National River Conservation Directorate
Ministry of Jal Shakti,
Department of Water Resources,
River Development and Ganga Rejuvenation
Government of India

Social Environment of Cauvery River Basin

March 2025

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National River Conservation Directorate (NRCD)

The National River Conservation Directorate, functioning under the Department of Water Resources, River Development and 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.

www.nrcd.nic.in

Centres for Cauvery River Basin Management Studies (cCauvery)

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

www.ccauvery.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.

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Abbreviations and Acronyms

AGAMT	Anaithu Grama Anna Marumalarchi Thittam
ARRS	Agumbe Rainforest Research Station
ATREE	Ashoka Trust for Research in Ecology & Environment
CNG	Compressed Natural Gas
CPCB	Central Pollution Control Board
CGWB	Central Ground Water Board
CNNL	Cauvery Neeravari Nigam Limited
CRB	Cauvery River Basin
CSMRS	Central Soil and Materials Research Station
CWC	Central Water Commission
CWMA	Cauvery Water Management Authority
CWRC	Cauvery Water Regulation Committee
DSS	Decision Support Systems
IMD	India Meteorological Department
FES	Foundation for Ecological Security
GSI	Geological Survey of India
JJM	Jal Jeevan Mission
KANS	Kenneth Anderson Nature Society
KIIDC	Kerala Industrial Infrastructure Development Corporation
KRS	Krishna Raja Sagara
KRRS	Karnataka Rajya Raita Sangha
KSIIDC	Karnataka State Industrial & Infrastructure Development Corporation
KSPCB	Karnataka State Pollution Control Board
LRI	Land Resource Inventory
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MGSMT	Mudhalvarin Grama Salaigal Membattu Thittam
MSME	Ministry of Micro, Small & Medium Enterprises
NGOs	Non-Governmental Organizations

NRCD	National River Conservation Directorate
NRCP	National River Conservation Plan
PIPDIC	Puducherry Industrial Promotion Development and Investment Corporation
PMKSY	Pradhan Mantri Krishi Sinchayee Yojana
PUCL	People's Union for Civil Liberties
STP	Sewage Treatment Plant
TAWDEVA	Tamil Nadu Watershed Development Agency
TNIDB	Tamil Nadu Infrastructure Development Board
TNRD	Tamil Nadu Rural Development and Panchayat Raj Department
TPD	Tons Per Day
TNPCB	Tamil Nadu Pollution Control Board
WASI	Wildlife Association of South India
WDC	Watershed Development Component
WRD	Water Resources Department

1. Introduction

The Cauvery River which is also known as the “Dakshina Ganga or Ganga of the South” is one of the most important and sacred rivers in South India. This river begins from the Talacauvery in the Western Ghats, located Kodagu district of Karnataka’s, and flows through the states of Karnataka and Tamil Nadu before reaching the Bay of Bengal. The river stretches around 800 kms, with about 320 kms flowing through Karnataka. For centuries, this river has been serving as the lifeline for the people residing near its basin by providing water for drinking, farming, and industrial applications.

The Cauvery River has been proclaimed to play key role in shaping the culture and economy of the surrounding region. It has major contribution in agriculture practices and helps in producing electricity through dams like the Krishna Raja Sagara (KRS) and Kabini. Along with that, it is central to many religious and social traditions. Large number of peoples, especially farmers rely on the water from Cauvery River Basin (CRB) for their daily needs and livelihoods.

Currently, the Cauvery River is facing serious complications due to urbanization, discharge of pollutants from industries and farm, deforestation and overexploitation of water. Wastewater from homes and industries accompanied by harmful chemicals used in agriculture are contaminating the water as well as the surrounding environment. Moreover, inter-state water disputes among Karnataka and Tamil Nadu have intensified over the utilization and sharing of river water. Even though, Cauvery water disputes tribunal has tried to settle down the disagreement over water allocation, but the tensions persist affecting not only the management of river but also the livelihoods of the people that are dependent on it. Furthermore, change in climate has also transformed the rainfall pattern owing to which there has been subsequent change in water flow that has led to the water shortage. To overcome these challenges, government has taken different initiatives by starting different programs at both national and state level. These initiatives involve comprehensive measures for regulating pollution, forming of river protection and water conservation plans. Non-Government Organizations (NGOs) and local peoples are also contributing liberally to save river by encouraging water conservation practices, plantation drives and eco-friendly farming practices.

This report provides a comprehensive assessment of the individuals, organizations, and projects that are associated with the management of the Cauvery River and its catchments. It

analyses the factors that facilitate or complicate the effectiveness of these initiatives and provide recommendations to increase public awareness and involvement to ensure the well-being of both the river and dependent communities.

2. Identification of key institutions in the CRB

2.1. Major government agencies

The effective management of the Cauvery River and surrounding areas demands coordinated assistance from different groups at the central, state and local positions. These agencies or group have significant role in regulating pollution, water usage management, infrastructure development and providing public services. The major government bodies responsible in the managing CRB by highlighting their respective roles and area of operation are shown in Table 1.

Table 1. List of government agencies

Organization Name	**Role/Activities**	**Region of Operation**
Cauvery Water Management Authority (CWMA)	Water allocation and dispute resolution	Inter-state (Centre)
Karnataka State Pollution Control Board (KSPCB)	Water quality monitoring, pollution control	Karnataka
Karnataka State Industrial & Infrastructure Development Corporation (KSIIDC)	Infrastructure development (e.g., airports, tourism, water infra) in CRB	Karnataka
Rural Development & Panchayat Raj Department (TNRD)	Local governance (e.g., Providing Infrastructure, implementing schemes and sanitation)	Tamil Nadu
Tamil Nadu Watershed Development Agency (TAWDEVA)	Watershed Development programs	Tamil Nadu
Municipal Administration and Water Supply Department	Development of urban areas, providing water supply	Tamil Nadu
Water Resources Department (WRD)	Managing and developing water resources	Tamil Nadu

