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Critically analyzing nature-based solutions: A political ecology framework of planning for the Yamuna River floodplains, Delhi

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ABSTRACT

"Novel" nature-based solutions, implemented through urban spatial plans and rezoning policies, paint an apolitical picture of the rejuvenation of the floodplains of Delhi. This paper uncovers the socio-ecological injustice rooted in these decisions that lead to the eviction of small-scale farms. This is discussed through the political ecology framework and examined as an approach of bourgeois environmentalism. The spatial policies in the Draft Master Plan for Delhi 2041 are traced through previous master plans, specifically for Zone O (river zone) of the National Capital Territory of Delhi. This allows for the unpacking of a larger urban socio-ecological imaginary being produced. In this paper, we find that, first, the river zone plan erases the marginalized, and, second, it potentially makes the way clear for the ecologically sensitive floodplains to be used for developing recreational activities targeting the elite. Therefore, like previous plans, this plan leads to the marginalization of both the river and the marginalized by ontologically separating them.

KEYWORDS

Environmental policy; inequality; urban planning

Introduction

In the 2000s, the term *nature-based solutions* (NBS) emerged to address major socio-ecological challenges as an alternative to conventional gray infrastructure approaches (Escobedo et al., 2019; Haase et al., 2017; Wijsman & Berbés-Blázquez, 2022). NBS aim to enhance ecosystem resilience by extending the environmental scope to include deeper social concerns, particularly addressing inequalities (Cohen-Shacham et al., 2016; Kotsila et al., 2021; Mell & de Oliveira, 2019). This concept encompasses a spectrum of approaches developed over decades including ecological engineering, ecosystem-based approaches, green infrastructure, and ecological restoration among others (Cohen-Shacham et al., 2016; Cousins, 2021; Dorst et al., 2019; Escobedo et al., 2019; Raymond et al., 2017; Scott et al., 2016).

NBS are viewed by policymakers as interdisciplinary approaches aiming to promote, maintain, enhance, restore, and rejuvenate multiple ecosystem services simultaneously while including deeper social concerns at its core (Escobedo et al., 2019; Wijsman & Berbés-Blázquez, 2022). Thus, NBS is being turned toward an answer to many global problems of climate change, inequality, cultural dislocation, and pollution with a focus on re-nurturing cities (Mell & de Oliveira, 2019, p. 281). It signifies a shift in the nature/society relationship, especially in urban areas aiming to address the disconnection of urban residents from the countryside, health risks, demand for green spaces and environmental degradation (Dorst et al., 2019; Scott et al., 2016; Young et al., 2019).

However, Dorst et al. (2019) argue that NBS represents "old wine in new bottle," merely rebranding existing concepts and practices. Despite this critique, international institutions like the World Bank,

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the UN, and the European Union increasingly adopt and promote NBS (Cohen-Shacham et al., 2016). The latest push comes in the form of the European Commission making NBS part of its Horizon 2020 Research and Innovation Programme (European Commission, 2015).

NBS are increasingly being incorporated into city development plans by weaving nature into the planning design (Mell & de Oliveira, 2019; Raymond et al., 2017; Toxopeus & Polzin, 2021). It advocates for participatory planning, design, and implementation (Dorst et al., 2019; Frantzeskaki et al., 2019). Thus, it has become a mainstream answer to urban environmental and socio-political challenges in city planning seen in regions such as the European Union, the United States, the United Kingdom, Brazil, and now India to name a few (Anguelovski et al., 2019; Haase et al., 2017; Mell et al., 2019; Preethan & Gupta, 2020). However, the empirical evidence of this harmonious integration remains weak, poorly defined, and vague (Toxopeus & Polzin, 2021; Wijsman & Berbés-Blázquez, 2022).

This swing to NBS can also be seen shaping the river rejuvenation plans specifically in Delhi through "green-blue infrastructure" (Government of India, 2021). Through this plan, dynamic small-scale farms on Delhi's Yamuna floodplains are being replaced with biodiversity parks. Floodplains play an important role in providing a green buffer zone (Government of India, 2014, 2019). Thus, their rejuvenation is being hailed as an ideal environmental model, to be a prototype for the rest of the 351 stretches of polluted rivers in the country (Government of India, 2020b). Mostly, the enclosed area is highly engineered. This denotes a large-scale socio-ecological transformation to the urban waterscape in India.

Looking at this socio-ecological transformation, this paper looks at the political ecology of this waterscape being created in the floodplains of Delhi. This paper investigates the claim of NBS as inherently being socio-ecologically robust by looking at their implementation in the Yamuna floodplains of Delhi. This allows the re-politicization of the issue and addresses concerns of justice, equity, fairness, and inclusivity. The broader research relates to critiquing the discourse of nature-based solutions through the development plans of Delhi. We explore two important questions. First, does the implementation of NBS result in the betterment of the river and the small-scale farmers living on the Yamuna floodplain? Second, what trade-offs are justified and why within the process?

This paper has seven sections. After setting the theoretical framework in Section II, Section III explains the methodology for the research. Section IV contextualizes the river floodplain (Zone O) by highlighting its historical transformation. Section V presents the findings through primary and secondary data. The evolution of land use policies indicating the conversion of the land in Zone O from agriculture to other development and recreational activities with an example of the South Delhi Bio-diversity Park has been covered in this section. This is followed by discussions and concluding remarks in sections VI and VII where the need to politicize NBS within planning for a more socio-ecological equitable outcome is argued.

Theoretical framework

Political ecology

To understand the political dynamics of NBS planning in Delhi, this paper draws from the political ecology framework to unpack the intricate power relations that influence decision-making processes, the social inequities that result from these interventions, and the commodification of nature that often prioritizes elite interests over those of marginalized communities. Political ecology, an analytical framework, combines nature and society into a hybrid function, principles followed theoretically by NBS. Political ecology further views this hybrid through power relations (Zimmer et al., 2020, p. 227). Ecosystems need to be seen as complex systems which are produced, dissembled, and reassembled historically through human agency and interpretation (Martinez-Alier et al., 1998; Swyngedouw, 2023). Thus, people and materials are mutually involved in the environment becoming "enmeshed" (Ingold, 1992). In other words,

nature and society coevolve. Socio-ecological processes are an interwoven web of historical, ideological, material, discursive, and cultural factors, evolving through time (Swyngedouw, 2004). As a result, we work within and not upon the world. The conceptualization of "waterscape" introduced by Swyngedouw (1999) to political ecology understands water and power to shape each other through complex interactions full of contradictions, inequalities, and conflicts thereby continuously co-evolving the hybrid socio-nature (Castree, 2000; Latour, 1993; Swyngedouw, 1999).

