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Finding the Blue Drums: A Micro Study on Urban Household Water in Delhi

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Abstract

The patterns of domestic water access and use are diverse in urban locations and significantly reflect the state of public distribution of water. Delhi's household water supply is largely dependent on the nature of the land use and whether the location is defined as a formal or informal settlement. The present study is based on the investigation of Unauthorised Colonies of Delhi to show how this type of informal settlement is at the receiving end of discriminated water provision. It is based on a field survey of two Unauthorised Colonies comprising data from 90 households. Methods applied are convenience sampling for collecting household responses on the questionnaire, administering of interview schedule, narrative inquiry in the locality, and non-participant observation. It is to be understood that gender and socio-economic disadvantages intersect the urban water needs. The findings suggest that the informal arrangements of water have become formalised by the regulated use of alternatives. It seems a publicness of water is forcibly built through an informal supply system.

Key words: *Household water, unauthorised colonies, Informal settlements, Urban, Gender, Delhi*

Introduction

The site of blue drums, even white, as water storage units in the front yards of houses is common in certain residential areas of Delhi. It indicates the area lacks a reliable water supply and has to depend largely on stored water. In such locations, the residents may not only struggle with shortages in meeting the daily water requirements but concerns can be related to quality, rationing, and complex informal management that arises due to irregularity in the supply. The issue of domestic water supply cannot be simplified to only its availability and non-availability.

It is widely discussed that water availability and practices are experiential. The socio-spatial contexts shape access to household water. Heightened disparities are observed in the water distribution that place the urban vulnerable population to encounter water inequalities alongside coping with other social-economic challenges (Alankar 2013: 46). This disparity contributes to the cycle of poverty. The complexities of providing essential public services to the marginalised urban population are

well-founded in developing countries. Studies have looked at reasons for rapid urbanisation and the resultant issue of underserving the urban poor (Giles and Brown 1997: 100). The significant rise of urban concentrations not only characterises demographic growth, but a host of issues also open up regarding the functional land use patterns and public utility and services (Biswas and Gangwar 2021: 199-200). Urban land and water planning are not unrelated topics. Due to limited policy visions, they remain unconnected and fall short of incorporating the needs of all types of settlements. Discussing water in Delhi must be placed within the spatial characteristics of its urban formations.

The unauthorised colonies (UCs) also referred as informal or unplanned settlements, are contrived illegal spaces that result from the crisis and chaos induced by failed urban planning experiments (Bhan 2013: 58-59). The pooling of private lands was one way to have UCs. It also evolved from fringe agricultural lands and has developed in violation of zoning regulations. A context of illegality has been associated with them though guidelines exist to upgrade the status by regularisation unless those colonies are an infringement on the ecologically or archaeologically sensitive zones and contravene public land use. Given the variation in size, the trajectory of development, and land use types, it has been a source of contention to cluster all unauthorised colonies as one unit. It may be difficult to discuss a complete overview but some attempts can be made to understand the core nature. The discussion can help in further understanding the locational complexities of water arrangement.

The present study primarily brings to discussion the informalities and challenging conditions of domestic water provisioning in the UCs. It will explore what alternative sources are devised in an authorised manner for meeting the daily water requirements and how it compels those affected to carry the burden of water shortage and expenses. While literature exists noting the informal water vendors as a rescue for water stress in Delhi, this study explores the question of how publicness is built to dilute the context of informality. By studying the household options and noting the gender experiences of the user group from the field observations in UCs of South Delhi namely Madanpur Khadar Extension and Sanjay Colony,¹ the paper tries to examine how the dimensions of access to water intersect with social hierarchies.

Unauthorised Colonies in Delhi: An Overview

The socio-spatial development of Delhi has been broadly categorised as formally planned and unplanned or informal settlements.² At a broad level, all type of unplanned settlements is tenuous in nature, and with respect to their access to the services, entitlements, and infrastructure, they can be referred to as “excluded settlements” (Heller, Mukhopadhyay, Banda and Sheikh 2015: 3). The physical identification is not difficult to ascertain given that the informal settlements are overcrowded, refuse dumps strewn all over, frequent queues for filling water with ample evidence of low sanitation options resulting in open defecation. The social and economic attributes are visible where the quality of life gets severely compromised. Those who tend to be drawn to these types of settlements are

migrants from rural areas (Ishtiyag and Kumar 2011:37).

