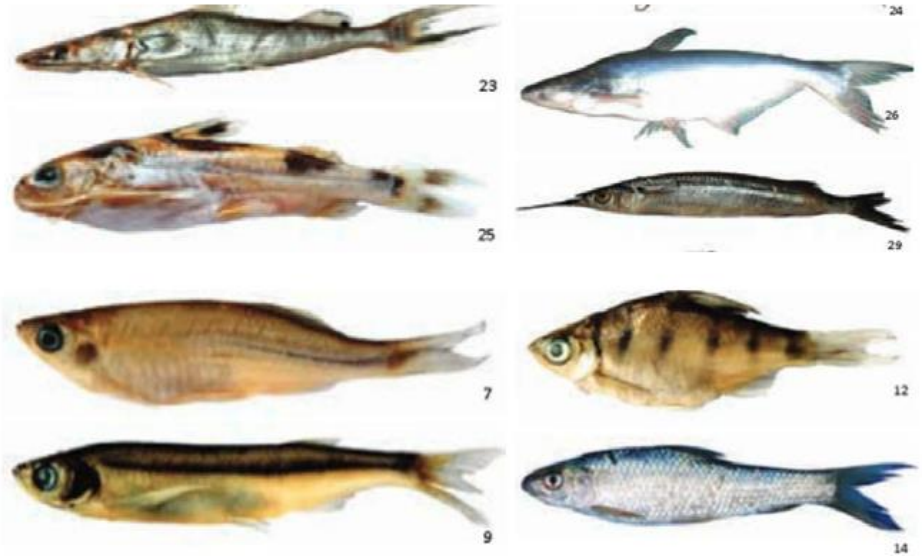

Figure 4: Some of the Types of Fishes Occurring in Krishna Basin.

Source: Kumbar et al. (2021).

Table 1: Families of Fishes Mostly Occurring in the Krishna Basin

Families of Fishes	
Notopteridea	Claridae
Cyprinidae	Belonidae
Parapsilorhynchidae	Ambassidae
Alitoridae	Cichlidae
Cobitidae	Gobidae
Bagridae	Channidae
Siluridae	Mastecembalidae

Fisheries Conservation & Management Plan: Water management of the river/reservoirs in the Krishna River complex is under the control of the Irrigation Department which meets the domestic and industrial needs in the State. The fisheries development and management programmes of the river and its impoundments, however, are being administered by the Department of Fisheries in Karnataka, Maharashtra, Telangana and Andhra Pradesh. Fish seed is stocked annually as reported by the local officers of the concerned department, licences/leasing-out the fishing areas of this lotic/ lentic water-body to facilitate fish harvest to the members of the Fishermen Cooperative Societies, assistance to the fishermen/fisherwomen is also being attire attended-to by the concerned Department. Around 2000 fishermen/Fisherwomen are functioning in the riverine stretches and the reservoir areas. Fish harvested is landed at 11 centres, is pooled and is packed in ice-containers to maintain the quality of the produce and gets despatched to Vijayapura, Bagalkot, Muddebihal, Indi, Hungund and also, as far as, Mumbai. Peak season catches account to 15 - 20 kg/unit and, sometimes, 20 - 30 kg/unit (March and upto the end of the monsoon season). Carps and catfishes are the ones being harvested at the time with sizes ranging from 1.5 - 8.0 kg. Stray specimens of Catla (5-6 kg each) and Rohu 2-4.5 kg) are also recorded during the lean seasons - but quite rarely, as reports indicate/as observed too.

Exotic Alligator Catfish - Atractosteus spatula in the Krishna River: It has been reported (Deccan Chronicle, August, 06, 2016) that the Alligator fish Atractosteus spatula has found in Telangana and Andhra Pradesh waterbodies. The species is the largest one in Texas (North America), considered as a threat to Sport fishes in the United State of America. The species has been recorded in ponds, rivers and other natural water bodies located in the states of Telangana and Andhra. Pradesh. Fishermen of the Krishna River and its tributaries in the State Karnataka are to be informed about the species with instructions to bring it to the notice of the Officers of the Department of Fisheries is in order to initiate the corrective measures to contain its proliferation in the said river and its reservoirs

2.2 Role of Krishna River as part of cultural practices

2.2.1 Festivals and Fairs: The Krishna River basin is home to several festivals and fairs that celebrate its cultural and religious importance, bringing communities together and fostering unity.