Swyngedouw (1997, p. 312) argues that the "political, social and economic cannot be separated from the ecological in understanding the urbanization process." Urbanization is understood as a perpetual, metabolic, historical, and social process. It happens through a socio-natural transformation which is rich with struggles and tensions (Swyngedouw, 2004). From the political ecology perspective, it is argued that urban planning policies consider nature as singular, under threat and in need of saving (Gabriel, 2014, p. 40). In other words, a division is created between the city and the environment (Keil, 2020, p. 1127). However, political ecology dictates that these transformations are neither socially nor naturally neutral (Swyngedouw, 2004, p. 23).

Unpacking bourgeois environmentalism: The neoliberal agenda in urban planning and nature-based solutions

The paper examines how control of space and residents is taken by institutionalized bourgeois environmentalism within modern city planning. Sociologist Amita Baviskar (2003, 2020) conceptualized "bourgeois environmentalism" to describe a form of popular environmental activism in India, particularly in Delhi. This movement highlights the absence of a political ecology perspective on environmental degradation, focusing instead on aesthetics, leisure, and segregation disguised as environmentalism. Bourgeois environmentalism challenges the assumption that ecology and equity are always intertwined, revealing how nature is commodified for elite consumption (Baviskar, 2020; Irazábal & Punja, 2009). These ideas are remobilized physically and discursively under NBS to enable the neoliberal transformation of institutions and subjects. NBS thus further solidifies neoliberal ideology into environmental practice (Kotsila et al., 2021). Thus, it is necessary to look at how the urban systems within which NBS are developed characterize and shape them.

Bourgeois environmentalism claims that the state reorganizes spaces to cater to the elite and possesses control through conservation and beautification. At the same time, the process of consumption and segregation which are primary reasons for the polluted environment are encouraged (Follmann, 2014, p. 123). This sort of "non-political" environmentalism fails to deal with the root cause of ecological degradation by turning a blind eye to factors such as consumerist lifestyle and instead focuses on villainizing some human presence in green-blue areas (Baviskar, 2020; Ciafone, 2012). This "paradoxical idea" presents itself to be a solution to the very problem it is creating (Büscher, 2012; Nixon, 2013). Thus, NBS linked to the "green economy" discourse needs to be politicized to highlight how NBS can perpetuate unjust geographies, emphasizing the need for a deeper understanding of equity and justice in environmental planning (Barca, 2015, p. 389). Therefore, this paper examines the political and ecological processes that make and remake urban waterscapes through NBS.

Methodology

In political ecology, case study research strategies are employed to form a "thick description" (Peet & Watts, 2004). This identifies the biophysical and socioeconomic drivers behind environmental change at local scales, particularly in addressing conservation efforts and studying environmental degradation processes (Robbins, 2019). As a result, it is important to understand which stakeholders are involved, who are left out, for what reason, whose interests and "environmental imaginaries" are being

prioritized, and how all stakeholders use knowledge, power, and discourse to affect decisions (Escobar, 1998; Peet & Watts, 2004).

In Delhi, multiple actors are present in the governance of rejuvenating the river such as various governmental sections, the judiciary, environmentalists, civil society, industries, cultural actors, residents, and farmers. While the central government works through many departments under it, the Delhi Development Authority (DDA) has 53% of the floodplains under its regulation (Government of India, 2020b) and can be considered one of its most prominent. However, while planning by the state can be recognized as one of the most important tools of city building, it is recognized that power varies across strands of law, diplomacy, expertise, advocacy, and framing. This means that despite holding vast powers through instruments such as development plans, the state continues working in waterscapes that are contested and complex. Nonetheless, analyzing the socio-ecological impacts of urban planning through the political ecology lens reveals how through NBS power dynamics are embedded within urban spatial policies.

We take a qualitative approach including data from secondary and primary sources. The fieldwork was conducted from March 2021 to November 2022. Secondary sources such as the master plan of Delhi and other policy documents related to rejuvenating the Yamuna. Primary data was collected through the interviews conducted with the farmers, policy/plan makers, lawyers, NGOs, and the affected community through the field visits.

Secondary data

For secondary data analysis, a comprehensive database was created to compile a diverse array of governmental, judicial, and non-governmental organization (NGO) documents, as well as media coverage, focusing on efforts to rejuvenate the Yamuna River in Delhi. This database encompasses a range of resources, including official regulations accessible online and unpublished draft versions. These secondary sources were key in understanding the environmental, societal, cultural, and political views of various stakeholders involved. Notably, these documents offer valuable insights and perspectives that complement one another in understanding the complex landscape of the Yamuna River rejuvenation efforts. Studying the power dynamics underlying these documents through a political ecology framework makes the technically framed documents highly situated and contextualized.

As per the Urban and Regional Development Plans Formulation and Implementation Guidelines (Government of India, 2015), India has four tiers of planning system framework. The scale begins with higher-order plans and moves down toward lower-order plans. The hierarchy starts with the Perspective Plan, Regional Plan, Development Plan, and lastly the Local Area Plan. In this article, the focus is on the scale of development plans at the city level, i.e., the Master Plan for Delhi. Three versions of the master plans have been notified in Delhi to date, prepared with a target period of 20 years by the Delhi Development Authority (DDA) formed under the Delhi Development Act (Government of India, 1957). These are MPD 1981 (Government of India, 1962), MPD 2001 (Government of India, 1990) and MPD 2021 (Government of India, 2007). The latest plan, Draft Master Plan for Delhi 2041 (DMPD-41) was launched in 2021 but is yet to be notified. The green-blue infrastructures marked in this land use map that aim to restore and rejuvenate the Yamuna floodplains will be the focus of this article. In the master plans, the chapters on water, physical infrastructure, and environment were reviewed in detail especially the activities and policies in Zone O. The master plan maps were crucial to show the physical aspects of the rejuvenation of the area as well as contextualize the local socioeconomic developments. The most relevant text has been referred to and chronologically discussed in Table 1 forming part of the Results section below.

Other policies and reports included in the analysis addressing the socio-ecological condition are policy documents of the Central Pollution Control Board (CPCB), Delhi Development Authority (DDA), and Yamuna Monitoring Committee. Journalistic chronicles appearing in newspapers have also been collected throughout the research period to keep track of important events, policy measures, conflicts, environmental issues, and political developments.

Table 1. Policies related to the Zone O River Yamuna and surrounding land uses.

