

Policy Brief

DEVELOPMENT, URBANISATION AND GOVERNANCE: EXPLORING THE NARRATIVES OF CHANGE OF RIVER MUSI IN HYDERABAD

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TABLE OF CONTENTS

01

Introduction

02

The changes

03

Challenges that exists

04

Policy Level Recommendations

05

Bibliography

INTRODUCTION

Urban Rivers:

Musi:

River Musi, also called the Moosa, Muchkunda and Musinuru, is a tributary of the river Krishna flowing through the Telangana State. The Musi River gets its names from two streams, the Moosa and Esi, which converge at the Tipu Khan bridge in the Golconda area. River Musi divides Hyderabad city into the new city and the old city. The river originates from Anantagiri Hills near Vikarabad District and joins river Krishna at Wadapally in Nalgonda district. It has an aggregate length of 250 km. In 1920 and 1927, two lakes, Osman Sagar and Himayat Sagar, were built to prevent the city from flooding. River Musi is the only river that flows through the city's centre. As per classification, River Musi falls under Priority-I for polluted river stretches.



*Pen-and-ink and wash drawing of a bridge over the River Musi at Hyderabad in Andhra Pradesh, dated c.1830.
Taken by Taylor Phillip Meadows (British Library)*

2. The changes:

Over time, the Musi went through many changes and shaped the city's history, culture, ecology and politics. But the city and its journey shaped the river too, bringing it in close conjunction with the people.

2.1 Use-patterns changes:

The Musi has been impacted and changed by the urban growth of Hyderabad city. Most of the water bodies, including the river, have a changed function, especially about their use pattern. Ramachandraiah and Prasad (2004) argue that with increasing control of the state and private agencies over the years, and rapid urban sprawl of the city, many of the water bodies have been lost, shrunk in size and polluted with the discharge of untreated domestic and industrial effluents. There has been a transformation of common property resources (lakes) into private property. The severity of the floods is also because of the reduction in the carrying capacity of lakes and water channels. The lack of ensuring legislation and implementation along with private agencies have all led up to the current situation.

2.1.1 Modernising the Urban Environment:

While the Musi River was a subject of many state policies, the most important one was during the Musi Floods in 1908, which continues to shape the Musi River Policy of the state. Cohen (2011) explores the Musi River flood in 1908 and argues that the floods served as a watershed moment for the rulers to rebuild Hyderabad city and the river along modern lines.

2.2 Policy Level Changes:

The state of the river was a concern to many citizens and organisations, and the Musi has been a site of several legal battles for restoration. One among them was the National Green Tribunal (2018), The First Report of the Monitoring Committee, on the matter of pollution of the Musi in the year 2021, as a response to the PIL filed in the National Green Tribunal to assess the present state of pollution of the Musi River. The report very clearly mentions the current state by focusing on the river water quality, sources of River Musi pollution and action plan. It also speaks of the committee observations on the ground for the mitigation measures, and actions under progress. It mentions the actions yet to be initiated which include new Sewage Treatment Plants at 14 locations, in-situ treatment drains leading to the river Musi, and removal of encroachments among the few.

2.3 Ecological Changes:

The ecology of the river differs based on the journey of the river and the way it interacts with the place. The upstream and downstream rivers, which are in the outskirts of Hyderabad, are more rural in nature, because of which the changes in the river and the impact this has on the people of that region are unique and different from the river in its highly urbanised setting within the city.

2.3.1 Impact of Livelihoods :

According to the International Water Management Institute (2003), the report discusses wastewater usage sites at the outskirts villages of Hyderabad of the Musi River. The report analyses the trends in livelihood strategies and the constraints faced by households in meeting their livelihood needs. The report mentions the change in the crop patterns due to an increase in wastewater inflow, along with innovations by the communities, like an introduction to paddy varieties that give better yields with wastewater, increased spacing between crops, irrigating with a mix of wastewater and groundwater, storage of wastewater for irrigation and using it as a settling tank. There is a need to have conversations about wastewater and its impact on food security along the river.

2.3.2 Intra-city water Inequity:

The changes or the lack of addressing the changes of the pollution, and waste of river Musi is increasing the inequity and widening the gap in the water access to the communities.

Ramachandraiah and Vedakumar (2007) talk about the increasing trend of meeting the needs of water requirements by undertaking long-distance water projects due to the neglect of local water resources. There is a lack of addressing policy-level issues of intra-city inequity and the government's approach to the conservation of the Musi, which was inconsiderate to the wider catchment area of the river. There is a significant need for integrated management of the entire catchment of the Musi River, and several water bodies that still exist in and around the city.