- **Krishna Pushkaram**: This is the most prominent festival, celebrated every 12 years when Jupiter enters the zodiac sign of Virgo. During this event, millions of devotees gather along the river to take a holy dip, perform rituals, and seek spiritual purification. It is not only a religious event but also a cultural extravaganza, with cultural performances, traditional music, and local cuisine, reinforcing the river's role as a unifying force across linguistic and regional boundaries. Figure 10

and 11 represents the Krishna Pushkaram Festival.

Figure 5: Krishna Pushkaram Festival

- **Local Festivals and Fairs**: Beyond the Krishna Pushkaram, numerous local festivals and fairs are held at various pilgrimage sites and ghats along the river. These events often coincide with agricultural cycles or religious observances, celebrating the river's role in sustaining life.

  For example, in Maharashtra, festivals like Narsobawadi Yatra and Wai Festival are held near the river, featuring processions, cultural performances, and traditional rituals. Similarly, in Andhra Pradesh, fairs at places like Srisailam and Amaravati attract pilgrims and tourists, showcasing the region's rich cultural heritage through dance, music, and art exhibitions. Narsobawadi Yatra Festival is been Shown in Figure 12 and Figure 13 represents Wai Festival.

Figure 6: Narsobawadi Yatra

Figure 7: Wai Festival

2.2.2. Ghats and Daily Rituals:

The Krishna River is dotted with numerous ghats (stepped riverbanks) that are central to daily cultural and religious practices. These ghats serve as communal spaces for spiritual and social activities, reflecting the river's integral role in daily life.

- **Menawali Ghat in Wai (Maharashtra)**: Built during the Peshwa rule in 1780, this ghat is a significant cultural and spiritual landmark. It is a popular site for religious ceremonies, including bathing (snan), puja (worship), and offerings. The ghat's historical significance is further highlighted by its appearance in Bollywood films, blending traditional practices with modern cultural influences. Daily rituals at Menawali Ghat include bathing in the river, believed to cleanse sins, and performing puja to deities like Lord Krishna and Goddess Durga. It also serves as a social hub where communities gather, share stories, and celebrate festivals. Figure 14 below represents Menawali Ghat in Wai.

Figure 8: Menawali Ghat in Wai

- **Undavalli Caves Ghat in Andhra Pradesh**: This Ghat is near Vijayawada are used for rituals and meditation, blending ancient architectural heritage with spiritual practices. These ghats are often adorned with decorations during festivals, enhancing their cultural significance. Undavalli Caves Ghat has been shown in Figure 15 below.

Figure 9: Undavalli Caves Ghat

In Telangana, ghats along the river near **Srisailam** are used for daily worship and special ceremonies during festivals like Maha Shivaratri, with devotees performing rituals like aarti (light worship) and abhishekam (deity bathing). Figure 16 shows Patalganga Ghat.

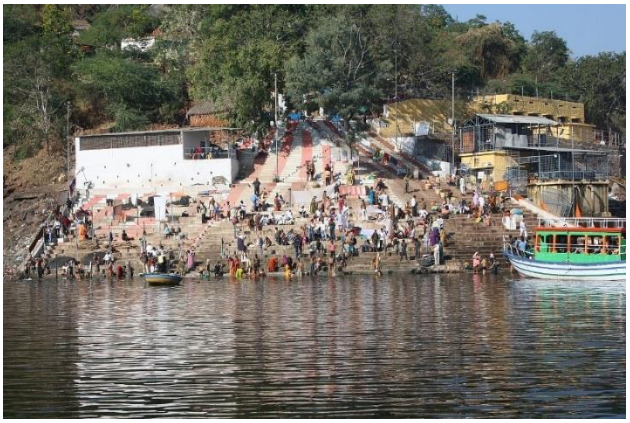

Figure 10: Patalganga Ghat

2.2.3. Influence on Local Culture:

The Krishna River has profoundly shaped the cultural identity of the regions it traverses, influencing art, folklore, and traditions. Its historical role as a lifeline for ancient empires has left a lasting legacy on the cultural practices of the basin.

- **Historical Influence**: The Krishna River basin has been home to powerful empires such as the Satavahanas, Chalukyas, Rashtrakutas, and Vijayanagara Empire. These civilizations left behind a rich cultural heritage, evident in the architectural marvels, art forms, and traditions of towns like Bijapur, Vijayawada, Sangli, and Kurnool.