Spatial policies in the master plan specific to Zone O	Observations and remarks
MPD 1981 • Provision for agriculture on some parts of the floodplains was marked in the land use map.	
MPD 2001 • Large recreational areas are to be developed and integrated with other urban developments to make the river an integral part of the city physically and visually. • Model reference: "Major metropolitan cities such as the Thames in London and the Seine in Paris." • Land for channelizing the riverfront was up to 3,000 ha, with no defined area for recreational was proposed for 5 years. • A special recreational area referring to the Disneyland/amusement park was suggested to be developed on the land proposed for the channelization of the river. • Legends of the Agricultural and Water Body were clubbed together to form a single legend with subcategories of nursery, green belt, rural and river and water body.	(1) Focus on recreational areas and the ecological development of the floodplains were proposed along the Yamuna riverfront. (2) International examples of Disneyland were considered as an ideal case to concretize the farmlands. (3) The purpose of demarcating the land for development in place of existing greens and farms had a hidden agenda of financial benefit in the name of river channelization. (4) A separate legend of "agricultural land" was removed from the land use map of 2001.
MPD 2021 • Floodplains are to be rejuvenated through eco-friendly development within the framework of making Delhi a global metropolis and a world-class city. Zone O is to be rejuvenated through eco-friendly development. • 11,000 ha area (7.42%) including agriculture, horticulture, and green belts made available for urbanization. • A new legend "Agriculture/Green Belt and Water Body" was formed with subcategories of plant nursery, agriculture/green belt, and river and water body.	(1) Cosmetic development to make Delhi a global metropolis and a world-class city. (2) Land under agriculture and other green assets are seen as available for urbanization and to be absorbed as urban extensions to develop the city. • However, these attempts on the floodplains were later stopped by the National Green Tribunal (The judicial body responsible for adjudicating environmental cases in the country) due to being ecologically damaging.[1]
Draft MPD 2041 • Delhi to be a showcase city in India. • Specific locations may be identified for permitting agriculture to promote green economies like urban farming. • Promotes private sector-led development through joint action of various stakeholders (pooling, amalgamation, joint planning, and execution) by the development of new areas as well as the regeneration of older brownfield areas through private initiatives. • Promote environmental awareness and a closer connection of people with nature through the availability of spaces for leisure and recreation without threatening the natural environment such as cycling, walking trails, exercise, yoga, nature classes, environmental research, picnics, camping, amusement parks, children's adventure grounds, nurseries, and biodiversity tours are to be permitted. • The legend shows agricultural land has been completely removed from the land use map for draft MPD 2041 and only has "green belt and water bodies."	(1) Focus on aesthetics and zeal to make the floodplains an attractive investment destination. (2) Replacement of cultivable farmlands into recreational areas on the one hand and promoting urban farming, on the other hand, is failing to protect the rights of the farmers. (3) Planning decisions are inclined in favor of private developers to benefit the powerful and hence marginalized communities are side-lined.

Source: Compiled by authors from the Master Plan for Delhi, 1981, 2001, 2021, and Draft MPD 2041.

For a comprehensive approach, primary data including semi-structured interviews with diverse stakeholders supported by ethnographic field notes was also collected.

Primary data

To ensure comprehensive insights, a multifaceted approach was adopted, engaging various stakeholders and repeated visits to the study area. This involved seeking views and opinions from a diverse

range of stakeholders, supplemented by ethnographic field notes integrated into recorded transcripts. A total of 76 semi-structured interviews were conducted via snowball sampling techniques. Before data collection, explicit informed consent was obtained from all participants.

The interview group comprised 25 farmers, 7 lawyers, 7 environmentalists, 3 civil society activists, 6 upper-middle-class residents of Delhi, and 22 urban planners involved in crafting all four versions of the Master Plan for Delhi (MPD), as detailed in Table A1.

Farmer engagement stands as a cornerstone of this methodological approach, acknowledging their unique insights and experiences. Such participation enables farmers to contribute firsthand observations and derive lessons that extend beyond academic conclusions (Nyantakyi-Frimpong, 2019, p. 111). Within the farmer demographic, interviews were conducted with both male (16) and female (9) individuals, encompassing those who owned (12) and rented (13) agricultural land.

Other participants were selected based on their positions of influence, active involvement in opposition to proposed changes, and expertise in conservation discourse. Additionally, consultation was extended to key figures in governmental departments, planning agencies, academic institutions, and local administration.

The involvement of urban planners, including technical partners specializing in the water and environmental sectors of Delhi such as the National Institute of Urban Affairs, the Delhi Jal Board, and the Indian National Trust for Art and Cultural Heritage, further reinforced the breadth and depth of perspectives gathered.

A set of 11 questions, as detailed in Table A1 under primary sources addressing themes of the historical trajectory of Yamuna pollution and its rejuvenation, its biological condition, decision-making processes in the evolution of planning strategies along the floodplains, their main drivers, environmental imaginaries being created, their inclusivity and limitations, and integration of land and water in urban development were focused on. The questions were contextualized and adapted to fit each participant's expertise and lived experience, such as asking policymakers about decision-making and farmers about practical impacts. Follow-up questions were adjusted based on responses to delve deeper into relevant issues. This flexibility ensured relevance and depth while maintaining a structured approach. These interviews were conducted in a mix of Hindi and English language. While the institutional and upper-middle-class interviews lasted for around 30 min to an hour, the interview with farmers lasted anywhere between 5 min to an hour and a half with various people joining and leaving the conversation. They were transcribed and later translated into the English language for analysis.

Data analysis

First transcriptions were summarized briefly and then grouped according to various topics. Analysis and initial thoughts, outlining key findings and insights, were mapped down. This was done using Microsoft Excel, Microsoft Word, and paper charts with sticky notes. Initially, emergent categories, themes, and concepts in the data were identified. These were reiteratively coded and re-coded into finer sub-categories through critically connecting, condensing, and cluttering. In other words, an iterative dialog full of forward-backward-movement was undertaken with the data (de Casterlé et al., 2012).

The various sources of data used were cross-referenced and verified through triangulation to create a robust, detailed, rich, rounded, and comprehensive analysis (Harrison, 2006, p. 65).

Background: The Yamuna floodplains

The river Yamuna travels for 1,370 km covering seven states in India (Sharma & Kansal, 2011). Currently, the stretch of the Yamuna in Delhi is both the prime water source, and the most polluted river stretch in India (Government of India, 2020b). This river pollution has significantly resulted in vast socio-spatial transformations.

Following India's 1991 economic liberalization, the state, judiciary, and media pursued the "beautification" of urban waterscapes, driven by the vision of creating "world-class" cities (Ghertner, 2011). This vision, embedded in development policies, often came at a significant cost to the urban poor. One prominent example is the eviction of Yamuna Pushta to create a riverside promenade. Labeled as "illegitimate," "polluters," and "encroachers," this settlement housed around 80,000 people, including essential workers like rickshaw pullers and factory laborers (Baviskar, 2020; Bhan, 2009, 2016). However, studies later revealed that the Yamuna Pushta contributed minimally to water pollution (Follmann, 2014; Mehra & Batra, 2006). In stark contrast, large-scale projects catering to the elite, such as the Akshardham Temple and the Commonwealth Games Village, were allowed despite their more significant environmental impact (Colopy, 2012; Follmann, 2016; Srivastava, 2009). The eviction was justified under the guise of environmentalism, yet it underscored the deep class biases in urban planning, favoring upper-middle-class interests while marginalizing the poor.

Applying a political ecology framework, this paper uncovers the underlying power dynamics and investigates whether current NBS perpetuate similar socio-spatial injustices.