Tamil Nadu Pollution Control Board (TNPCB)	Water quality monitoring, pollution control	Tamil Nadu
Tamil Nadu Infrastructure Development Board (TNIDB)	Basin-area investments in transport, renewable energy, and urban infrastructure	Tamil Nadu
Kerala State Pollution Control Board	Water quality monitoring, pollution control	Kerala
Kerala Industrial Infrastructure Development Corporation (KIIDC)	Implementation of industrial water supply and conservation projects	Kerala
Puducherry Pollution Control Committee	Water quality monitoring, pollution control	Puducherry
Puducherry Industrial Promotion Development and Investment Corporation (PIPDIC)	Supports industrial clusters in the river catchment, water-linked projects	Puducherry
Arasekere Municipality	Local sanitation, water distribution, public infrastructure	Karnataka
Challakere City Municipal Council	Local sanitation, water distribution, public infrastructure	Karnataka
Chamarajanagara Municipality	Local sanitation, water distribution, public infrastructure	Karnataka
Chikkanayakanahalli Municipality	Local sanitation, water distribution, public infrastructure	Karnataka
Harihara Municipality	Local sanitation, water distribution, public infrastructure	Karnataka
Hiriyur Municipality	Local sanitation, water distribution, public infrastructure	Karnataka
Hunsur City Municipal Council	Local sanitation, water distribution, public infrastructure	Karnataka
KR Nagar Municipality	Local sanitation, water distribution, public infrastructure	Karnataka
Kanakapura Municipality	Local sanitation, water distribution, public infrastructure	Karnataka

Kollegal City Municipal Council	Local sanitation, water distribution, public infrastructure	Karnataka
Krishnarajapet Municipality	Local sanitation, water distribution, public infrastructure	Karnataka
Maddur Town Municipal Council	Local sanitation, water distribution, public infrastructure	Karnataka
Madikeri Municipality	Local sanitation, water distribution, public infrastructure	Karnataka
Malavalli Town Municipal Council	Local sanitation, water distribution, public infrastructure	Karnataka
Mandya Municipality	Drinking water supply, drainage management in CRB region	Karnataka
Municipality of Bannur	Local sanitation, water distribution, public infrastructure	Karnataka
Municipality of Gundlupete	Local sanitation, water distribution, public infrastructure	Karnataka
Municipality of Holenarsipura	Local sanitation, water distribution, public infrastructure	Karnataka
Municipality of Srirangapatna	Local sanitation, water distribution, public infrastructure	Karnataka
Mysuru City Corporation	Waterbody management, drainage, sanitation	Karnataka
Nanjangud Municipality	Local sanitation, water distribution, public infrastructure	Karnataka
Madurai Municipal Corporation	Urban infrastructure, local water management, sanitation services	Tamil Nadu
Coimbatore Municipal Corporation	Water infrastructure, sewage systems, civic planning	Tamil Nadu
Tiruchirappalli Municipal Corporation	Riverbank management, municipal water systems, sanitation	Tamil Nadu
Salem Municipal Corporation	Local water distribution, drainage, civic amenities	Tamil Nadu

Tiruppur Municipal Corporation	Drainage systems, sewage, water management	Tamil Nadu
Erode Municipal Corporation	Water supply, sanitation, local civic services	Tamil Nadu
Dindigul Municipal Corporation	Local water systems, sanitation, public health	Tamil Nadu
Thanjavur Municipal Corporation	Water resources, river management, municipal sanitation	Tamil Nadu
Hosur Municipal Corporation	Industrial city water and sanitation infrastructure	Tamil Nadu
Kumbakonam Municipal Corporation	Water management, temple town sanitation, and stormwater drainage infrastructure	Tamil Nadu
Cuddalore Municipal Corporation	Riverine water infrastructure, sewage, drainage	Tamil Nadu
Karur Municipal Corporation	Local water and sanitation services	Tamil Nadu
Namakkal Municipal Corporation	Civic water management, sanitation	Tamil Nadu
Pudukottai Municipal Corporation	Urban water systems, local cleansing operations	Tamil Nadu
Karaikal Municipality	Water supply, sanitation, and delta irrigation management	Puducherry
Central Water Commission (CWC)	Monitoring river flows, dam safety, flood forecasting, reservoir operation planning across CRB; operates multiple hydrological observation stations	Karnataka, Tamil Nadu, Puducherry
Central Ground Water Board (CGWB), Southwestern Region	Groundwater level monitoring, aquifer mapping, recharge studies, groundwater quality assessment in the basin	Karnataka
CGWB, Southern Region	Groundwater resource management, borewell regulation,	Tamil Nadu, Puducherry

	and aquifer recharge assessments in the deltaic and semi-arid zones	
CGWB, Kerala Region	Groundwater monitoring and management in upper Cauvery catchment (Wayanad fringe)	Kerala
Geological Survey of India (GSI), Southern Region	Geological mapping, soil structure assessment, siltation and sediment studies in the delta and middle basin zones	Tamil Nadu, Puducherry
GSI, Southwestern Region	Assessment of river basin geology, landslide-prone zones, and aquifer characteristics in the upland and hilly areas	Karnataka, Kerala
Central Pollution Control Board (CPCB)	Formulates standards for water pollution, supports state boards in basin-wide monitoring and compliance enforcement	All basin states
India Meteorological Department (IMD)	Rainfall monitoring, hydrometeorological forecasting, drought/flood early warning systems for basin planning	Karnataka, Tamil Nadu, Kerala, Puducherry
National Water Development Agency (NWDA)	Conducts basin planning studies, inter-basin water transfer feasibility assessments (e.g., linking of tributaries)	Inter-state (Centre)
Central Soil and Materials Research Station (CSMRS)	Soil erosion, sedimentation rate studies, and assessment of dam siltation in Cauvery reservoirs	Inter-state (Centre)

Besides, the central and state governments, the management of the CRB relies largely on the local institutions, particularly in the rural areas. The majority of the CRB encompasses agricultural and semi-rural regions, where local bodies are surveilling and maintaining the water supply, sanitation, and environmental protection. Among these, Gram Panchayats are playing the significant role at the village level. They are responsible for implementing

government schemes, managing local water sources like wells, ponds, tanks, and small canals, and ensures that resources reach to the people effectively.

2.2. Gram panchayats

In villages throughout the CRB, Gram Panchayats are the elementary units of self-governance. They are responsible for managing drinking water, sanitation, small irrigation systems, and soil conservation activities. Especially in Mandya, Mysuru, and Kodagu districts of Karnataka, and Erode, Karur, and Tiruchirappalli districts of Tamil Nadu along with the Wayanad fringes of Kerala. These Panchayats interacts closely with state departments and NGOs. Other than that, they also assist in executing programs under schemes like Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Jal Jeevan Mission, and watershed development projects.