  For instance, the Vijayanagara Empire's influence is seen in the cultural festivals and architectural styles of Vijayawada, where temples like the Kanaka Durga Temple reflect the empire's grandeur, with intricate carvings and sculptures depicting river motifs.

- **Art and Folklore**:

  Local art forms, such as sculpture and painting, often depict the river as a life-giving force. For example, the Amaravati Stupa in Andhra Pradesh, an ancient Buddhist site, features intricate carvings that reflect the river's cultural and spiritual significance, showcasing scenes of trade and pilgrimage along its banks. Amaravati Stupa shown in Figure 17 below.

Figure 11: Amaravati Stupa in Andhra Pradesh

2.2.4 Cultural Hubs:

Towns along the river have become cultural centers:

- **Vijayawada**: Known for its vibrant cultural scene, including festivals, music, and dance, it is also home to the Kanaka Durga Temple, a major pilgrimage site that hosts cultural events like classical dance performances during festivals. Kanaka Durga Temple Shown in Figure 18 below.

Figure 12: Kanaka Durga Temple

2.2.5. Unique Flow Direction:

At Pasarni village near Wai in Maharashtra, the Krishna River exhibits a rare phenomenon: it flows northwards for a short distance, known as "Uttar Vahini" (North flow). This is unusual because most Indian rivers flow southwards towards the sea.

- **Cultural Significance**:

The northward flow is considered spiritually significant and is commemorated locally through festivals and rituals. It is believed to symbolize the river's divine and mystical nature, with devotees

performing special rituals at this site, believing that the northward flow enhances the spiritual benefits of their prayers and offerings. Local communities often highlight this feature in cultural narratives, with festivals like the Wai Festival including processions and rituals at Pasarni to celebrate this unique flow.

2.2.6. Temples and Pilgrimage Sites:

The Krishna River basin is dotted with temples and pilgrimage sites that are integral to its cultural practices. These sites are not only places of worship but also cultural landmarks that reflect the region's rich heritage. Table 2 below shows the list of cultural practices and their locations.

Table 2: Cultural Practices and Their Locations

Cultural Practice	Location	Details
Krishna Pushkaram	Along the river (all states)	Celebrated every 12 years, features holy dips, music, dance, and rituals.
Daily Rituals at Ghats	Menawali Ghat (Wai), Sangli	Bathing, puja, and offerings, serving as social and spiritual hubs.
Local Festivals and Fairs	Srisailam, Amaravati, Narsobawadi	Processions, cultural performances, and traditional rituals.
Influence on Art and Folklore	Vijayawada, Kurnool, Sangli	Sculptures, paintings, and songs celebrating the river as a life-giving force.
Unique Flow Direction (Uttar Vahini)	Pasarni (near Wai)	Commemorated in festivals, symbolizing divine nature.
Temples and Pilgrimage Sites	Kanaka Durga, Mallikarjuna, Panchganga	Cultural events like dance and music during festivals, rituals at ghats.

2.3 Role of Krishna River for religious purposes

2.3.1. Sacred Status and Spiritual Purification:

The Krishna River is considered one of the holiest rivers in India, with its waters believed to possess purifying powers. Bathing in the river is thought to cleanse sins and bring spiritual merit, aligning with Hindu traditions of ritual purification. This belief is central to the religious practices along the river, fostering a deep connection with the divine.

According to Hindu mythology, the river is named after Lord Krishna, a central deity in Hinduism, and is associated with his childhood exploits and divine presence. Excavations along its banks have revealed idols of Lord Vishnu and Krishna, believed to be blessed by divinity, further solidifying its sacred status. The river is also linked to Lord Rama and Goddess Sita, who are said to have lived along its banks during their 14-year exile, adding to its spiritual significance.

In Maharashtra, the river is personified as 'Krishna Mai' (Mother Krishna), reflecting its nurturing and divine role in local culture, with devotees viewing it as a maternal figure offering spiritual solace. Hindu mythology attributes the origin of the Krishna River to the feet of Lord Vamana, an incarnation of Lord Vishnu, granting it divine status. This connection makes the river a site for seeking divine blessings and spiritual renewal, with devotees believing that its waters carry the essence of divine grace. The river is also associated with various legends, including the childhood exploits of Lord Krishna and the exile of Lord Rama and Goddess Sita. These stories enhance its spiritual importance, with devotees viewing the river as a manifestation of divine grace. For example, legends suggest that Lord Rama performed rituals along the river during his exile, adding to its sanctity. The Krishna River basin hosts many pilgrimage sites and temples that highlight its spiritual and cultural importance. These landmarks attract devotees who perform rituals such as aarti, abhishekam, and offerings, often using the river's water for purification. For instance, at the Kanaka Durga Temple, rituals at the nearby ghats are closely tied to the river.