The mismatch between growing housing needs and the unaffordability of housing in the formally planned residential areas has resulted in the growth of UCs. The official definition for UCs is “illegal colonies in violation of Master Plan with no clear land title.” The most recent recorded number of UCs in Delhi is 1797 having a population of more than 40 lakh. (Planning Department 2023: 252). Mapping and identification of the UCs took a long time even though the spurt of growth was much rapid. In the 1990s UC listing was prepared when already they reached 1071 in numbers (Planning Department 2006: 168). The two major distinguishing features of exclusions are the unrecognised status and lack of development of basic services. The UCs may not have had formal entitlement to services but those built buying plots with semi-legal tenure are secured from eviction.

In all these years, a notion existed to mainstream the UCs and some declarations have been made from time to time about the public spending to improve development work.³ The progress remains limited for Delhi’s 30 per cent population living in the UCs (Ajith and Kataria 2022). The proposed investment for modifications through Delhi’s Master Plan 2041 does not show much promising role either given that it only encourages private developers to step in. Public discourses reiterate that steps must be taken to prevent any further expansions of UCs but as long the roadmap glosses over concrete realities, the growth of such types of settlements cannot be curtailed.

A Review on Informal Water Provisions

Research on access to water in Delhi elucidates that the public distribution of water is unable to meet all demands. As a result of rapid urban growth, the supply is under severe stress and in such a scenario the existing water infrastructure and services tend to favour settlements of higher income groups while informal settlements face systematic neglect and marginalisation (Haider 2016a: 2). Rhetorical concerns for the urban poor manifest in Delhi’s governance but the most coveted public water network, the Delhi Jal Board (DJB) continues to underserve the settlements that reside the poor.

Not having access to a piped supply creates compelling circumstances. Inhabitants of UCs may depend on shallow hand pumps and in most cases these are contaminated and unfit for human consumption (Dutta, Chander, and Srivastava 2005a: 442). While installing private bore wells without formal approval in Delhi is illegal, such an option is resorted to or services of private water tankers come as rescuers. Unresolved water issues and lack of coverage have habitually invited private water services who may illegally obtain water from public networks or over-extract water by violating norms. Breeding of privatisation of water has been one of the most unavoidable infrastructural lacunae and commodification (Kumar, Singh, Cooper, Mdee and Singhal 2021:7; Maria 2008).

Studies have discussed the household expenses accrued from water in the informal settlements. The household may have to spend a significant amount of money to procure water, both in terms of quality and quantity. A substantial part may be for investing in reliability by installing storage tanks

and motors handsets to draw up water for storage, taking services from water vendors, etc., and the other part of the investment may be in water purification and filtration (Dutta, Chander, and Srivastava 2005b: 457). The government subsidy on water for the poor carries a caveat of households with metered water consumption, and lacking such arrangements deprives a sizeable poor of becoming beneficiaries of subsidies (Haider 2016b: 4; Kacker and Joshi 2012: 30; Khan 2018: 126). It is now almost a settled debate that the centralised water system of Delhi is ineffective for the UCs and a more featured analysis can be brought forth by exploring the field.

Methodology and Analysis

The UCs are scattered all over Delhi. There are very few studies that have focussed primarily on the UCs and their development needs. Some may have referred to the UCs within the broad discussions of all unplanned settlements. The diverse land use settings add further constraints in coming up with a common denoting factor. A compiled government list of the UC in a single database is available. However, while referring to the sections on coverage of development work much information is missing (Urban Development Department of Government of NCT of Delhi 2018). Given these constraints, choosing UCs as field sites was challenging.

The present analysis is based on two UCs, Madanpur Khadar Extension (Khadar Extension) and Sanjay Colony in South Delhi that were developed through a resettlement process. The former was part of the village Madanpur Khadar and was developed by the Delhi Development Authority (DDA) to resettle slum dwellers. The resettlement process started in 2001 and continued for some time. Sanjay Colony came up around 1976 and was developed for the labour community that came to work in the nearby Bhatti Mines. A further ecological factor was also referred to in the search for sites. The Khadar Extension lies in Yamuna floodplains as *Khadar* denotes low-lying lands adjacent to a river. The Sanjay Colony falls in Delhi Ridge, rumps of Aravalli hills and its semi-arid forest habitat. The other most significant development question in the study is access to household water. Evaluating the status of pipelines by the Delhi Jal Board (DJB), it was found that the Khadar Extension is said to have completed laying the pipelines, and for Sanjay Colony, no pipeline was laid. In the Khadar Extension, pipelines remain non-functional as the DJB did not start the water supply (Urban Development Department of Government of NCT of Delhi 2018). The field survey was undertaken to understand the ground reality and the implications for the residents in the chosen localities.