Farming on the Yamuna floodplains

The Yamuna *Khadar* waterscape is unique. *Khadar*[1] is a lowland area adjacent to any river which is rich in alluvial deposits and known for its agricultural suitability (Lal and Pradhan, 2019). As elaborated in Singhal (2023), the farmlands in Delhi are not extensive and remain small scale. Thus, the floodplain is neither completely natural, rural, nor urban. Moreover, the legality of the land and the people on the land keep on changing. The area has a cocktail of unclear land divisions under various governmental agencies, private farmers, and organizations. As a result, multiple legal cases about whom the land belongs to are currently ongoing. A reason for this uncertainty is that the development authority fails to demarcate these dynamic features in the land use maps. Instead, the area is represented as vacant to avoid any kind of claims from the farmers. Thus, the planning of the Yamuna floodplains fails to consider the area as "a historical landscape with layered geography" (Keil, 2020, p. 1130).

The entire Yamuna floodplain area accounts for a significant portion of the agrarian economic contribution of the country. Farming here dates to when the city was first established (Singh et al., 2010, p. 611). After the independence of the country in 1947, the floodplain area was demarcated for agricultural use by Jawahar Lal Nehru's (first prime minister of independent India) administration under the "Grow more Food" campaign[2] during national food shortages. Currently, extensive farming takes place on the floodplains of the Yamuna River, especially during the non-monsoon season of October to May when the river stream shrinks. All types of seasonal fruits, vegetables, and flowers are grown and then sold throughout Delhi (Main Bhi Dilli, 2022).

Farmers vary by gender, class, caste, and migration status, creating complex power dynamics, with individuals holding multiple overlapping social identities (Chung & Milkoreit, 2021). Intersectionality reveals how such dynamic aspects shape experiences of oppression and privilege (Clement et al., 2019; Crenshaw, 1989; Narayanaswamy et al., 2023). Such analysis is crucial for understanding how these identities influence farmers' experiences with NBS and critiquing their inclusivity and effectiveness.

Long-term residents since before Independence in 1947 have substantial connections, land, property, and financial assets. They have climbed the economic ladder through generational ties and wealth accumulation. On the other hand, recent migrants often remain in debt with minimal improvements. Despite these differences, all farmers face dispossession and struggle for legitimacy and stability, showing that class alone does not fully capture dispossession in India—it operates intersectionally.

In 1949, the land was officially leased to the farmers for 90 years. A Delhi Peasants Co-operative was formed by the older farmers to deal with the administrative processes and manage the leases. However, after the Delhi Development Authority (DDA) was formed in 1962, due to disagreement between the new organization and the cooperative, officially the leases lapsed. However, the farmers continued paying their annual लगान (revenue collected as the land rent) and collecting receipts from the cooperative as proof.

Moreover, the farmers who migrated to Delhi around 25–30 years ago lease the land on पट्टा (annual leases) from the older farmers. However, the DDA now views the land as government land (as marked by the DMPD-41) and the farmers as illegal encroachers (Lal & Pradhan, 2019; various court case files[3]). Hence, there are regular eviction drives taking place. The DDA has removed occupants from 1,152 acres of land, and there are intentions to clear an additional 105 acres (Government of India, 2020b). This has moved all farmers and farming activities from the realm of legality to illegality. However, this illegality, much like the illegality of land ownership in the rest of Delhi, is applied arbitrarily.[4] This simultaneously places farmers within both legality and illegality.

Results

This paper investigates the impact of implementing NBS on both the Yamuna River and small-scale farmers along its floodplain, focusing on the trade-offs involved. Employing a political ecology framework, it explores the socioeconomic drivers of environmental change by examining stakeholder involvement, interests, and the dynamics of power in decision-making (Peet & Watts, 2004; Robbins, 2019).

Currently, a program for restoring and rejuvenating Delhi's floodplains incorporates NBS ideas into the latest draft master plan of the city like "green-blue infrastructure" and "urban farming" (Government of India, 2020a). As part of rejuvenating the river, they aim to "foster strategic economic hubs" (Government of India, 2021). Moreover, the social aspects of NBS are incorporated by taking "steps to improve awareness" and providing "adequate and reliable information to engage stakeholders as implementation partners" (Government of India, 2021, p. 17).

Efforts to address the Yamuna's pollution are reflected in various master plans. The evolution of these plans reflects a shifting approach from mere development to rejuvenation of the river landscape. The MPD 1962 proposed creating open spaces like parks on the river's western bank. In 2001, the focus was on integrating the river visually and physically with the city, emphasizing large recreational areas on its banks. The MPD 2021 took a comprehensive approach, advocating not only engineering-centric solutions but also the conservation of natural features such as forests, wildlife sanctuaries, and water bodies. The current plan for the restoration and rejuvenation of the floodplain introduces green-blue infrastructure, dividing the area into 10 sections (Government of India, 2020a). Table 1 offers an overview of the evolving land use policies specific to the Yamuna zone. Through the Yamuna Khadar case study through a political ecology framework in the next section, we investigate if these transformations are also socio-ecologically just.

As can be seen in Table 1, efforts to clean the river are reflected in various master plans. While the first detailed legal plan for the floodplains was prepared in 2010, right from MPD 2001, the floodplains were envisioned to imitate Disneyland (Follmann, 2016). MPD21 envisions a world-class city with eco-friendly development.

This institutionalized the conservation, restoration, and rejuvenation of the area. However, from its conceptualization, the DDA acquired large agricultural lands and the commons and "modernized" them as commercial, institutional, housing, industrial, sports, and green areas (Pati, 2022; Soni, 2000). However, these areas were not empty but rich with embodied practices. While the DDA envisioned a hygienic and orderly city, it failed to make provisions for the working poor, embedding the aesthetic principles of bourgeois environmentalism within the spatial changes (Baviskar, 2020).

Similarly, DMPD-41 advocates for sensitive rejuvenation of the floodplain. While for the first-time allowing farming on the floodplains is explicitly mentioned within the floodplains, space is also opened for private sector-led development. Rapid evictions of small-scale farmers continue (Hindustan Times, 2023; Prasad, 2023), highlighting the need to examine the socio-political aspects of these plans.

Change in the land use of Zone O: DMPD-41

As highlighted earlier, the Master Plan for Delhi (MPD) serves as a paramount instrument in shaping the city's socio-political landscape through land use and zoning changes. The focus in this section is on the Draft Master Plan for Delhi (DMPD-41), which delineates the city's future waterscape and reveals

the environmental imaginary shaping under NBS and the impact on farmers driven by bourgeois environmentalism principles.

In the land use map prepared for the DMPD-41, Zone O (9,700 ha) marks the river and its floodplains (Government of India, 2021). This area has been divided into Zone O-I and O-II. O-I River Zone is an active floodplain with a total area of 6,295.00 ha. The Yamuna flows through 1,146 ha and 1,267 ha is proposed to be turned into 10 biodiversity parks (Government of India, 2020a). O-II zone, covering 3,638.36 ha, allows regulated development, a departure from the previous master plans. The rest of the land has been transferred by the DDA to other agencies and some land remains under litigation.