2.3.2 Holy Confluences: The Krishna River is renowned for its sacred confluences (sangams), which hold deep spiritual significance in Hinduism and are often marked by temples and rituals. At Kudalasangama in Karnataka, where the Krishna meets the Malaprabha, devotees gather at the Aikya Mantapa, the Samādhi of Basavanna, and a self-born Linga to perform bathing, puja, and pitru tarpana, believing the confluence magnifies spiritual benefits. In Andhra Pradesh, the Sangameswaram site at the confluence of the Tungabhadra and Bhavanasi with the Krishna, though submerged under the Srisailam reservoir and visible only in summer, remains a revered center where pilgrims conduct special rituals during festivals. Similarly, near Sangli in Maharashtra, the confluence of the

Panchganga, Warna, and Yerla rivers with the Krishna is sanctified by legends of Lord Dattatreya's presence at Audumber, drawing devotees for prayers and offerings. These confluences symbolize the unity of divine forces and are regarded as highly auspicious sites where rituals such as bathing, puja, and offerings to ancestors amplify spiritual merit and foster a profound river-spiritual connection.

2.3.3 Cultural and Religious Preservation: The Krishna River's religious purpose is also tied to its role in preserving cultural heritage. Its association with mythology, history, and local traditions ensures that its cultural significance is passed down through generations. The river's influence on art, folklore, and literature further enhances its religious purpose. For example: Local folklore and songs celebrate the river as a life-giving force, with oral traditions like storytelling sessions held at ghats and temples, often accompanied by devotional singing and prayers. Sculptures and paintings along its banks, such as those at the Amaravati Stupa, depict river-related themes, blending cultural and religious narratives, with motifs of pilgrimage and worship.

Table 3: Religious Purposes and Their Locations

Religious Purpose	Location	Details
Sacred Status and Purification	Along the river (all states)	Bathing believed to cleanse sins, linked to Lord Krishna and Rama myths.
Pilgrimage Sites and Temples	Kanaka Durga, Mallikarjuna, Panchganga	Centers for worship, rituals like aarti and abhishekam, attract devotees.
Holy Confluences	Kudalasangama, Sangameswaram, Sangli	Sites for rituals, believed to amplify spiritual benefits, linked to myths.
Festivals and Rituals	Krishna Pushkaram, daily ghats	Krishna Pushkaram every 12 years, daily puja and bathing at ghats.
Cultural and Religious Preservation	Various towns (Vijayawada, Srisailam)	Art, folklore, and literature preserve religious narratives and traditions.

2.4 Krishna River for Tourism/Leisure/Recreation

The Krishna River, one of the major rivers of peninsular India, flows through Maharashtra, Karnataka, Telangana, and Andhra Pradesh. Its rich cultural heritage, scenic landscapes, and religious significance make it an ideal location for tourism and leisure activities. The river supports pilgrimage tourism, with several sacred temples along its banks, and adventure tourism, including water sports and nature-based

experiences. Moreover, its reservoirs and dams, such as Nagarjuna Sagar and Almatti, offer recreational opportunities like boating and fishing.

The Krishna River Basin is home to 57 major tourist destinations, encompassing a diverse range of attractions such as pilgrimage sites, wildlife sanctuaries, waterfalls, hill stations, forts, and lakes. Some of the most renowned tourist spots include Srisailam Temple and Dam, Charminar, Ettipotala Waterfall, Nagarjuna Sagar Dam, Sirimane Falls, Bhadra Wildlife Sanctuary, Bellary Fort, Bhimashankar Jyotirlinga, Mahabaleshwar, and Lonavala. Some of the tourist places in Krishna basin is given here:

- **Srisailam Temple:** The ancient and sacred temple of Srisailam is of great historical and religious significance. The shrine of Lord Mallikarjuna picturesquely situated on a flat top of Nallamalai Hills, on a 457-meter-high hill is the Bhramaramba Mallikharjunaswamy temple. One of the state's three famous Linga Kshetrams (Draksharamam and Nagarjunamo are the other two), it is also known as "Sri Mallikharjunam" and "Sri Parvatham". It is one of the 12 Jyotirlingas, and one among the 18 Mahashakthis in India. It is said that Vrishabha, the sacred bull of Lord Shiva performed penance here. Lord Shiva appeared before him, with his consort Goddess Parvati in the form of Mallikarjuna and Bhramaramba.

