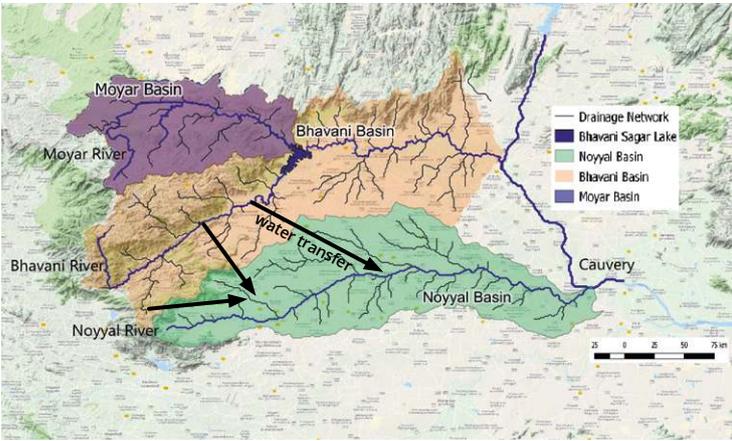




# NOYYAL-BHAVANI RIVER BASIN

## WESTERN TAMIL NADU, SOUTH INDIA



The Noyyal and Bhavani sub-basins are critical for the water security of the region. Both Bhavani and Noyyal originates from the Western Ghats, one of the global biodiversity hotspots, with 2 biosphere reserves, 13 national parks, and several wildlife sanctuaries. The forests are very rich in flora and fauna hosting the country’s largest population of Asian Elephants and Bengal Tigers.

Apart from being home to unique wildlife, the rivers also support much of the agricultural and industrial economy, which generates 16% of Tamil Nadu state’s GDP. The Bhavani river is perennial, while the flow of the Noyyal is largely seasonal. However, domestic and industrial sewage from Coimbatore and return flows from the Lower Bhavani Project all drain into the Noyyal; so it experiences perennial flow in some stretches.

Within the basin, the majority of the river’s water is used for agricultural irrigation. However, with rapidly growing urban and industrial water usage, there has been a drastic increase in water demand, much of which is being met through inter-basin water transfers from the Bhavani basin into Noyyal.

Country	India	
Region	Western Tamil Nadu	
Origin / Sink	Western Ghats / Cauvery River	
Land-use	Forest, Agriculture, Industry	
	<b>Noyyal</b>	<b>Bhavani</b>
Basin Population	2.1 million	2.5 million
Basin Area	3510 km <sup>2</sup>	6200 km <sup>2</sup>
Length	180 km	215 km
Average Rainfall	700 mm	800 mm

## TEXTILE SECTOR

The middle Noyyal region, mainly the cities of Tiruppur and Coimbatore, is a major textile and knitwear hub, which is responsible for 90% of total cotton knitwear exports from India. Within the basin, the textile industry provides employment to over 600,000 people and contributes to exports worth US\$ 3 billion. The textile industry plays a significant role in the Indian economy, contributing to 4% of GDP and 35% of gross export earnings. According to recent data, there are about 800 garment factories, 500 registered dyeing units and more than 3,000 finishing units, and an equal number of Micro, Small and Medium-sized Enterprises (MSMEs) targeting the domestic market. In addition, there are many unregistered units that operate from residential buildings and engage in the production supply chain.

## Main Challenges in the Basin

## Potential Impacts from the Sector

## Implications for Business

### WATER QUALITY

Surface water, open wells and bore wells are often unsuitable for domestic, industrial, or agricultural use, due to high levels of pollution from urban and industrial processes.

The Middle Noyyal region has seen a major increase in pollution levels due to textile effluent discharge, and these impacts continue right down till the Orathupalayam Dam.

The Zero Liquid Regulation ordered by the Madras High Court requires every large factory to set up and operate Effluent Treatment Plants with reverse osmosis. Small factories are connected to the common effluent treatment plants (CETP) and are charged based on the volume of effluents. However, there are still instances of direct discharges in the river and groundwater, exposing entire cluster to regulatory actions.

### WATER QUANTITY

Overexploitation of water has led to surface water shortages during the dry seasons and decreasing groundwater levels.

The ability to achieve a sustainable water balance with future industrial growth is a serious concern.

Unsustainable groundwater abstraction by wet-processing factories has accelerated the depletion of local aquifer levels.

If the textiles sector continues to rely on water sources that have been diverted away from farmers' irrigation water, there is high potential for conflicts to develop.

Water shortages restrict and interrupt industry operations. Other actors in the supply chain will also be impacted, eventually failing to meet customer demands and product delivery.

Factories might incur additional costs to access other water sources, and future government regulation of groundwater use is a distinct possibility.