These local bodies are also responsible for planting trees, conserving natural water resources, and encouraging the people to participate in water conservation drives. Since, they are aware of the local needs and geography, they can come up with practical and area-oriented solutions. They maintain close connection with the people and ensures that plans are executed efficiently and sustainably.

2.3. Non-Governmental Organizations

Non-Governmental Organizations (NGOs) play a crucial role in supporting government initiatives and addressing gaps in rural development and environmental conservation across the CRB. These organizations directly engage with local people to improve access to clean water, promote sanitation, restore water bodies, and create awareness about sustainable farming and regulated water consumption. The non-government organization that are working on CRB by highlighting their specific roles as well as focus area along with their key contributions are shown in Table 2.

Table 2. List of non-governmental organizations

Name	Role/Focus Area	Region of Operation	Key Contributions	References
Paani Earth	Water stewardship, sustainable water use	Karnataka (Bengaluru and surrounding CRB)	Community-based groundwater management, awareness on water footprints	https://paani.earth/
Wildlife Association of South India (WASI)	Fish biodiversity conservation, riparian restoration	Shivanasamudram, Karnataka	Shivanasamudram Fish Sanctuary; fish protection; angler regulation	https://www.downtoearth.org.in/wildlife-biodiversity/a-sanctuary-for-fish-and-a-future-for-the-river-is-shivanasamudrams-conservation-story-74697
Agumbe Rainforest Research Station (ARRS)	Rainforest conservation, herpetofauna research	Agumbe, Karnataka (Western Ghats, headwaters of Cauvery)	Ecological studies, rainforest biodiversity monitoring, anti-poaching	https://agumberainforest.org/arrs/
Cauvery Calling (Isha Foundation)	Agroforestry, afforestation, water conservation	Tamil Nadu & Karnataka (entire CRB)	Planting 2.42 billion trees to restore river flow and soil health	https://isha.sadhguru.org/en/cauvery-calling; https://www.thehindu.co

				m/news/national/karnataka/isha-foundation-cauvery-calling-is-a-multi-stakeholder-project/article29533960.ece
Kenneth Anderson Nature Society (KANS)	Wildlife conservation, forest corridor restoration	Tamil Nadu (Krishnagiri & Dharmapuri in CRB)	Advocacy for Cauvery North Wildlife Sanctuary; forest protection	https://kans.org.in/cws
Water Literacy Foundation	Rainwater harvesting, borewell recharge	Karnataka (urban & rural regions in CRB)	Recharge of 70,000+ borewells; water sustainability education	https://en.wikipedia.org/wiki/Water_Literacy_Foundation
Foundation for Ecological Security (FES)	Watershed restoration, governance of commons	Karnataka & Tamil Nadu	Village-level management of water bodies and common lands	https://en.wikipedia.org/wiki/Foundation_for_Ecological_Security; https://www.fes.org.in/
Development of Humane Action (DHAN) Foundation	Tank cascade rehabilitation, community development	Tamil Nadu (Dindigul, Sivaganga,	Restoration of 750+ tanks & ponds in Pambar–Kottakaraiar	https://www.dhan.org/dhana_project_launch.php

		Madurai, Pudukottai)	(Cauvery tributary) basin	
Pasumai Thaayagam	Afforestation, anti-pollution advocacy	Tamil Nadu, Karnataka, Puducherry	Regional green campaigns; conservation lobbying at UN level	https://en.wikipedia.org/wiki/Pasumai_Thaayagam
Siruthuli	Urban waterbody restoration, awareness campaigns	Coimbatore (Noyyal sub-basin of Cauvery)	Restoration of tanks, recharge pits, community sensitization	https://en.wikipedia.org/wiki/Siruthuli
Ashoka Trust for Research in Ecology & Environment (ATREE)	River basin research, ecosystem services	Karnataka & Tamil Nadu (Cauvery delta and forest landscapes)	Watershed research, community engagement for ecological governance	https://www.atree.org/
Shoal Conservation – Project Mahseer	Fish conservation, habitat protection	Karnataka (Cauvery River – Coorg, Shivanasamudram)	Conservation of hump-backed mahseer, education of local fishers	https://shoalconservation.org/project/project-mahseer
Antea Group	River engineering, flood modelling, irrigation	Tamil Nadu (Cauvery Delta)	Decision-support systems for irrigation and water sharing	https://anteagroup.co.in/home/projects/water-solutions-river-cauvery
Coodu Trust of India	Environment, Planting, Women	Dindigul, Tamil Nadu	Watershed management and	https://www.coodutrust.org/

	development, Sanitation, Education and Watershed management		Sanitation programmes	
Olirum Erode Foundation	Water management, Waste management, Healthcare, Infrastructure and Education	Erode, Tamil Nadu	Widening, Deepening & Diverting drainages, Rejuvenation of canals and check dam desilting and cleaning.	https://oliru merodu.com/

2.4. Local community organizations

Apart from major NGOs and government agencies, various grassroots-level community organizations play an important role in sustainable water management, conservation, and rural development across the CRB. These groups typically work closely with farmers, villagers, and tribal communities to introduce context-specific, culturally relevant, and ecologically feasible solutions. Their contributions are invaluable in conserving as well as maintaining local ecosystems and empowering rural livelihoods. The information about local community organizations highlighting their role as well as focus area along with their key contributions are given in Table 3.