On the map (Figure 1) the light blue line by the river demarcates the O-I zone, and the dark blue line demarcates the O-II zone. While within the consolidated Zone O in all the previous master plans (MPD 1981, MPD 2001, and MPD 2021), no construction was allowed in the entire area, now within the O-II zone regulated development will be allowed.

Enclosed within the O-I zone are blue and green areas, which are going to be used for the restoration and rejuvenation of the floodplains. Enclosed within Zone O-II are various concretized structures such as the Commonwealth Games Village and the Akshardham Temple. These structures

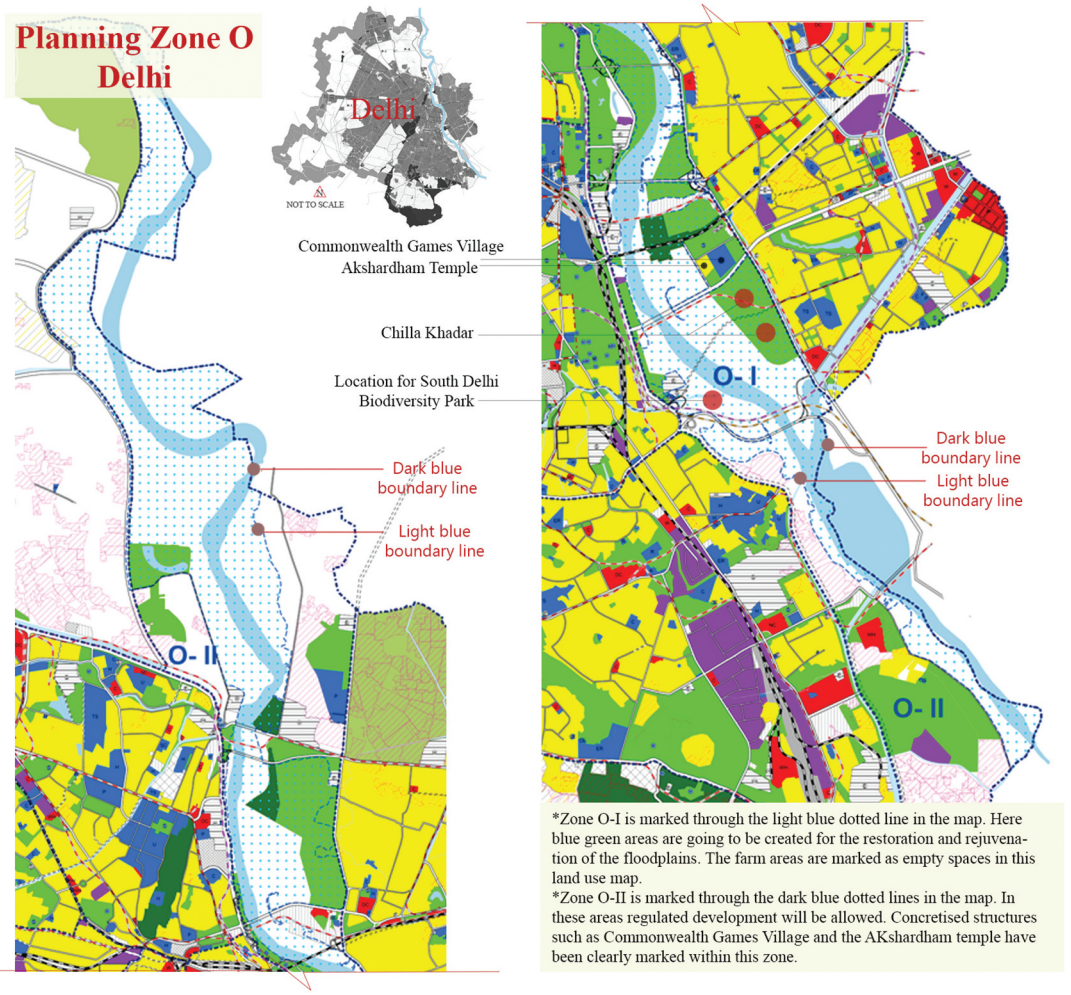

Figure 1. Demarcation of Zone O into Zone O-I and O-II. Draft Land Use Plan public notice 09/06/2021. Source: Delhi Development Authority, 2021.

fell under the consolidated Zone O earlier. By dividing Zone O into O-I and O-II, these buildings have been surgically removed from the blue-green area, moving them to the realm of legality. The farm area, on the other hand, has just not been deliberately left in the O-I zone but has been marked as an empty space.

Politicizing the creation of biodiversity parks

The restoration and rejuvenation of Delhi's floodplains involve creating biodiversity parks and artificial wetlands (Government of India, 2020a). The DMPD-41 mentions that "specific locations may be identified for permitting agriculture" (Government of India, 2021, p. 20) to "promote green economies like urban farming" to meet "Objective 1: Prioritizing Environmental Sustainability" (Government of India, 2021, p. 7). For this, the floodplains are divided into 10 sections, including the South Delhi Yamuna Biodiversity Park, spread over 200 ha (Government of India, 2020b) where the work is almost complete. The transformation from small-scale farms (Figure 2) to a bio-diversity park (Figure 3) symbolizes the power dynamics at play.

Along with the bio-diversity park, this area is also seeing the construction of an ecologically degrading Delhi to Meerut semi-high-speed rail or Regional Rapid Transit System (RRTS). This prototype of replacing farmers with a bio-diversity park and opening spaces for potentially more concretization is going to be copied throughout Delhi and then wider in India.

In Delhi, restoration and rejuvenation plans are often followed by the construction of concretized buildings such as the Commonwealth Games Village and the Akshardham Temple (Baviskar, 2020; Follmann, 2014). Such development is echoed in an earlier proposal for Riverfront Development, later halted due to ecological concerns (Government of India, 2014). The public notice dated September 2013 by DDA had proposed re-delineation and rezoning of Zone O partly under residential, public, and semi-public land uses. This again included the structures such as Commonwealth Games Village and Akshardham Temple while deliberately leaving out the farms. The long list of recreational facilities to be made available packaged as "green infrastructure" included water sports,

Figure 2. Farmland in Yamuna Khadar (2010). Source: World imagery map, 2011 extracted by the authors in January 2023.

Figure 3. Bio-diversity park in Yamuna Khadar (2023). Source: World imagery map, 2022, extracted by the authors in January 2023.

golf courses, tourist cottages, shopping plazas, restaurants, and cafes to name a few (Government of India, 2014). Interestingly, the area assigned for re-delineation and rezoning was 3,109 ha (Government of India, 2014) which is quite similar to the areas demarcated under proposed Zone O-II as 3,638.36 ha. These fit into the imaginary of Delhi as "one of the fastest-growing megacities in the world" as stated in the proposed plan (Government of India, 2021, p. 1).