### BIODIVERSITY

Massive urbanization and industrialization have led to watershed degradation, habitat loss and alarming wetland degradation.

The ability of the river to sustain flows needed for aquatic species has also been compromised.

Water supply for wetlands and freshwater species has been compromised due to unsustainable water use and effluent discharge by domestic and industrial sectors.

Biodiversity loss is a strong indicator of ecosystem degradation. The future of businesses and people in Noyyal-Bhavani basin is inexplicably linked to the health of the ecosystem. Ultimately, we may see an increase in the socio-economic cost of doing business in the basin.

### SOCIO CULTURAL

Some stakeholders are experiencing livelihood challenges due to reduction in valuable ecosystem services, reduced agricultural productivity of the land and shifting cropping patterns.

Public health issues are also increasing in the basin due to pollution.

Industrial pollution and over-exploitation of water resources has created shortages of water for irrigation, livestock rearing and fisheries, which has imposed heavy costs on farmers.

Brand reputation could be at stake if the cultural and religious viewpoints attached to rivers in India are not valued.

In addition, compliance with socially accepted norms of the region and the communities is a growing concern.

### WATER GOVERNANCE

Governance and planning frameworks are complex, fragmented and overlapped by the central, state, and municipal agencies leading to ineffective regulation and enforcement in the basin.

The present water policy structure fails to clarify the agricultural and industrial water allocations and rights.

Even though Zero Liquid Discharge is in place, sectoral impacts will continue to persist in the region with some units failing to comply with government regulations such as discharging effluents or having substandard on-site water and waste management practices.

Actions of a few bad actors may have the potential to create negative perceptions of the sector in whole. This may hinder the process of future expansion.

This could eventually lead to stricter legal controls and higher compliance costs to businesses regardless of their adherence to the law.

# PROJECT INFORMATION

## VISION

By 2030, Noyyal and Bhavani are healthy river eco-systems that ensure water security for people and nature.



### Objective 1

Assess the interactions and trade-offs between users and sectors in representative zones of the Bhavani and Noyyal river basin (2019)

### Objective 2

Demonstrate pilots in key sites to strengthen the positive interactions leading to healthy river ecosystems and water security (2022)

### Objective 3

Influence sectoral, local, regional and national policies that deliver on a shared vision and outcomes for sustainable river basin management (2025)

## INTERNATIONAL PARTNERS

- HSBC
- IKEA
- PVH

## NATIONAL, REGIONAL AND LOCAL PARTNERS

- ATREE (NGO – Hydrology, Ecology)
- Farhad (Consultant – On-ground implementation, stakeholder engagement)
- Siruthuli (NGO – On-ground implementation, policy support)
- SACON (Government Scientific Institute – Wetlands management)
- TNAU (Academic Institution – Agricultural practices)
- INRM (Consultant – Hydrology)
- Geovale (Consultant – Hydrogeology)
- VRNC and CII (Consultants – Clean tech and BMP in textile)

## ACTIVITIES

### Zone 4: Upper Bhavani

- Impacts of invasive species on flows in the Upper Bhavani sub-basin understood
- Sound invasives management strategies integrated within the management plans of the forest department

### Zone 5: Middle Bhavani

- Interactions and trade-offs between various water users in the zone understood
- Best agricultural water management practices demonstrated

### Zone 1: Upper Noyyal

- Impacts of Land-use/ Land-cover changes on flows in the river understood
- 2 key sub-catchments of Upper Noyyal rejuvenated