- **Golconda Fort:** The Golconda Fort is situated on the Western outskirts of Hyderabad city about 11 Km away. Golconda consists of four distinct forts with a 10 km long outer wall with 87 semicircular bastions (some still mounted with cannons), eight gateways, and four drawbridges, with a number of royal apartments & halls, temples, mosques, magazines, stables, etc. inside the fort which attracts tourists most.

- **Charminar:** A splendid piece of architecture standing in the heart of the city Charminar is a striking monument that acts as a major landmark in Hyderabad. Marvelous monument is a true picture of elegance, a great tribute to the fighting spirit of human race. Enormous in its size, this imposing monument exudes a charm that is more than 400 years old. Charminar is the pictogram of Hyderabad.

- **Hebbe Waterfall:** Hebbe Falls is situated about 10 km away from the famous hill station Kemmangundi in Karnataka

- **Mahabaleshwar:** Mahabaleshwar is the source of the Krishna River that flows across Maharashtra, Karnataka and Andhra Pradesh. The legendary source of the river is a spout from the mouth of a statue of a cow in the ancient temple of Mahadev in Old Mahabaleshwar. Legend has it that Krishna is Lord Vishnu himself as a result of a curse on the trimurtis by Savitri. Mahabaleshwar is a popular holiday resort and an important pilgrimage site for Hindus. It is the site of Mahabaleshwar Temple. Many tourists visit nearby Panchgani. After the construction of a new highway, it is only a five-hour drive from Mumbai. Mahabaleshwar is also known for the honey and strawberries produced here. It is said that the climate of Mahabaleshwar is ideal for Strawberries and Mulberries.

- **Lumbini Park:** Lumbini Park is a small public, urban park of 7.5 acres adjacent to Hussain Sagar in Hyderabad, India. Since it is geographically located in the center of the city and is in close proximity to other tourist attractions, such as Birla Mandir and Necklace Road, it attracts many visitors throughout the year.

- **Bhimashankar Jyotirlinga:** Bhimashankar temple is near Pune in Maharastra, which was referred to as Daakini country.

- **Bellary Fort:** Situated in Karnataka, it was built on top of the Ballari Gudda or Fort Hill, during Vijayanagar times by Hanumappa Nayaka. Hyder Ali took possession from the Nayaka's in 1769, got the fort renovated and modified with the help of a French engineer.

- **Prakasam Barrage:** It was named after Sri Tanguturi Prakasam, the first Chief Minister of the state. One of the first major irrigation projects of South India, the Prakhasam Barrage in Vijayawada was successful in its mission. The reservior made by this dam is a good attraction for tourism and it is considered to be official pilgrim lake (called in Telugu as Koneru) of Goddess 'Kanaka Durga'.The barrage serves also as a road bridge and spans over a panoramic lake. The three canals associated with the barrage, run through the city of Vijayawada criss crossing it and giving it a Venetian appearance.

- **Hidkal Dam:** Constructed across Ghataprabha River, Hidkal Dam is situated in Belgaum district in the state of Karnataka. Also known as Raja Lakhamgowda Dam, this dam site is important because many fossils have been revealed in nearby areas. The dam site draws not only tourists but also archeologists.

Below Table 4 represents tourist places including many pilgrim places, wildlife sanctuaries, waterfall, hill station, forts and lakes in Krishna basin.

Table 4: Tourist Places in Krishna River Basin

Slno	Tourist Site Category	No. of Places
1	Wild Life Sanctuaries	**5**
2	Lake	**9**
3	National Park	**1**
4	Dam	**3**
5	Fort	**6**
6	Tourist Spot	**5**
7	Museums / Monument	**2**
8	Pilgrimage (Masjid)	**1**
9	Caves	**2**
10	Barrage	**1**
11	Pilgrimage (Temple)	**14**
12	Island	**1**
13	Waterfall	**6**
14	**Hill Station**	**1**

Water-based tourism plays a vital role in the global tourism industry, offering diverse experiences through rivers, lakes, waterfalls, reservoirs, and coastal regions. These natural and cultural sites attract visitors for recreation, adventure, religious activities, and ecological exploration. The sustainable development of water tourism not only boosts local economies but also ensures the conservation of valuable water resources.