Table 3. List of local community organizations

Name	**Role / Focus Area**	**Region of Operation**	**Key Contributions**	**References**
Thiruvaiyaru Local Groups (e.g. Bharathi Iyakkam, Thiruvaiyaru Rotary Club, Thanjavur New town Rotary Club,	Community river clean ups, awareness pledges	Thiruvaiyaru & Thanjavur, Tamil Nadu	Removed over a ton of waste from riverbed; mobilized local volunteers and RWAs to pledge river protection	https://www.thehindu.com/news/cities/Tiruchirapalli/ngos-begin-cleaning-cauvery/article31838837.ece

Thiruvaiyaru Gandhi Bharathi Youth Forum, Vaithyanathanpettai Jeeva Bharathi Youth Forum, Thanjavur Personality Plus, JCJ Association and several resident welfare associations)				
Mandya District Farmers' Welfare Committee & Mandya farmers' forums	Farmer advocacy on Cauvery issues, water-sharing equity	Mandya, Karnataka	Organized a boycott of government meetings around KRS development; raised environmental concerns on dams and tourism infrastructure	https://timesofindia.indiatimes.com/city/mysuru/farmers-forums-in-mandya-announce-boycott-of-meeting-on-cauvery-aarti/articleshow/122053424.cms
Karnataka Rajya Raita Sangha (KRRS) (Mysuru Taluk Unit), Rotary Club (Mysuru Chapter), and Cauvery Neeravari Nigam Limited (CNNL)	Community-led River and backwater pollution control; volunteer mobilization; irrigation planning and local water governance	KRS Backwaters and surrounding areas, Mysuru District, Karnataka	Jointly organized a massive clean-up drive at KRS backwaters retrieving two truckloads of plastic and liquor bottles; KRRS proposed Rs 1,000 penalty for littering and advocated gram panchayat-led regulation including plastic bans and entry tickets. Rotary Club mobilized	https://timesofindia.indiatimes.com/city/mysuru/2-truckloads-of-liquor-bottles-waste-retrieved-from-krs-backwaters/articleshowprint/122785975.cms

			volunteers and awareness campaigns. CNNL, as the irrigation authority, facilitated discussions on local governance and beautification of the reservoir area while managing water releases and irrigation schedules.	
People's Union for Civil Liberties (PUCL), Mysuru unit	Civil society oversight, anti-pollution advocacy	Mysuru, Karnataka	Criticized preference of cultural festivals over river pollution prevention; highlighted tobacco effluent issues in Lakshmanthreetha demanded restoration of Cauvery catchment water bodies	https://timesofindia.indiatimes.com/city/mysuru/focus-on-river-pollution-prevention-not-cauvery-aarti-forum/articleshowprint/120971824.cms
Janapada Seva Trust (Koulagi family)	Promotes Gandhian rural development values, sustainable livelihoods, handloom weaving, organic farming, and conservation	Melkote, Mandya district, Karnataka	Revived indigenous water harvesting practices, supported livelihoods through khadi and weaving, and educated local communities on sustainability, preserving both	https://www.newslaundry.com/2020/02/08/cauvery-a-basin-on-the-burn

	of local water systems		ecological balance and cultural traditions in the CRB	
"Save River Cauvery" Campaign (local Kodava activists)	River-protection movement by indigenous Kodava communities	Kodagu catchment, Karnataka	Grassroots campaign to resist unsustainable development, protect river and forests, support local livelihoods and heritage	https://www.earthamag.org/stories/2016/10/5/can-the-save-cauvery-campaign-give-the-river-a-fighting-chance-at-a-new-lease-of-life
Cauvery Family (multi-stakeholder civil society body)	Dialogue platform for riparian stakeholders	Both Karnataka & Tamil Nadu	Brought together civil society in Cauvery water-sharing mediation (2003–2012) to reduce tensions; convened 18 times for dispute resolution	https://climate-diplomacy.org/case-studies/dispute-over-water-cauvery-basin-india

3. Identification of key programmes in operation in CRB

3.1. Central/ state government initiatives/ large/ noteworthy NGOs/ local community initiatives

Numerous initiatives have been initiated in the CRB to resolve critical issues associated with water scarcity, sustainable agricultural, ecological restoration, and rural livelihoods. These programmes led by government agencies, NGOs, and local institutions aim to ensure effective management of water resources, conservation of the environment, and unbiased development. Understanding these key programmes is important for evaluating ongoing efforts and identifying gaps for future intervention. The consolidated information about the initiative led by government, NGOs and community in the CRB involving notable projects for infrastructure development, irrigation and hydropower rejuvenation and cleaning of rivers, and news reports underlining their magnitude, objectives, locations, and implementation status are shown in Table 4.

Table 4. Details of central government initiatives/ state government initiatives/ large/ noteworthy NGOs/ local community initiatives

Project Name	**Description**	**Initiative / Implementing Agency**	**Status**
Cauvery Water Management Scheme (2018)	Framework created to enforce the Cauvery Tribunal's award, setting up CWMA and CWRC to oversee water-sharing among basin states	Ministry of Jal Shakti (Dept. of Water Resources)	Ongoing
National River Conservation Plan (NRCP)	Centre-sponsored scheme for pollution control-building sewage treatment plants and sewer networks across multiple Cauvery-linked towns (e.g., Erode, Tiruchi, Thanjavur, Kumbakonam)	Ministry of Jal Shakti, National River Conservation Directorate (NRCD) & Ministry of Environment, Forest & Climate Change	Implemented (mid-1990s onwards), largely complete
Nadanthaai Vaazhi Cauvery	River rejuvenation plan aimed at cleaning Cauvery and its tributaries via STPs, riverfront works, solid waste and biodiversity	NRCD, Ministry of Jal Shakti	Approved (Phase I), pending full implementation

	actions—₹934 crore approved for Phase I		
Restoration of River Noyyal (under Nadanthaai Vaazhi Cauvery)	Restoration of the Noyyal River in Coimbatore, as part of broader Cauvery cleaning efforts- Centre to fund ₹990 crore out of ₹1,200 crore total project	Ministry of Jal Shakti (via NRCD)	Approved / funding pending
Jal Jeevan Mission (JJM) – Rural CRB Districts	Piped water supply to every rural household	Ministry of Jal Shakti (Dept. of Drinking Water & Sanitation)	Ongoing
New Generation Watershed Development Project (WDC–PMKSY 2.0) – Wayanad	Treatment of upper catchments of Kabini with drainage line interventions, Land Resource Inventory (LRI) mapping, recharge pits, trenching, bunding, afforestation	Central Government, and Kerala	In progress
Karnataka Watershed Development Project – SUJALA-III	Science-based watershed management through rainfed agriculture, LRI, Decision Support Systems (DSS),	Karnataka	Completed

	hydrology & horticulture integration		
Mandya Industrial Area Development	Development of industrial estate with facilities for agro-based industries and Ministry of Micro, Small & Medium Enterprises (MSME)	Karnataka	Completed
Ramanagara Industrial Area Expansion	Expansion of existing industrial area to accommodate more units, focusing on textiles and handicrafts	Karnataka	Ongoing
Mysuru Airport Upgradation	Upgradation of the existing airport to handle larger aircraft and increased passenger capacity	Karnataka	Completed
Channarayapatna Industrial Cluster	Development of a new industrial cluster to boost local manufacturing and logistics industries	Karnataka	Planned
Srirangapatna Riverfront Development	Integrated development of the	Karnataka	Ongoing