2.4 Institutional Changes for Governance:

With the changing polity and economy of the state of Telangana and India, there are new institutional-level changes that have been introduced to engage with the River Musi.

2.4.1 Musi River Front Development:

To address the issues of the river, the Telangana Government came up with the Musi River Development Corporation Limited (MRDCL) and a phased development plan, to initiate necessary processes to clean and beautify the river, including setting up of new STPs in the sewerage master plan. The plan proposes taking up infrastructure development along the course of 55 km of river stretch within the city which includes building bridges for connecting links.

There are also criticisms of this kind of mega-project and technocratic solutions for the river issues. There is an argument that it is leading to the deterritorialization of public spaces. Raktim Ray & Rhiya Singh discuss the spatial disjunction created because of the development discourse and mega infrastructure projects that led to binary divisions of public spaces. This process of Disneyfication of public spaces and the subsequent marginalisation of people has been giving rise to the gentrification process by the rising middle class, and it operates through the contestation of public space. They suggest a need for the emergence of collective governance and inclusive decision-making as a step in the right direction.

According to the Action Plan for the Rejuvenation of River Stretches (2019), the report proposes an action plan, and timeline to implement the action plan. The plans include identification of locations for proposed STPs, installation of recharge shafts, water quality sampling



after STPs and flow measurements of all drains. The action plan talks not only about the plan for proposed STPs but also about the proposal to rejuvenate 13 lakes. It also focuses on industrial pollution, sewage treatment and disposal plans, groundwater quality, floodplain zones and environmental flow.

3. Challenges that exists:

3.1 Pollution:

According to the National Green Tribunal(2018) report, the Musi River is placed under Priority I (BOD > 30 mg/L) of polluted river stretches. The TSPCB (Telangana Pollution Control Board) has been monitoring the river water at twelve locations along the river stretch from Osman Sagar to Nalgonda (Wadapally), where it finally meets river Krishna. The river Musi water quality data from 2017-2023 suggest that all analysed parameters were not meeting the permissible limits prescribed.

3.2 Floods:

The 1908 Musi floods are no longer the past of Hyderabad. From the recent 2020 Hyderabad Floods to the ongoing flash floods in the city, every monsoon combined with a lack of proper preparation for long-term solutions to managing the urban flood situation needs a serious relook.

3.3 Ineffective response of STP's:

According to the Action Plan for the Rejuvenation of River stretches (2019), there are 27 drains joining the Musi River along the whole river stretch. Accordingly, the state government has set up Sewage Treatment Plants (STP) in the city, but the present sewage treatment capacity is almost half that of the total sewage generation that is estimated by the year 2029, and there is an estimated gap of around 900 MLD of sewage to be treated by the year 2029, according to the report. The present capacity of the STPs is ineffective in addressing future challenges.

4. Policy Level Recommendations:

4.1 Need for a Musi River Policy:

The state government needs to formulate a Musi River Policy to transform it into a real lifeline for the city. The holistic policy must look at the river Musi not just as a relic of the past, but also consider its present and future. It must recognise the river Musi as part of the city's environmental and cultural heritage through policy frameworks and advocacy, to understand the historical context and transformation of the river and enable further urban river management schemes in flood-prone cities.

4.2 Flood Management Policy:

Hyderabad was built along the river Musi, and the city was spread over 55-60 sq km during the 1908 floods. Consequently, in 2020, the sprawling metropolis of the Greater Hyderabad Municipal Corporation (GHMC) was close to 10 million people. In contrast, the number of water bodies is down to just 190, from over 2500 in 1970. The climate impact and mismanagement of land use patterns changed the landscape of the city with increased urbanisation and houses being built on the wetlands and water bodies. This has resulted in restriction of the flow of the river and encroachment of water bodies, along with flash floods in the city due to climate change. There is an urgent need to understand the multiple factors for the ongoing urban floods and take a more nuanced and holistic approach to understanding and managing floods. There needs to be a better flood management policy along with a disaster management plan.

The two reservoirs, Osman Sagar and Himayat Sagar, were commissioned in the 1920s by the then Nizam Mir Osman Ali Khan as flood mitigation structures that doubled up as sources of drinking water for the city after the 1908 Musi floods. It is also important to examine how to update the existing flood mitigation plans according to the dynamic changes in the patterns of floods.