Hidden reasons behind the conversion of the land use

To recognize the changes within the various plans and their implementation as political it is necessary to analyze when decisions are taken to follow plans, to disregard plans, and in whose interest. The eviction of the farmers in the interest of following the Mater Plan needs to be seen in relation to when the plans are not followed by powerful actors. One such recent instance was in 2016, when an event called the "World Cultural Festival" was held in the area by the Art of Living Foundation (AOL) under the self-acclaimed Godman Sri Sri Ravi Shankar. Spanning a 400-ha floodplain area, the event involved the construction of temporary infrastructure such as ramps, roads, toilets, and bridges. With a substantial attendance of 3.5 million people (The Art Of Living, 2016), the event garnered public support and was dubbed a "cultural Olympics" by Sri Sri Ravi Shankar (Hindustan Times, 2016). The DDA not only granted permission for land use, going against the Mater Plan but also collaborated with the foundation during and after the event. It is noteworthy that the foundation's followers predominantly belong to the upper-middle-class segment of society (Alley et al., 2018).

During the event, the organization compensated farmers for temporary land use. However, once the event concluded, the DDA swiftly took control of the land and installed barriers, marking the birth of the South Delhi Biodiversity Park in that location (Alley et al., 2018). Paradoxically, the National Green Tribunal (NGT) imposed a fine on the organization for causing irreversible ecological damage to the area by violating multiple wastewater regulations (Manoj Misra v Delhi Development Authority, 2017). Here, the DDA "reclaimed" the land as soon as it got an opportunity to do so. This reclamation of land is being seen throughout the floodplains.

When we asked a DDA officer why farmers were being evicted from the floodplain area when no specific plan was in place yet, they identified that vacating land was their priority: "We ask them to vacate the land whenever we get the opportunity. Then, it can be utilized for anything later" (Planning official DDA, New Delhi, October 2021).

One of the former Planner from DDA gave an insight on the transactional negotiation dictating the governance of the floodplains:

> In Delhi, the focus shifted away from prioritizing water, with land being perceived solely as an asset . . . Town planners face immense pressure, often unable to challenge influential ministers, as decisions are frequently influenced by powerful voting blocs. This dynamic often results in a transactional relationship or a form of negotiation. (Retired Planning official DDA, New Delhi, October 2021)

Here it is important to note that the actual petition in the NGT (2012)[5] which was instrumental in the crafting of the master plan was to remove encroachment of big polluters such as sand mafia and dumping of construction waste. However, these big polluters were grouped with small-scale farming by both the NGT and the state (Government of India, 2020c, p. 36).

A Delhi High Court housing rights lawyer's elaboration on the petition to clear the floodplain further reinforces the claim:

> The actual petition (Yamuna matter) was to remove the encroachers like the sand mafia who are doing business. But the 2015 NGT order interpreted these jhuggi (slum) dwellers as the most polluting encroachers. Instead of targeting injustice, they are targeting farmers. This is a pick-and-choose policy. These slum dwellers are soft targets. (Housing Rights lawyer, Delhi High Court, New Delhi, May 2021)

Expanding on the disproportionate action against farmers, an environmentalist stated,

> The NGT panel that banned farming on the banks of the Yamuna. All that looks at farming. All the vegetables that are grown there are toxic. So, you blame the farmers, and you ban farming. But you don't go to the source of the toxicity. That is a bigger question that needs to be addressed. (Environmentalist, New Delhi, June 2021)

It is important to note that while these statements critically assess current farming practices, they also acknowledge that large-scale environmental degradation is not caused by the farmers, and they should not bear the consequences.

Therefore, the decision to target the farmers is political and not technical. A senior water expert and engineer from DJB emphasized the inequitable choices made in planning:

> The most critical stakeholders often overlooked are the beneficiaries, whose perspectives should be integral to the planning process. Before the Delhi Jal Board (DJB) or the Delhi Development Authority (DDA) implements any schemes, ultimately the public should be consulted. Beneficiaries possess invaluable insights crucial for effective planning. There are four primary actors: the beneficiary, the executing contractor (from DJB), the government funding the plan (DDA), and the decision-makers approving the schemes, typically politicians in the Government of India or the Government of Delhi. (Water expert, DJB, New Delhi, September 2022)

To understand the political nature of floodplain management, it is crucial to analyze when decisions to implement or ignore plans are made, particularly noting how powerful actors influence land use and evictions despite regulatory violations and ecological damage. Overall, the language of the various master plans of Delhi has evolved from focusing on Disneyland-like development to comprehensive rejuvenation through recreational spaces. The current draft master plan for Delhi incorporates NBS concepts like "green-blue infrastructure" and "urban farming," reflecting environmental concerns. The next section discusses how NBS can perpetuate unjust geographies if applied without addressing underlying power dynamics and equity issues.

Discussion

This section explores the historical socio-spatial inequalities in the Yamuna River master plans, revealing disparities in NBS implementation, including themes of marginalization, land grab, dispossession, evictions, greenwashing, and aesthetic redevelopment. It finds that weaving nature into

solutions does not automatically lead to socio-ecological well-being. Moreover, it might consciously or not end up reproducing unjust geographies when applied in an apolitical way (Rumbach, 2017; Wijsman & Berbés-Blázquez, 2022). Therefore, while taking a step away from purely technocratic solutions toward attempting to incorporate debates around equity and justice, NBS still requires a deeper and more nuanced understanding of power dynamics and trade-offs under land use change.

NBS is framed as innovative new methods promoting a "green economy" (Escobedo et al., 2019; European Commission, 2015). It is implemented in spaces with ongoing socio-political complexities. Kotsila et al. (2021) argue that capitalism, sustainability practices, and apolitical technocratic planning have largely gone together. The hierarchy between social, economic, and ecological objectives will always exist as multiple actors have various clashing interests that play out unevenly across spatial and temporal scales (Cousins, 2021, p. 8). Thus, NBS operate in spaces full of contestation and cannot be inherently considered to provide solutions that are a "win for all" (Kotsila et al., 2021, p. 3). It provides similar opportunities to mobilize nature for unequal neoliberal gain for some while simultaneously claiming socio-ecological sustainability.

The "green" city, not a socio-ecologically healthy city, becomes the epitome of a livable city in the twenty-first century. The environment here is produced as a space for "modern" people and this imaginary is supported by the upper-middle-class (Ahmed et al., 2011). Elite consumption is not only favored over the farmers' livelihoods, but such imaginary has no space for various environmental imaginaries to co-exist (Brosius, 2010, p. 4). Urban farming, redefined through bourgeois environmentalism, is seen as a success only when it moves away from traditional farming practices. The problem here is not of farmers being against urbanization, progress, or development. The problem is that they are being carved out of this environmental imaginary. Therefore, we claim that while the NBS are packaged as being for the socio-ecological betterment of all, neither they are ecological (by ontologically separating nature and certain sections of the society, in this case, the farmers) nor equitable (by causing marginalization and dispossession). Therefore, it is not just the society that creates nature but also the society itself that is created through the environmental discourse. These socio-ecological costs due to bourgeoisie environmentalism are long term and huge.