Given that the sites are not systematically registered colonies, the convenience sampling method was adopted. The participants in the study comprised of household water user group. The sampling unit was an individual household. The questionnaire administered for the study captured the respondents' migration status, income sources, infrastructure of the localities, challenges, and experiences related to water use. 90 households were covered in the study. A narrative inquiry of women respondents through group interviews became the backbone of the study noting the lived experiences on water

distress. Non-participant observation was incorporated as a process of inquiry while residents were collecting household water. The assigned bore well operator was informally interviewed to discuss the local operational issues.

A study on household water cannot be taken up as an isolated issue. We have purposefully looked at the components that may act as social determinants for placing the context of the domestic water supply. The focus is on the present time with reference to the past developments of the localities. The various dimensions of field analysis of both locations are not comparable but some commonalities and contrasts were noted. Therefore, wherever necessary separate aspects were highlighted but mostly they were analysed to understand the coherent water issues of UCs. The focus remains on analysing and debating the core issues with a few specific numerical representations.

Location and Social Dimensions

The continuous occurrence of migration itself has led to the growth of UCs since the 1950s-60s. Khadar Extension and Sanjay Colony were somewhat considered transit accommodations and were carved out of villages on the outskirts of Delhi. Despite commonalities of forced migration, the locations present two vividly contrasting migrant tales. The former absorbed migrant families mostly from Uttar Pradesh and Bihar, who were evicted from a Delhi slum. They were allocated plot sizes 12 or 22 sq. meters by the DDA charging a few thousand rupees. The situation was precarious with no livelihood options at the resettlement site and the earlier places of work were at a distance with unaffordable and unreliable commute. The unlivable conditions were documented at the time the settlement came into existence, lying in proximity to the inundation from Yamuna, with no official supply of electricity and water, and people faced health hazards from the Thermal plant in the vicinity. People had little option to move out and lived with the threat of getting disowned without legal land deeds (Delhi Janwadi Adhikar Manch 2001).

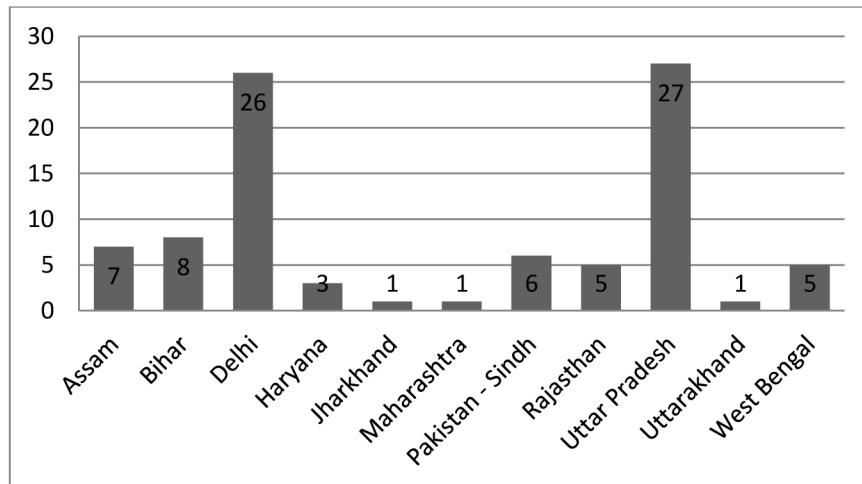
Sanjay Colony came into existence as a labour village absorbing migrant families largely belonging to the Odh tribe of Sind and Punjab provinces of Pakistan. Owing to their traditional occupation of earthworks, they took up livelihood in the Bhatti mines. The odd 200 houses that were constructed in the 1970s had minimal infrastructure at that time, no official electricity and water supply, and compromised sanitation and sewage. Later in 1991, the area was declared as part of the Asola Wildlife Sanctuary, seen as an encroachment on the Delhi Ridge violating the Wildlife Protection Act of 1972 that led to the closure of Bhatti mines. After its re-classification as an illegal settlement, residents not only lost livelihoods, but had been continually facing eviction threats, bearing refugee status and to the extent of a few being government suspects as Pakistan nationals (Singh 2014).

The background of re-settlements provided a basis for revisiting the identity of residents. The element of migration, however, cannot remain static. The data from the field suggests that new migrants were drawn to the Khadar Extension primarily for cheaper housing options or work opportunities living

in rented accommodation. It was observed that the Khadar Extension no longer holds its' identity as an outskirts, having good connectivity with the Delhi metro and nearby posh neighbourhood. Sanjay Colony continues as an excluded and extended part of Delhi, with fragile connectivity and lesser livelihood options. The place was less preferred by newer migrants.