2.5 Role of Tribes in the Krishna River Basin

The Krishna River, one of India's major rivers, stretches approximately 1,400 kilometers through Maharashtra, Karnataka, Telangana, and Andhra Pradesh, before emptying into the Bay of Bengal. Known as ‘Krishnaveni’ or ‘Krishna Mai’ (Mother Krishna) in Maharashtra, it holds profound cultural, economic, and ecological significance. Its basin, covering about 258,948 square kilometers, supports diverse ecosystems and human communities, including several indigenous tribes. Below is a comprehensive exploration of the role of tribes in the Krishna River basin, focusing on their

dependence, contributions, and challenges.

Tribes in the Krishna River Basin: While specific data on tribes directly along the Krishna River is limited, the river flows through several districts in Maharashtra, including Satara and Sangli, where tribal populations are known to reside. Based on the distribution of Scheduled Tribes in Maharashtra, the following tribes are likely present in the regions along the Krishna River are Katkaris, Bhils, Warlis, Gonds, Mahadeo Kolis etc. Figure 22 represents different types of tribes present in Krishna River Basin and their roles and presence has been described in the Table 5

Figure 13: Tribes in Krishna River Basin.

Table 5: Key Tribes and Their Roles in the Krishna River Basin.

Tribe	Likely Presence	Role in Krishna River Basin
Katakuris	Adjacent to Satara	Likely depend on river for agriculture and water needs.
Bhils	Maharashtra, Satara	Agriculture, fishing, and cultural rituals along the river.
Warlis	Western Maharashtra	Agriculture, Warli paintings reflecting river connection.
Gonds	Peripheral areas	Possible cultural and economic ties to river resources.
Mahadeo Kolis	Hilly regions	Agriculture, fishing, and NTFPs from river and forests.

Dependence on the Krishna River: The Krishna River is a lifeline for tribal communities, sustaining their livelihoods and cultural practices through agriculture, fishing, and spiritual traditions. It provides essential irrigation for crops like rice, sugarcane, and turmeric, particularly benefiting tribes such as the Warlis and Bhils in the fertile plains of Satara and Sangli. Fishing, especially during the monsoon when fish populations rise, supports tribes like the Bhils and Mahadeo Kolis, with traditional methods of nets and traps passed down through generations. Beyond livelihoods, the river holds deep spiritual meaning, revered as 'Krishna Mai' in Maharashtra and central to tribal rituals, festivals, and offerings by groups like the Gonds and Warlis. In addition to these roles, the river supplies drinking water and daily sustenance, proving indispensable in drought-prone regions where it serves as a critical resource for survival.

Cultural and Social Significance: Tribes in the Krishna River basin play a vital role in shaping the region's cultural and social fabric through their unique practices, traditions, and community life. The Warlis, for instance, are renowned for their Warli paintings, which use natural dyes to depict agricultural life, nature, and river motifs as symbols of sustenance and storytelling. The river is also central to festivals such as Krishna Pushkaram, held every 12 years, where tribes participate in holy dips and rituals that strengthen community bonds, while local festivals in Satara and Sangli further reinforce their cultural identity. Beyond cultural expression, the river supports the social role of these communities by sustaining their livelihoods and serving as a hub for gatherings. Traditional knowledge of the river's ecosystem, including seasonal patterns and water management practices, is passed down through generations, fostering resilience and cohesion within tribal societies.

Economic Role: The economic dependence of tribes on the Krishna River is deeply rooted in agriculture, resource collection, and fishing, which together sustain their livelihoods and local economies. The fertile lands along the river support crops such as rice, millets, and vegetables grown by tribes like the Warlis and Bhils, with irrigation projects such as the Almatti Dam transforming arid regions into productive fields that benefit tribal farmers. In addition, the Mahadeo Kolis and Bhils rely on surrounding forests and riverbanks for non-timber forest products like honey, fruits, and medicinal plants, which are used for subsistence or sold in local markets to supplement income. Fishing also plays an important role, particularly during the monsoon season when fish are abundant, with traditional methods like nets and traps forming a vital part of the local economy, especially in areas such as Sangli where the river is a key water body.