	riverfront for tourism, including walkways, parks, and recreational areas		
Hassan Growth Centre	Development of a multi-sector growth centre to promote industrial diversification	Karnataka	Completed
Bannur Textile Park	Establishment of a dedicated textile park to support the region's weaving and garment industries	Karnataka	Ongoing
Krishnarajasagara Reservoir Tourism Project	Infrastructure development around the reservoir to enhance tourism and recreational facilities	Karnataka	Completed
Implementation of 24×~~×~~7 Water Supply System for the City of Coimbatore	This project aims to provide a continuous, round-the-clock water supply to the residents of Coimbatore	Tamil Nadu	Operationalized project
500 TPD Modern Rice Mill at Thanjavur District	Establishment of a modern rice mill with a capacity of	Tamil Nadu	Study completed

	500 tons per day (TPD) in Thanjavur District		
500 TPD Modern Rice Mill at Tiruvarur District	Establishment of a modern rice mill with a capacity of 500 TPD in Tiruvarur District	Tamil Nadu	Study completed
500 TPD Modern Rice Mill at Mayiladuthurai District	Establishment of a modern rice mill with a capacity of 500 TPD in Mayiladuthurai District	Tamil Nadu	Study completed
Setting up of 800 TPD Modern Rice Mill at Thiruvarur District	Establishment of a modern rice mill with a capacity of 800 TPD in Thiruvarur District	Tamil Nadu	Study completed
Setting up of 800 TPD Modern Rice Mill at Tiruchirappalli District	Establishment of a modern rice mill with a capacity of 800 TPD in Tiruchirappalli District	Tamil Nadu	Study completed
Setting up of 800 TPD Modern Rice Mill at Nagappattinam District	Establishment of a modern rice mill with a capacity of 800	Tamil Nadu	Study completed

	TPD in Nagappattinam District		
Setting up of 800 TPD Modern Rice Mill at Thanjavur District	Establishment of a modern rice mill with a capacity of 800 TPD in Thanjavur District	Tamil Nadu	Study completed
Development of TN Tech City- Coimbatore	Development of a tech city in Coimbatore to promote technological innovation and growth	Tamil Nadu	Project under report preparation
Solid Waste Management-Material Recovery Facility for Coimbatore Corporation	Establishment of a material recovery facility in Coimbatore for better solid waste management	Tamil Nadu	Project under report Preparation
Solid Waste Management-Setting up of Bio CNG Plants for Coimbatore	Setting up Bio CNG plants in Coimbatore for sustainable waste management and energy generation	Tamil Nadu	Project under report preparation
Solid Waste Management-Material Recovery Facility for Tirupur Corporation	Setting up a material recovery facility in Tirupur	Tamil Nadu	Project under report preparation

	to enhance solid waste management		
Solid Waste Management-Material Recovery Facility for Trichy Corporation	Establishing a material recovery facility in Trichy for efficient waste management	Tamil Nadu	Project under report preparation
Solid Waste Management-Setting up of Bio CNG Plants for Tiruchirappalli	Setting up Bio Compressed Natural Gas (CNG) plants in Tiruchirappalli to convert waste into energy	Tamil Nadu	Project under bid process management
Solid Waste Management-Material Recovery Facility for Erode Corporation	Establishment of a material recovery facility in Erode for waste management	Tamil Nadu	Project under report preparation
Solid Waste Management-Setting up of Bio CNG Plants for Salem	Establishing Bio CNG plants in Salem for converting organic waste into energy	Tamil Nadu	Project under bid process management
Solid Waste Management-Setting up of Bio CNG Plants for Tirupur	Setting up Bio CNG plants in Tirupur to enhance waste management practices	Tamil Nadu	Project under bid process management
Solid Waste Management-Setting up of Bio CNG Plants for Thanjavur	Establishment of Bio CNG plants in Thanjavur to	Tamil Nadu	Project under report preparation

	generate renewable energy from waste		
Kabini River Irrigation Project	Development of canals and irrigation infrastructure in the Kabini basin	Kerala	Ongoing
Integrated Watershed Management	Sustainable water resource management in tributary regions	Kerala	Planning
Drinking Water Supply Scheme	Expansion of drinking water facilities in rural areas near the basin	Kerala	Partially completed
Cauvery Tributary Canal Works	Maintenance and expansion of canal systems for efficient water flow	Kerala	Ongoing
Dam Rehabilitation Program	Structural and operational safety enhancements for dams	Kerala	Initiated
Hydropower Generation Initiative	Installation of small hydropower plants on tributaries	Kerala	Planning
Industrial Estate Development	Establishment of industrial estates to promote small and medium-scale	Pondicherry	Ongoing

	industries in Karaikal		
Infrastructure Enhancement	Upgrading roads, drainage systems, and other essential infrastructure to support industrial growth	Pondicherry	Ongoing
Port Development	Development of the Karaikal Port to facilitate maritime trade and support industrial activities	Pondicherry	Completed
Tourism Infrastructure	Initiatives to boost tourism in Karaikal, including development of facilities and amenities	Pondicherry	Ongoing
Anaithu Grama Anna Marumalarchi Thittam (AGAMT-II)	Improving overall basic infrastructure facilities in all village panchayats. An annual allocation of Rs.20 lakh per village panchayat given for rejuvenation of ponds, formation of rural library, Upgradation of streets and lanes, Cremation/	Tamil Nadu Government	Ongoing

	Improvement of burial grounds for the five-year span 2021-26.		
Mudalvarin Grama Salaigal Membattu Thittam (MGSMT)	Upgrading and strengthening the village panchayat roads of 10,000 Km for the year 2022-2024 and 2024-2026. An estimated cost of Rs. 4,000 crores allocated for this scheme.	Pradhan Mantri Gram Sadak Yojana and Tamil Nadu Government	Ongoing
Rejuvenation of 5000 Minor Irrigation- TNRD	Restoring the minor irrigation tanks to their original capacity, to ensure increase in ground water recharge this scheme was launched at an estimated cost of Rs. 500 crores	Tamil Nadu Government	Ongoing
Source: KSIIDC, TNIDB, KIIDC, PIPDIC			