4.3 Integrated approach of riverine and tank ecosystem:

Being located in an undulating topography of the Deccan Plateau of the Indian subcontinent, Hyderabad city and its environs have been blessed with several natural and man-made water bodies locally known as Cheruvus, Kuntas, Khatwas etc. These water bodies act as water storage reservoirs for irrigation, drinking and groundwater recharge, and have been an inalienable part of the urban ecology of the city. Gradually, while some lakes were encroached on and replaced by concrete buildings, several others got severely polluted with domestic and industrial effluents. With the loss of water bodies and the consequent decline in the groundwater table, long-distance and expensive water projects are being undertaken to provide water to the city.

Identifying the links between the tanks and the river Musi has to be at the centre of the policy, to ensure that an effective ecosystem is built and links established for the effective flow of the river. This holistic understanding of the links and flows will help pave the way for innovative and local grassroots-level community interventions for the conservation of ecosystems that can be revolutionary.

4.4 Effective Sewage Treatment Plants:

According to the Action Plan for the Rejuvenation of River Stretches (2019), the report has listed the Musi River stretch among the most polluted rivers in India. The river has become a site for dumping garbage and industrial waste. As Hyderabad city is home to most of the pharmaceutical companies in India, it has also become a source of medical waste; most of the companies have been releasing their effluents into the river, effectively making the river poisonous and ecologically dead.

Industrial effluents are not being treated well and the Common Effluent Treatment Plants

(CETP) scheme has failed. Apart from that, the sewage treatment plants (STPs) built at different points in the stretch of the river Musi in Hyderabad have not been very efficient in treating sewage, with the only one at Amberpet functioning. There is an immediate need to expand the existing sewage treatment systems to efficiently monitor and implement a better system.

4.5 To protect the catchment areas of Musi River:

From Osmansagar and Himayatsagar, there has been a decline in water supply over the years due to reduced inflow. Based on this trend, it was concluded that these two reservoirs may dry up completely in the future: Himayatsagar in 2036 and Osmansagar in 2040. Apart from that, they receive mostly polluted water resulting from the increasing urbanisation of the catchment area and would cease to be the sources of drinking water unless proper remedial measures are taken (Venkateswara Rao and Srinivasa Rao, 1998). This is due to the construction of check dams and other encroachments in their catchment areas.

To solve this problem, it is important to protect the catchment areas from urbanisation by protecting the place from real estate construction. The GO 111 must be brought back, protecting the catchment areas. Citizens must demand a rollback to prevent the uncontrolled urbanisation of 84 villages in the catchment area of the two reservoirs that are now open to real estate. The government order of 1996 restricted any major constructions within a 10-km radius of the full-tank level of the two reservoirs to prevent pollution.

4.6 To improve the intra-city inequity of water supply:

There has been an improvement in the water supply position in the city in general, with more water being brought into the city with the Krishna water project. This improvement has happened in those areas which already have piped connections and sufficient water storage facilities. The low-income and slum areas, which do not have such facilities, have not witnessed any significant improvement. Irregular supply of water, low pressure, inadequacy and poor quality are some of the problems regularly faced by such areas. Intra-city inequity in the water supply has not been addressed by the policymakers.

One such important welfare measure by the Govt of Telangana is the Mission Bhagiratha, which aims to provide piped water to every home. While the efforts of this initiative have to be lauded, the intra-city equity in terms of water supply still needs to be the focus of the policy design and implementation. Also, while in future it may not be a difficult option to get water for the city from far away places, this might increase the cost of the process, and the burden of cost should not again risk the marginalised sections and increase the inequity gap.

4.6 Community-Centric Culturally Relevant Decentralised Policy:

No river is divorced from the culture and its people. The bureaucratization of the state and policy has a risk of delinking the river from its politics, history, culture and needs of the people. There is a need to understand that the policies have to always be driven and start at the grassroots to succeed in the long term. The state has to also involve the communities and civil society, so that there is an emergence of collective governance and inclusive decision-making in solving the problems of the river, and to link the political, historical and social identity of the city and its people within policy solutions for river protection and rejuvenation. There is a

need to bring the ecological and social aspects of sustainability at the centre of the planning process.

4.7 Region Specific Micro-Policy Plan:

The problems of the river Musi originating in Vikarabad and the subsequent problems of the urbanised Hyderabad city, where the waste treatment, pollution, and urbanisation stand tall, are entirely different from the agricultural areas wherein the Musi leaves the Hyderabad city and moves into other districts. Here, the problem of wastewater agriculture and pollution stands significant. There is a need to divide the policy level formulation based on geography and region which calls for micro-level planning and devising solutions by treating the Musi River and the communities around them as an ever-changing place rather than a homogenous entity within herself.

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