Challenges and Conservation: Tribes in the Krishna River basin face several challenges that directly impact their dependence on the river. Environmental pressures such as water pollution, over-extraction for irrigation, and deforestation have increasingly affected their traditional livelihoods. Industrial effluents and agricultural runoff have degraded water quality, reduced fish populations and lowering agricultural productivity for these communities. In addition, large infrastructure projects like the Almatti, Nagarjuna Sagar, and Srisailam dams have significantly altered the river's natural flow. While these projects provide benefits in terms of irrigation and hydropower generation, they have also displaced tribal settlements and disrupted access to vital river resources, further threatening livelihood security. Despite these difficulties, tribal communities possess a wealth of traditional knowledge that contributes to sustainable resource management. Practices such as rainwater harvesting and soil conservation, as used by the Warlis, demonstrate their ability to maintain ecological balance and adapt to local conditions. Integrating this indigenous knowledge into government-led conservation programs and policies could play a crucial role in promoting sustainable use of the Krishna River's resources while also safeguarding tribal livelihoods.

3. Efforts by NGOs, local governments, or other groups and organizations in river people connect in Krishna River Basin.

This role of NGOs, local government, and community institutions is to address water scarcity, building resilience, and empowering communities. They also examine systemic challenges—like basin closure, groundwater overuse, and inter-state tensions—which require a fundamental shift in water governance. Without addressing these deeper structural issues, local efforts will remain vulnerable to the broader hydrological and political realities of the basin.

3.1. Landscape of Organizational Efforts in Krishna River Basin

The Krishna River basin, spanning Karnataka, Maharashtra, Telangana, and Andhra Pradesh, serves as a dynamic arena for diverse organizations engaged in water resource management and community development. Efforts in the basin range from grassroots initiatives led by NGOs to large-scale programs implemented by government and quasi-government agencies, often carried out through collaborative partnerships.

Non-Governmental Organizations (NGOs) and Grassroots Initiatives: In the Krishna River Basin of Andhra Pradesh, several NGOs and grassroots initiatives are actively engaged in water resource management, ecological restoration, and community development. Organizations like APMAS implement watershed management programs to enhance rural livelihoods (apmas.org), while the Ambuja Foundation with Asian Paints' CSR has improved water harvesting, RO purification, and sanitation in Guntur and Visakhapatnam (ambujafoundation.org). The Foundation for Ecological Security (FES) supports village institutions in ecological conservation (Wikipedia), and the Environmentalist Foundation of India (EFI) restores lakes and water bodies across the state (Wikipedia). Grassroots initiatives like the Andhra Pradesh Farmer Managed Groundwater System (APFAMGS) promote community-driven groundwater management (India Water Portal), while the Naandi Foundation has established Community Safe Water Schemes in Krishna and West Godavari districts (IRC Wash). Additionally, groups like Bhavitha Educational Society for Transformation (BEST) work on tribal empowerment (indiaisus.com) and APVHA focuses on health, WASH, and socio-economic programs across the state (apvha.org).

In Karnataka's Krishna River basin, several NGOs and grassroots initiatives are engaged in water conservation, ecological restoration, and community development. The Foundation for Ecological Security (FES) works with village-level institutions such as Water User Associations and Watershed Committees to restore degraded lands and strengthen water governance across semi-arid regions of North Karnataka (en.wikipedia.org). WOTR (Watershed Organisation Trust) has implemented watershed development programs in districts of the Krishna basin, focusing on water harvesting, sustainable agriculture, and women's empowerment (wotr.org). The Art of Living Foundation has undertaken river rejuvenation projects in Karnataka, including check dams, desilting, and afforestation efforts in the upper Krishna basin (en.wikipedia.org). Additionally, the WELL Labs–ACIWRM partnership under the RS-4C project applies remote sensing and participatory approaches to improve water management in Krishna basin districts of Karnataka (welllabs.org).