3.2. Aims, outcomes, and gaps of the programmes

3.2.1. Aims of the programmes

The initiatives implemented within the CRB seek to address complex challenges such as water scarcity, environmental degradation, pollution, and socio-economic vulnerability. The main objectives are:

a. **Sustainable water management**: Ensuring of the unbiased distribution, optimum utilization, and conservation of surface and groundwater by developing infrastructure, rejuvenation of tanks, maintenance of canal, and watershed interventions.

b. **River rejuvenation and pollution abatement**: Establishment of sewage treatment facilities, promote eco-restoration and biodiversity, and prevention of discharge of untreated waste into the river.

c. **Agroforestry and livelihood improvement**: Support sustainable agriculture through integrated watershed schemes and agroforestry models (e.g., Cauvery Calling), enhancing soil health, income, and climate resilience.

d. **Urban and industrial infrastructure**: Improve water and sanitation infrastructure, modernize irrigation systems, and implementation of smart infrastructure in urban districts.

e. **Community, behavioural change and participation**: Foster grassroots participation through awareness campaigns, clean-up drives, and participatory governance.

3.2.2. Outcomes of the programmes

The collective implementations of these programmes have delivered significant outcomes, as corroborated by the following points:

a. **Infrastructure development**: Upgradation of Mysuru Airport, Coimbatore 24x7 Water Supply Scheme, and Smart Metering in Trichy have improved regional connectivity as well as service delivery.

b. **Ecological gains**: Nadanthai Vaazhi Cauvery and Cauvery Calling Initiatives have raised awareness about the benefits of afforestation, soil rejuvenation, and groundwater recharge along with their implementation.

c. **Improved access to irrigation**: Medium and major irrigation schemes have extended irrigation coverage, especially in water-scarce and tail-end areas.

d. **Public engagement**: Active engagement of NGOs and local community organizations has led to awareness among citizen, behavioural change, and confined solutions.

e. **Institutional coordination**: Different state and central level agencies have united to plan, scrutinize, and execute projects, as demonstrated by CWMA, CPCB, IMD, and other municipal corporations.

3.2.3. Gaps in the programmes

Despite extensive investments and achievements still there are several gaps that are obstructing overall success of these programmes. The gaps are as follow:

a. **Inter-state coordination issues**: Persistent differences of opinion between Karnataka and Tamil Nadu regarding water sharing affects cooperative basin-wide planning.

b. **Uneven implementation**: Even though few districts (e.g., Erode, Coimbatore) have benefitted from focused interventions, others lag in execution or monitoring.

c. **Inadequate pollution control**: Untreated sewage and effluents, particularly from textile and agro-industrial clusters continue to dispose of in the river signifying gaps in enforcement and infrastructure provision.

d. **Limited involvement of the community in planning:** Even though NGOs and local authorities are active engaged in implementation, but they have limited role in programme planning and policy making.

e. **Sustainability concerns**: Certain programmes (e.g., tourism or industrial projects) may conflict with long-term environmental goals if not properly regulated or integrated with environmental protection.

4. Identifying key stakeholders

The sustainable management of the CRB depends on the in-depth understanding of the diverse groups that are directly dependent on the river. These stakeholders interact with the river in various ways ranging from household water use and agricultural irrigation to industrial processes and employment based on rivers. Their actions not only the ecological well-being but also the socio-economic resilience of the basin communities. Identification of these groups,

their dependencies, and representative agencies or organizations is essential for the development of equitable, inclusive, and effective river basin policies. The key stakeholder categories in the CRB along with their primary dependencies on the river are listed in Table 5. For instance, associated activities, and representative organizations or agencies.

Table 5. Key stakeholders in the CRB

Stakeholders Group	**Primary Dependence on the River**	**Activities/ Impacts**	**Agencies/ Organization**	**Reference**
Households	Rely on river water for drinking, cooking, sanitation, and hygiene needs; also take advantage of groundwater recharge associated with river flows	Daily water collection, Household sanitation, Disposal of wastewater	Gram Panchayats	https://portals.iucn.org/library/sites/library/files/resrecrepattach/Cauvery%20Calling%20Impact%20Assessment%202024.pdf
Farmers/ Irrigators	Depend on river and canal systems for irrigation and watering of crops and livestock	Cultivation of sugarcane and paddy, irrigation scheduling and watershed interventions	District Farmers Welfare Committee, Cauvery Neeravari Nigam Ltd.	https://www.downtoearth.org.in/agriculture/cauvery-turmoil-karnataka-farmers-seek-alternatives-to-water-intensive-crops-92195; https://www.thenewsminute.com/tamil-nadu/tamil-nadus-paddy-paradox-cauvery-delta-turns-on-the-taps-even-as-wells-run-dry

River-based Workers	Secure livelihoods from activities that are directly connected to river resources and its ecosystem	Fishing, sand mining, small scale tourism and transport services	Local fishing cooperatives, boat operators	https://www.frontiersin.org/journals/environmental-science/articles/10.3389/fenvs.2022.892012/full https://www.daijiworld.com/news/newsDisplay?newsID=1031645https://timesofindia.indiatimes.com/city/bengaluru/fish-yield-in-citys-waterbodies-crosses-9k-tonnes-in-two-years/articleshow/101407803.cms https://www.thehindu.com/news/national/tamil-nadu/motor-boat-service-across-river-cauvery-resumes/article24610054.ece
Local Firms and Industries	Utilize river water for industrial processing, cooling, and manufacturing; possible pollutant discharge	Food Processing, Hydropower Generation, Industrial Estates	KSIIDC, TNIDB, Industrial Clusters	https://www.newindianexpress.com/states/tamil-nadu/2009/Mar/13/chemical-firm-polluting-cauvery-32651.html https://ccauvery.org/wp-content/uploads/2025/07/Infrastructure-and-Planning-Report-Cauvery.pdf ; https://www.moneycontrol.com/news/india/karnat