### Zone 3: Moyar

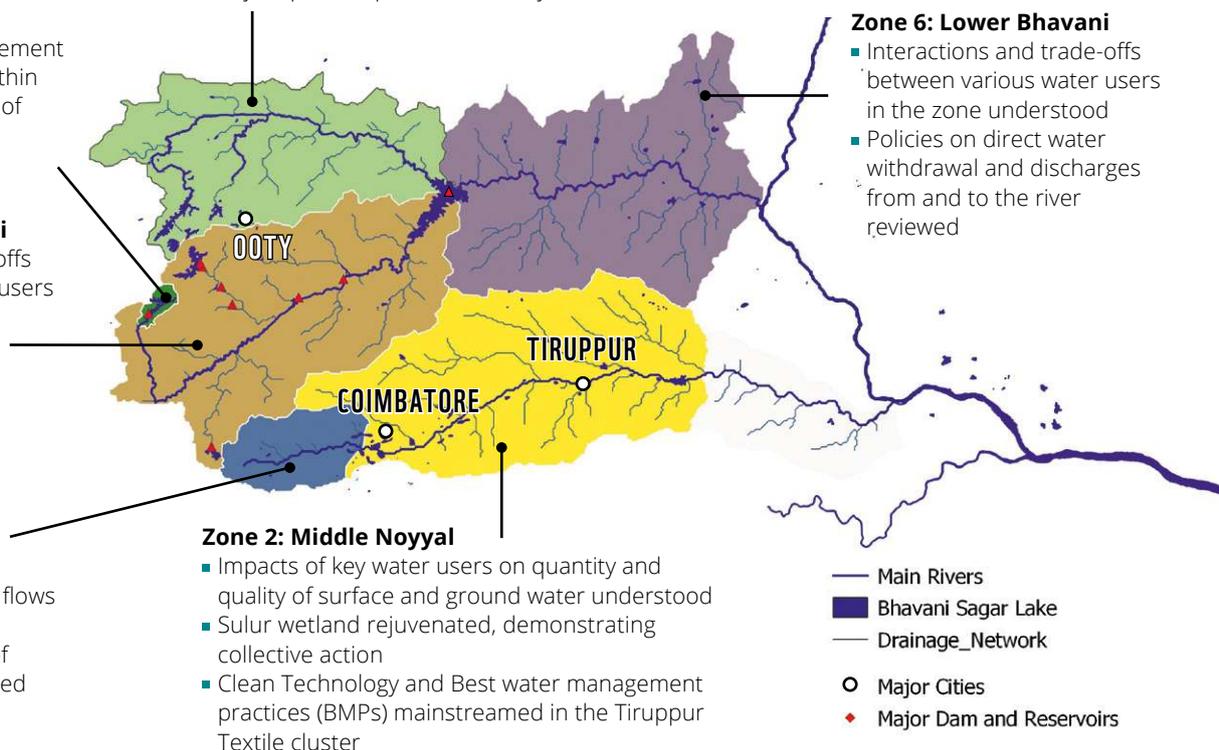
- Ecological impacts of water diversion from Moyar valley understood
- Environmental flows policy developed for hydropower operations in Moyar basin

### Zone 2: Middle Noyyal

- Impacts of key water users on quantity and quality of surface and ground water understood
- Sular wetland rejuvenated, demonstrating collective action
- Clean Technology and Best water management practices (BMPs) mainstreamed in the Tiruppur Textile cluster

### Zone 6: Lower Bhavani

- Interactions and trade-offs between various water users in the zone understood
- Policies on direct water withdrawal and discharges from and to the river reviewed





## ACTIVITIES

The activities in this project are divided into three main levels:

- **National level:** This work aims to develop clear textile sector policy asks at state and national level based on the key challenges identified through stakeholder engagement and policy mapping. The programme will also directly engage the Central Pollution Control Board (CPCB) on regulatory standards development and implementation for the textile sector at a national level.
- **Basin Level:** The following activities are to be implemented in the basin as a whole: stakeholder mapping, institutional and policy mapping, hydrological modelling study (water balance, budgeting, future scenarios, surface-groundwater interactions), assessment of river health (monitoring mechanism) and eventually the development of an Integrated River Basin Management Plans for Noyyal and Bhavani.
- **Sub-Basin Level:** The river basin is divided into six zones, where specific activities will take place to address the main challenges.

## THIS PROJECT CONTRIBUTES TO THE ACHIEVEMENT OF:



Imprint  
Summary of WWF Water Stewardship Projects, focus on Noyyal-Bhavani  
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Map IGCMC – WWF India  
Pictures Sanket Bhale, WWF India  
Layout Marijke Küsters, www.studioazola.com

## ROLE OF PARTNERS

**Participate in shared solutions and multi-stakeholder work.**

Join strategic cross-industry calls for action from policy makers that support a policy agenda for water security. In the Noyyal River Basin, this will help project partners reduce water risk within their supply chains. Participation will also encourage greater transparency in small and medium-sized facility supply chains. Further, engagement in the programme helps the sourcing and sustainability teams of the brands access in-depth WWF knowledge of on-ground challenges and policy dynamics, allowing for an even more informed approach to supplier engagement strategies.

**Encourage suppliers' engagement in activities.**

Influence suppliers and the wider industry to participate in the planned activities taking place within the cluster, including clean tech pilots, capacity building workshops, and 'beyond the fence' collective action with other stakeholders.

**Contribute to phase two financial leverage.**

Invest in the next phase of work (post 2021) to help scale-up and replicate successful demonstration models.

## BENEFITS FOR PARTNERS

- In-depth information on regional and national sustainability challenges and solutions including policy opportunities for the textile sector
- Reduced long term supply chain water risks in the region and improving supplier performance at site level
- Increased engagement from suppliers in decision making for the region

[www.wwfindia.org](http://www.wwfindia.org)

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