In Maharashtra's segment of the Krishna River basin, several impactful initiatives are driving water conservation and community resilience. The Paani Foundation, founded in 2016 by Aamir Khan and others, leads the innovative Satyamev Jayate Water Cup—a competitive model encouraging villages to adopt watershed and groundwater recharge methods through collective, volunteer-led efforts (Wikipedia). At the grassroots level, the Pani Panchayat model—championed by Vilasrao Salunkhe in the Chikotra Basin—has promoted participatory water management featuring watershed planning and community governance, particularly led by women's watershed associations (GreenWatchBD). Additionally, environmental NGO Vanashakti, based in Mumbai, actively works on river and wetland restoration, mangrove conservation, and involving local communities in ecological protection—extending its relevance to river basins including the Krishna (Wikipedia).

In Telangana's reach of the Krishna River basin, significant institutional and community-led efforts are advancing sustainable water management. The Mission Kakatiya program, initiated in 2015 by the state government, has rejuvenated over 27,000 tanks and lakes (out of a plan to renovate 46,531), significantly enhancing water storage, agricultural productivity, and groundwater recharge, while also benefiting fisherfolk and marginal communities (Wikipedia). In the Medak district, the Deccan Development Society (DDS) works across 75 villages via women-centric collectives, promoting ecological agriculture, food security, and community-based governance, earning global recognition through awards like the UNDP Equator Prize (Wikipedia). Moreover, administrative leadership in districts like Sircilla has seen ground-level conservation strategies—such as desilting

minor tanks, refurbishing temple-linked water bodies like Gudi Cheruvu, and mobilizing community stewardship to revive hundreds of water tanks—setting a model of community-driven water system rehabilitation (India CSR).

4. Conclusion

The report embodies a complex and deeply rooted relationship between the river and the people who depend on it for their livelihoods, culture, and identity. The field surveys and people–river interaction studies conducted at Kudli—the sacred confluence of the Tunga and Bhadra rivers—and in the villages situated along the Munneru, Musi, and Krishna rivers provided firsthand insights into how communities perceive and interact with the river system today. The respondents shared their observations on declining water quality, seasonal flow variations, pollution, and the visible impacts of urbanization and industrial growth on the river's health.

Despite these challenges, the Krishna River continues to be a lifeline for agriculture, fisheries, domestic use, and small-scale industries across its sub-basins. Communities maintain strong cultural and emotional ties to the river, which remains central to local festivals, rituals, and traditional practices. The reverence for "Krishna Mai" reflects the river's enduring spiritual and ecological significance. Complementing these community connections, numerous NGOs, local governments, and civil society organizations are actively engaged in strengthening people–river relationships through watershed development, tank rejuvenation, groundwater management, and ecological restoration initiatives across Maharashtra, Karnataka, Telangana, and Andhra Pradesh. Programs such as Mission Kakatiya in Telangana, the Paani Foundation's Water Cup in Maharashtra, watershed initiatives by WOTR and FES in Karnataka, and community water schemes by Naandi and APMAS in Andhra Pradesh have collectively demonstrated the power of participatory water governance and local stewardship in restoring degraded ecosystems.

However, the findings also highlight the urgent need for integrated water governance, improved waste management, sustainable irrigation practices, and protection of natural flow regimes to secure the basin's long-term resilience. Strengthening people–river connections through awareness, collaboration, and community-led conservation is essential to ensure that the Krishna River continues to sustain both human and ecological well-being for generations to come.

5. Significance

This report holds significant importance as it provides a comprehensive understanding of the evolving relationship between people and the Krishna River Basin across its diverse ecological and socio-economic landscapes. By documenting local perceptions and lived experiences from field surveys conducted at Kudli and in villages along the Munneru, Musi, and Krishna rivers, the study captures the voices of the communities most directly dependent on the river for their livelihoods, culture, and well-being. These firsthand insights reveal the multiple dimensions of river–people interactions — including agricultural dependence, water quality concerns, cultural reverence, and changing patterns of use under increasing urbanization and industrial pressure.

Beyond documenting these dynamics, the report serves as a valuable reference for policymakers, researchers, and development agencies working on integrated river basin management. It highlights the role of local institutions, NGOs, and state programs such as Mission Kakatiya, Paani Foundation, and WOTR in promoting community-driven water governance and ecological restoration. The findings emphasize the urgent need for participatory approaches that combine traditional knowledge with scientific understanding to ensure equitable, sustainable, and resilient water management across the Krishna Basin. Overall, this report contributes to strengthening the dialogue between science, society, and policy — offering direction for sustainable water use, ecosystem conservation, and cultural preservation within one of India’s most vital river systems.

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