Due to prolonged residence having crossed over as second or third-generation of re-settlers, and being disconnected from their ancestral locations, the residents in the Sanjay Colony prefer to refer to Delhi as their home state. However, in both locations only with further probing, the migration status was disclosed. Most of the women respondents have stated that they moved in after marriage. Families hailed from Haryana Uttarakhand, Assam, Maharashtra, Jharkhand, and West Bengal, with a larger number from Uttar Pradesh apart from Delhi declared as the original residency. The representation is explained for the 90 households in graph 1.

Graph 1: Place of Original Residence (in numbers).



Source: Author

Informal Occupation and Gender

Informality and stagnation characterise livelihood options for both locations. Finding regular employment was considered difficult for the households. Those residing in Khadar Extension engaged in varied forms of informal labour including scrap dealing, delivery services, working in transport, nearby shops, company work, and domestic help with households' income ranging between 100,000 and less than 400,000. The self-employed were earning slightly better than others, of which one has reported himself as a farmer. The residents of Sanjay Colony have very rare experience of job diversification. Their earlier generation worked in the quarries of Bhatti Mines and now many

households continue as unskilled labourer in construction sites. Invariably *mitti khudai* (digging) was the most common answer. Few households earn from other forms of informal labour like transport services or shops. The household annual income in the Sanjay Colony was found to be less than 200,000.

The study finds visible gender dimensions in education and occupation. 70 per cent of women and around 40 per cent of men participating in the survey have reported themselves as illiterate or school dropout. However, it was seen that irrespective of gender, those who have passed school did not take education further. The three respondents who have gone to college are men but they did not have any better jobs and the one who has completed post-graduation was unemployed. The men who happened to be unemployed at the time of the survey have reported to have worked earlier. The men may have slightly better educational opportunities but cannot be said to have highly progressed towards having diverse career options. Occupation for women has been in restricted fields. In the Khadar Extension mostly women worked as domestic help in nearby housing complexes along with scrap dealing or were working in shops. In Sanjay Colony, a negligible number were reported to be working in the construction sites and running kiosks. With no nearby posh location, the occupation of domestic help is completely ruled out for Sanjay Colony residents. A majority of women reported themselves as housewife but a similar situation for men would bring them unemployed status. This condition of staying at home for women becomes a prime factor in our observation of household water collection.

A (Non) Piped Water Supply

The water arrangement remains informal because an authorised piped supply is not present in these locations. The residents of the Khadar Extension have arranged a provisional connection attached to the DJB supply pipeline passing through the underneath streets in the area. If living in a rented accommodation, the residents have to pay a fixed amount to the house owner for using the motor pumps installed for drawing water for storage. Devoid of a metered water connection, the usage is controlled according to the landlords' instructions. The water supply is only provisional but the residents reported regularity in the flow recalling that they have faced more shortages in the past.

Sanjay Colony, on the contrary, depends on public bore well connections that seem to be operating sanctioned through the DJB. The households have their pipeline connected to the bore well and storage units and on a sharing basis use the motor pumps to access it. An assigned operator from the colony is responsible for opening the valves and is paid a paltry sum by the households as a user fee. Despite irregularity in supply with existing informalities, the residents of Sanjay Colony find the arrangement better than the previous times. A woman stated that she had to fetch water from a tube well two km. away, and in a heavily forested area in Bhatti Mines. Fetching the water would take at least two hours and further bear the burden of carrying water on the head. The DJB tankers that were provided earlier would be stationed at a distance from the residence. Walking for water has somewhat found an

alternative in the bore well supply.

One can observe that the domestic water in these locations is under the quasi-controls of authorities and become part of a (non) piped water supply. Despite the condition of informality, the publicness in water distribution is created for the under-served areas. Occasional options for the water source in both locations are tankers when there is a fault in the motor pumps. Hand pumps are now non-functional due to depleting water tables. Borrowing water from landlords having private bore wells is yet another option for Khadar Extension residents though did not disclose much information knowing the illegal nature of such water extraction. The provision of the existing access to household water is explained in the fig. 1.