				aka-hires-consultant-to-prepare-dpr-for-rs-2-000-crore-cauvery-water-project-for-industries-in-bengaluru-12890641.html; https://www.reuters.com/business/environment/worsening-water-shortage-indias-bengaluru-hurts-businesses-2024-03-07/ ; https://documents1.worldbank.org/curated/en/099113024053531693/pdf/P181147-5716217a-4d13-488a-a8f0-0071d635c810.pdf
Government Agencies and NGOs	Regulate, manage, and undertake river basin projects, policies, and conservation programmes	Afforestation Drives, Awareness Campaigns, Pollution Control and Water Allocation	CWMA, KSPCB, TNPCB, Cauvery Calling (Isha Foundation), ATREE	https://iasscore.in/current-affairs/cauvery-water-management-authority-cwma; https://timesofindia.indiatimes.com/india/world-environment-day-sadhgurus-cauvery-calling-adds-1-36-crore-trees-aim-to-revive-river/articleshow/121646618.cmshttps://public-isha.sadhguru.org/public/cauvery-calling-annual-report-2023-2024.pdf

				https://consciousplanet.org/en/cauvery-calling/blog/cauvery-calling-environmental-phenomenon https://www.newindianexpress.com/cities/bengaluru/2023/Jan/27/quality-check-of-17-polluted-rivers-in-karnataka-start-2541740.html https://bangaloremirror.indiatimes.com/bangalore/others/notice-sent-to-kspcb-over-cauvery-contamination/articleshow/109844998.cms https://www.iwma.in/pdf/Environment%20legal%20handbook%20by%20TNPCB.pdf https://environment.tn.gov.in/assets/policynote/ca046d797614b848b088c70588a997ab.pdf https://www.newindianexpress.com/states/tamil-nadu/2021/Oct/10/tn-forms-panels-to-check-pollution-of-cauvery-river-2369913.html https://archived.atree.org/projects/pathways-

				towards-sustainable-and-inclusive-cauvery-delta

5. Examples of enabling/ constraining elements to implementation of policies and programmes

5.1. Enabling elements

a. **Access to information & data sharing:** Hydrological data availability, water quality monitoring, and open access to reports by agencies like CWMA, CPCB, and IMD enable evidence-based decision-making.

b. **Awareness campaigns**: Campaigns like Nadanthai Vaazhi Cauvery and Cauvery Calling have facilitated participation of citizen and raised awareness about the responsibility towards the conservation of the environment.

c. **Role of civil society & NGOs**: These civil societies and NGOs enable the implementation of plans into action by using their local knowledge, motivating the individuals to participate for the cause, and acting as a bridge between the citizens and government.

d. **Judicial interventions**: Court decisions from Supreme Court and tribunals on water sharing have provided clarity on legal rules and guidelines for fair, cooperative sharing of the water and its effective management.

e. **Technological innovations**: Smart Water Meters, GIS mapping of watershed areas, and remote sensing for afforestation and crop monitoring have substantially improved the efficiency of projects owing to innovations and development of new technology.

f. **Collaborative platforms**: Different government departments among state, central, and municipal bodies are now working together to create more unified plans.

5.2. Constraining elements

a. **Political & inter-state conflicts:** Ongoing disagreements between Karnataka and Tamil Nadu, make it hard to plan for the entire river basin and build trust between states.

b. **Fragmented governance:** When many different agencies have overlapping responsibilities, it slows down decisions and leads to redundant efforts.

c. **Inadequate enforcement**: Weak monitoring of pollution norms enables continued discharge of factories and municipal waste into the river.

d. **Resource inequality**: The benefits of infrastructure projects aren't shared equally, resulting in some areas underserved.

e. **Limited community participation in policy design**: Citizens rarely engage in planning but are usually involved in implementation.

f. **Financial & capacity constraints**: Rural panchayats and small municipalities don't have enough funds or technical capabilities to keep up with maintenance and other projects.

5.3. What works for co-existence

a. **Multi-stakeholder participation**: Involving farmers, industrialists, urban residents and environment protection groups in collective problem-solving helps in building trust.

b. **Ecosystem-based approaches:** Initiatives that include trees plantation, wetland restoration and sustainable agricultural approaches (like agroforestry) promotes both ecology and livelihoods.

c. **Judicial and policy clarity:** Court judgments and tribunal decisions enforced with good monitoring will aid in reducing conflicts over communal resources.

d. **Awareness & behaviour change:** Public campaigns and school programs provides and promote conservation ethics among people of all ages.

e. **Community-led monitoring:** Citizen science initiatives for monitoring water quality and biodiversity makes the process more transparent and accountable.

5.4. What doesn't work for co-existence

a. **Top-down decision making:** Policies imposed without sufficient consultation with the local often face resistance and are poorly adopted.

b. **Short-term, project-centric approaches:** Prioritization of rapid infrastructure solutions without long-term ecological integration makes solutions unsustainable.

c. **Unresolved disputes:** Ongoing disagreements between states for water allocation fuel mistrust and prevents collective management.

d. **Neglect of pollution sources:** Failure to regulate industrial effluents and urban sewage undermines ecological health and community trust.

e. **Unequal benefit distribution:** Conflicts intensify when projects provide more benefits (like water access or job opportunities) to some groups or regions than others.

f. **Lack of follow-up & maintenance:** Infrastructure deteriorates rapidly when resources for maintenance and operation are not available for long term.

6. Identifying strategies to address constraints through creating public awareness and encouraging participation

Addressing the socio-environmental constraints in the CRB demands a combination of information sharing, behavioural change, and active participation of citizens. The following strategies integrate existing enabling elements and directly address the documented challenges:

a. **Community-oriented awareness campaigns:** These campaigns should involve the localized messaging adapted according to specific districts using local languages, cultural references and folk media to promote resonance. The special emphasis should be given on targeted themes like minimizing domestic water consumption, avoiding sewage discharge, and promoting eco-friendly farming.