The language and framing of environmental initiatives, such as terms like *restoration*, *rejuvenation*, *eco-friendly development*, and *sensitive rejuvenation*, often serve to conceal deeper socio-political agendas (Smith, 2002, p. 445). This masking reinforces the nature/culture dichotomy, perpetuating a scenario where all humans are pitted against nature while obscuring the socioeconomic impacts of such projects. Consequently, when agricultural activities are framed as problematic, there is a gradual removal and centralization of practices such as farming, fishing, and nursery operations, potentially clearing the path for private sector-led development, as proposed by DMPD-41. Within this context, the pollution narrative can be seen as a pretext for land acquisition, leading to the displacement of occupations and the relocation of residents, similar to the historical patterns observed in cases like Yamuna Pushta. Political ecology recognizes the limitations of this purely biophysical understanding, highlighting its conceptual detachment from specific temporal and spatial contexts (Jarosz, 2004; Peet & Watts, 2004; Zimmer et al., 2020).

While similar concerns of dispossession and marginalization have been raised by environmental gentrification theories which describe how upgrading areas drive up rent and push out the poor to the periphery due to indirect market drivers, Doshi (2018) argues that they fall short of explaining the political ecology of rejuvenation. Transformations do not merely take place for environmental rejuvenation. Instead, spaces are reimagined to cater to an exclusive section of the elite for aesthetic and recreational purposes. The state and other intermediaries directly and forcefully dispossess the remaining population to construct the aspirational world-class green city (Doshi, 2018).

Thus, in the course of Delhi's urban planning, it becomes evident that NBS are falling short of offering a "win for all" solution. Instead, in line with bourgeois environmentalism, they exacerbate spatial inequalities by favoring the restoration and rejuvenation of spaces tailored to elite interests, thereby facilitating economic development projects. In India, where vulnerabilities get embedded through historic power dynamics, this manifests more profoundly (Joy et al., 2014, p. 955). While the DDA has accounted for the various concretized structures, they have failed to mark the thousands of farmers living and working within the

area. The notion of legality and illegality within urban planning, as outlined by the master plan, is a complex construct. Bhan (2016, p. 133) challenges the dichotomy of legal and illegal categories in urban planning, deeming them "foundationalist fiction." In practice, the city's expansion does not strictly adhere to rigid planning guidelines but rather unfolds through "calculated informality" through intricate interactions among multiple stakeholders (Roy, 2005). Bhan's (2016, p. 21) assertion that planning itself produces and regulates illegality underscores the intentional nature of these planning strategies. As a result, the exercise of marking out the farmers from the floodplains is inherently about boundary-setting and building enclosures to assert control over land, communities, livelihoods, and resources.

Despite the DMPD-41's mention of promoting urban farming for environmental sustainability, farmers continue facing evictions on the ground. Equating the large-scale irreversible pollution caused by sand mining with small-scale agriculture itself shows the inequitable policies produced in the rejuvenation initiatives. This follows the common pattern of environmental rejuvenation where large-scale exploitation by powerful actors is grouped with the marginalized earning a living (Rangarajan, 1996, p. 2394).

By accusing the farmers of squatting on public land, the state marks them as outside the realm of the public. Hameed (2017, p. 119) calls this erasing of what is considered unimportant by the planners "unmapping." Randeria (2003) asserts that in the neoliberal world, the state is not weak, but rather cunning. Such a "spatial mode of governance" (Roy, 2005) is further illustrated in the case of Art of Living receiving official approval to host the event despite violating numerous environmental regulations, possibly because it transformed the perceived "non-space" into a consumption space for the elite. As a result, the master plan is practiced selectively to spatially manifest power (Bentinck, 2000).

In essence, NBS need to confront socioeconomic disparities, power imbalances, and historical injustices. Although spatial policies and urban development schemes often conceptualize humans as rational and impartial actors, the intricate interplay between land, rivers, and residents reveals an interplay of historical legacies, political dynamics, economic forces, cultural contexts, and personal narratives (West, 2005). Acknowledging these multifaceted nuances is important, as they shape the crafting and implementation of urban policies and development plans.

Conclusions

This paper delves into the political ecology of the transformation unfolding in Delhi's floodplains, examining the socio-ecological implications of NBS. By scrutinizing their application in the Yamuna floodplains, it seeks to re-politicize the discourse, addressing concerns of justice, equity, and inclusivity.

Emerging in the 2000s, NBS marked a departure from conventional technocratic approaches, offering strategies like ecological engineering and green infrastructure to address socio-ecological challenges like climate change, inequality, and urban disconnection while reflecting cultural and societal values. Despite critiques of merely rebranding existing concepts, international institutions increasingly endorse NBS. In urban contexts like Delhi, NBS drive transformative shifts, as seen in river rejuvenation plans replacing small-scale farms with engineered green spaces, reflecting a broader trend toward socio-ecological transformation in urban waterscapes globally.

An analysis of Delhi's master plans through a political ecology framework highlights two key issues. First, NBS implementation often involves "conserving" land while erasing the communities that inhabit it. Second, this conserved land is frequently repurposed for elite development projects, leading to large-scale degradation of floodplains.

The Yamuna Khadar case study reveals that top-down planning prioritizes urban beautification over the socio-political realities faced by marginalized communities. Transformations like converting farmland into biodiversity parks, while appearing beneficial, often exacerbate the exclusion of farmers and reinforce existing power dynamics. This process, driven by a narrow environmental agenda, overlooks the socio-ecological costs and fails to address the needs of the dispossessed. Historical power dynamics continue to shape who can access rights and who experiences insecurity, deepening the inequitable hydro-social cycle. Turning a blind eye to these power relations, be it purposefully or not, results in the violent suppression of most voices.

Addressing socioeconomic disparities, power imbalances, and historical injustices through NBS planning requires a fundamental reexamination of the nature–society relationship to drive transformative change prioritizing justice and equity. This involves designing NBS that actively address power dynamics, ensuring transparent evaluation, inclusive debate, and proactive socio-political management. Meaningful engagement of marginalized stakeholders in decision-making is crucial to representing their voices and protecting their interests. Such engagement, integrated into the city's master plan development, can enhance transparency and build public trust and support.

While our study is situated within a specific context, there is potential for further research to explore similar inequitable patterns on a global scale. Such investigations could provide comprehensive insights into the trade-offs dictated by embedded power dynamics within policy functions, ultimately contributing to more equitable and sustainable urban development practices. To navigate the challenges of urbanization and environmental degradation, centering a socio-ecological justice approach is essential.