Moreover, river conservation modules should be integrated in the school curriculum, eco-clubs, and inter-school competitions to instil conservation ethics from childhood.

b. **Participatory governance platforms:** There is need for the establishment of regular dialogue forums involving farmers, industrial representatives, families, NGOs, and municipal corporation bodies to co-develop measures for pollution control and water management. Further, government need to take inputs from citizens while framing the policy. This can be achieved by using helplines, mobile apps and public hearings to gather feedback from individuals for integration during planning phases of projects, not during the implementation phase.

c. **Skill-building & capacity enhancement:** There is need for the empowering of local institutions and citizen. Training for Local Institutions would equip village councils (Gram Panchayats) and small municipalities with the technical skills for water testing, pollution mitigation, and infrastructure maintenance. Further, there is need for formation of volunteer network for activities like river cleaning, afforestation drives and biodiversity monitoring.

d. **Technology-enabled public engagement:** Progressive developments in the technology are now being proposed for deployment to increase transparency and citizen participation. There is need for the development of citizen science platforms to allow communities to report illegal discharge, pollution or encroachments using GPS-tagged mobile apps. Moreover, there is need for development of public dashboards to provide open access to real-time data on water levels and pollution hotspots as well as the status of ongoing projects.

e. **Incentives for participation:** To encourage the involvement of participants, there is for the introduction of awards that will provide recognition to villages, wards or schools that will show measurable improvements in waste reduction and water conservation. The provision of providing micro-grants to local community will provide them motivation to work on innovative, low-cost conservation projects.

f. **Collaborative advocacy:** There is need for the collaboration of the NGOs with local trustworthiness and governmental institutions to organize joint awareness campaigns. Moreover, the collaboration with local media will allow the

regularly featuring of success stories and challenges to increase the participation as well as awareness.

g. **Cultural and religious integration:** This strategy leverages cultural influence by utilizing temple festivals, community gatherings, and local rituals to promote river conservation commitments and encourage behavioural change.

Thus, incorporating these strategies into community practices and policy frameworks will generate and build a shared sense of ownership of the CRB. Moreover, it will encourage the long-term care of the resources and bridge the gap between awareness and action. This approach will ensure that conservation is not just a government initiative, but a collective movement sustained by informed and empowered citizens.

7. Summary and recommendations

The CRB is a culturally, economically and ecologically crucial area that supports millions of lives in Karnataka, Tamil Nadu, Kerala, and Puducherry. This report has thoroughly analysed the major institutions, programmes, stakeholders, and socio environmental dynamics that influence the basin management. It highlights the critical roles of government agencies, gram panchayats, NGOs, and local community organizations in addressing the issues related to water shortage, occupational insecurities, pollution, and ecological degradation.

Key findings unveils that multi-level governance frameworks ranging from national agencies such as CWMA and CPCB to grassroots movements have laid the foundation for integrated river management. Initiatives like Nadanthai Vaazhi Cauvery, Cauvery Calling, and numerous watershed development programmes have delivered concrete ecological and socio-economic benefits like afforestation, improved access to irrigation, infrastructure development, and improved public awareness.

However, persistent constraints like inter-state conflicts, uneven implementation of projects, inadequate pollution control, and lack of adequate community participation in policy formulation is hindering the overall success. Addressing these challenges requires improved inter-governmental coordination, more stringent compliance of pollution control norms, more inclusive decision-making, and constant funding for local capacity building.

In brief, the CRB long-term sustainability depends on a balanced approach that integrates ecological restoration, effective water management, unbiased distribution of benefits, and community-driven governance. Through the combination of scientific planning with cultural and social engagement, the basin has the potential to serve as an exemplary model for river management in other regions of India.

8. Significance of the social environment report

The social environment report serves as a vital source for understanding the human side of river basin management in the CRB. While hydrological and ecological studies provide insights into physical and environmental parameters, this report fills the gap between technical measures and socio-cultural conditions. The key dimensions of the report highlighting its integrated approach to environmental, social, and policy aspects of river basin management are shown in Fig. 1. At core level, the social environment report is not merely an academic exercise but a dynamic tool for planners, administrators, NGOs, and community leaders. It assures that local stakeholder's perspectives are considered along with technical data and policy considerations, making river basin management both fair and effective.

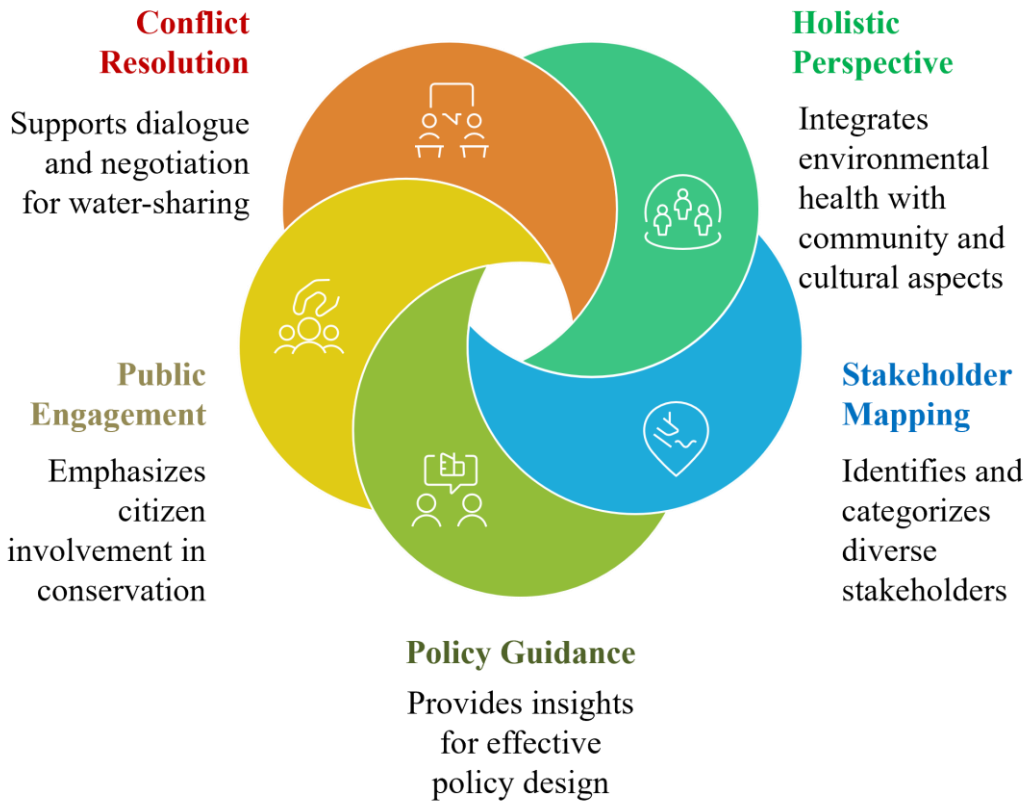

Fig. 1. Significance of the social environment report

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