Notes

1. In a seminar "Water Security for Peace through Community Participation," at the School of Planning and Architecture, Delhi on 24 April 2024, Dr Rajendra Singh, renowned as the "Waterman of India" playfully explained the term *khadar* as land that "eats" (*kha*) water. This word is used in Hindi, Urdu, and Punjabi languages (Lal & Pradhan, 2019, p. 135).
2. Expansion, intensification, and commercialization of agriculture were encouraged (Prabhakar et al., 1995, p. 183).
3. Saudan Singh And Ors. vs N.D.M.C. And Ors., Supreme Court of India (1992).
   Wazirpur Bartan Nirmata Sangh vs Union Of India (Uoi) And Ors., High Court of Delhi (2006).
   Gainda Ram & Ors vs M.C.D. & Ors, High Court of Delhi (2010).
   Abdul Shakeel Vs Delhi Development Authority, High Court of Delhi (2012).
   Tulsi Ram vs Delhi Development Authority, High Court of Delhi (2018).
   Delhi Peasants co-operative Multipurpose Society Ltd vs Delhi Development Authority, High Court of Delhi No. 123/1967 (1967).
   Yamuna Khadar Slum Union vs Delhi Development Authority, High Court of Delhi (2019).
   Preeti Sharma & Anr vs Delhi Development Authority, High Court of Delhi (2020).
   Shakil Ahmed & Anr vs Delhi Development Authority & Ors, High Court of Delhi (2020).
4. While only around 50% of the city is authorized (formal, legal, planned, and legitimate) most do not face the threat of evictions (Bhan, 2016; Karpouzoglou & Zimmer, 2016).
5. National Green Tribunal (2012) *Manoj Mishra v. Union of India, Government of India O.A.*, R.A. No. 15/2021 in O.A. No. 06/2012.

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Appendix A

Table A1. List of data used for analysis of the creation of bio-diversity parks, Delhi.

Name	Source	Description	Emerging themes for Analyses
Type of Data Collected: Secondary Sources			
Master Plan for Delhi, 1981	Government of India, (1962)	Urban Development Plans of Delhi at city scale i.e., master plans	Land use changes under the master plan.
Master Plan for Delhi, 2001	Government of India, (1990)		Changes in the area allocated for the rejuvenation of Yamuna Zone O through plans and land use maps.
Master Plan for Delhi, 2021	Government of India, (2007)		Key Emerging themes • Land grab • Evictions • Beautification
Draft Master Plan for Delhi 2041	Government of India, (2021)		
DDA and Demarcation of the Flood Plains and Conservation Activities	Government of India, (2019)	Reports from National Green Tribunal, India	Aims of rejuvenated Yamuna project
Description of Restoration and Rejuvenation of DDA's Project on River Yamuna	Government of India, (2020a)		Detailed technical information on bio-diversity parks.
Fifth report prepared by the Yamuna Monitoring Committee for the Rejuvenation of the river Yamuna & abatement of pollution	Government of India, (2020b)		Key Emerging themes • Land grab • Greenwashing • Beautification
A strategic framework for managing urban River stretches in the Ganga River Basin urban River management plan (URMP)	Government of India, (2020c)		
Status Report of Haryana for Yamuna Action Plan in Compliance of the order Dated July 12, 2019 of Hon'ble NGT, New Delhi	Government of India, (2012)		
The Delhi Peasants Co-operative Multipurpose Society Ltd vs Delhi Development Authority, High Court of Delhi No. 123/1967	High Court of Delhi (1967)	Court Cases: High Court of Delhi, India	Dispossession of farmers from the floodplains Key Emerging themes • Marginalization • Socio-ecological dispossession Evictions
Gainda Ram and Ors vs M.C.D. & Ors, High Court of Delhi.	High Court of Delhi (2010)		
Abdul Shakeel Vs DDA, High Court of Delhi, WP (C) 2029/2012.	High Court of Delhi (2012)		
Manoj Misra v. Delhi Development Authority, National Green Tribunal, Government of India No. 65/2016	National Green Tribunal (2017)		
Tulsi Ram vs Delhi Development Authority, High Court of Delhi, W.P.(C) 1720/2018, CM Nos. 7144/2018, 8852/2018 & 24671/2018	High Court of Delhi (2018)		
Yamuna Khader Slum Union vs Delhi Development Authority, High Court of Delhi, WP(C) 10900/2019	High Court of Delhi (2019)		
Preeti Sharma & Anr vs Delhi Development Authority, High Court of Delhi, LPA 23/2020, 2020	High Court of Delhi (2020)		
Shakil Ahmed & Anr vs Delhi Development Authority & Ors, High Court of Delhi, LPA 276/2020 & CM 24,633/2020(Stay)	High Court of Delhi (2020)		
Will pay Rs 5 crore as "compensation," not fine: Sri Sri on AoL event.	Hindustan Times, (2016)	News Articles, Indian	Elite consumption of the floodplains after eviction of farmers Key Emerging themes • Socio-ecological dispossession • Beautification

(*Continued*)

Table A1. (Continued).

Name	Methods
Type of Data Collected: Primary Sources	
Site Visits: Yamuna flood plains, New Delhi	Semi-structured interviews and field notes.

Interviews from Stakeholder

List of semi-structured questions:

(1) Can you describe the history of pollution in the Yamuna River and how it has impacted the floodplains?
(2) What important steps have been taken to clean and restore the river, and how have these efforts changed over time?
(3) What is the current state of the Yamuna River and its floodplains? Have recent projects made a difference?
(4) Have you noticed any changes in wildlife or water quality because of the NBS projects?
(5) How are decisions made about NBS projects in the Yamuna floodplains? Who is involved in these decisions?
(6) What factors are driving the current planning strategies for the floodplains? How do these factors influence the choice of NBS projects?
(7) What kind of vision or image of the environment is being created through NBS projects? Does this match local needs and views?
(8) How are the needs and concerns of small-scale farmers included in the planning of NBS projects?
(9) What problems or limitations have come up with NBS projects, especially regarding fairness and environmental justice?
(10) How are land and water management combined in the current development plans for the Yamuna floodplains? What works well or doesn't work well in this approach?
(11) What trade-offs have you seen when balancing ecological, social, and economic goals in NBS projects? Are there trade-offs that seem reasonable or problematic?

Stakeholders		Description	Emerging themes for Analyses
Farmers	25	• Questions were contextualized to fit each participant's expertise and lived experience. • Follow-up questions were adjusted based on responses accordingly. • The interviews were conducted in a mix of Hindi and English language.	–Power dynamics in the Yamuna floodplains. –Environmentalism of the rejuvenated Yamuna project. –Eviction, marginalization, and socio-ecological dispossession of the farmers at the Yamuna floodplains. –Land grab through greenwashing and beautification.
Lawyers	7		
Environmentalists	7		
Civil society Activists	3		
Upper-middle-class residents	6		
Officials from the Delhi Development Authority, Delhi Jal Board and other urban planners, environment policymakers and academicians across India	22		