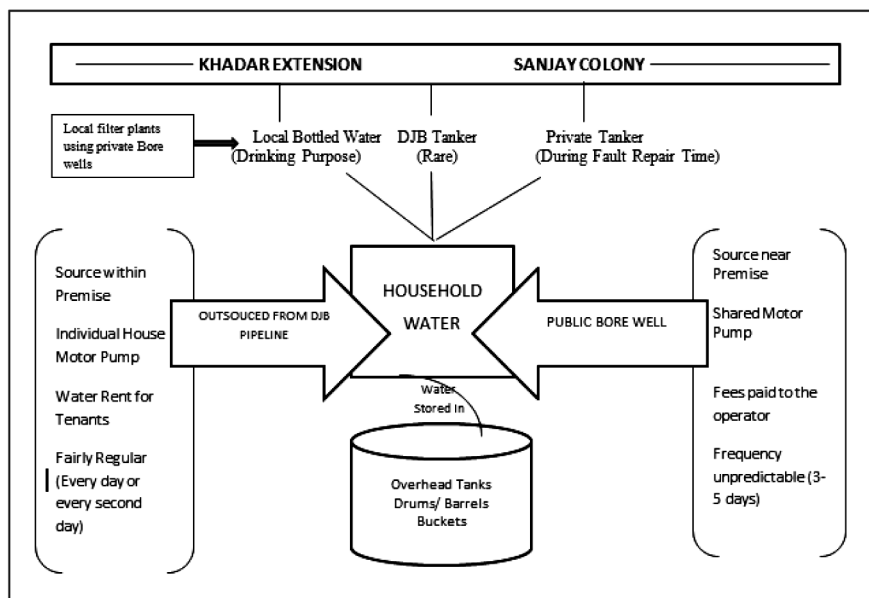


Fig 1: Household Water Provision.

Source: Author

(Un) Safe Drinking Water and Affordability

Based on the data collected, it is observed that the water secured through the informal arrangements is highly contaminated. Muddy, mixed with sand and foul smelling is the most common response from the field sites. During the survey, the residents of Sanjay colony showed tiny bugs in the water and complained that it was unfit for drinking. The residents of both Khadar Extension and Sanjay Colony complained of getting hard water, even unfit for washing and other purposes yet continued using it as people did not have any choice. Families in Sanjay Colony referred to getting medically treated for

kidney stone which they understand was due to the hardness of the water though it is not clinically proven.

The survey found that 74 per cent of households preferred buying drinking water from private sources but it depends on their own assessment of how unclear the water gets. Apart from the monthly operational cost and fault repair cost, 68 per cent of households spent up to Rs. 1000 per month for buying drinking water from local private suppliers, 6 per cent have reported spending between Rs. 1000 and Rs. 2000 per month, 3 per cent states sometimes they may buy, and the other 23 per cent cannot afford to buy drinking water. The households do not have water meters and therefore not entitled to the Delhi government scheme of free water despite the households' economic conditions which otherwise should allow them to get such entitlement.

Buying drinking water regularly was mostly observed in the Khadar Extension than Sanjay Colony, and could be related to the respective income levels. There is no guarantee of the water quality from the vendors except that it may look cleaner. The vendors see an opportunity to serve the areas by selling locally filtered water to those who cannot afford branded water. The group interview with women has indicated the situation to be better despite of economic cost attached than being dependent on free-of-cost tankers for which water collection is more time-consuming.

Household Water Needs and Women

Dealing with family water needs as a household chore was one of the major observations drawn up in the study from in-depth interactions. The supply in the Khadar Extension is often affected due to low water pressures and at times two to three hours is lost in checking the supply. Women in the Khadar Extension disclosed that they perceive no inequality if they have to take the prime responsibility as water providers alongside other household chores and caregiving because men have work outside the home and are the primary monetary providers. Women and girls of reproductive age group however are not expected to go out to buy drinking water, which is either carried out by men or elderly women. Fear of harassment and unsafe neighbourhood was understood as a major social condition that impeded women's mobility.

The water struggle seems imperative to the type of location that Sanjay Colony is where there is a perennial shortage of water. Along with all other household chores, the responsibility of water collecting, storing, and rationing is on the women whose men are informal labourers. The issue of safety was not much botheration as the Colony largely consisted of extended families of a community. Though the burden of walking for water has ended, but the struggles continue and women and girls have to proactively participate in getting the water needs met for their families. In the survey, most women have denied marital discord in the distribution of roles except a few women have reported getting into verbal discord occasionally due to precarious situations of water shortages.

Negotiations and Social Discords

The social complexities were bound to arise when the water provisions were dependent on negotiated supply and at times the access was disrupted due to an informal operational system. Neighbours get into conflict about who gets how much when the water pressure is low. The residents of both locations have discussed that social status is a major factor in the negotiations on water. The dominant social groups in the Khadar Extension area tend to control access to DJB tankers which deters many from taking such services. In the Sanjay colony, some respondents opened up about personal equations due to caste affiliation with the bore well operator which charts out the frequency of water availability to particular households that are better than others. The bore wells are supposed to be operated by the DJB but staffing issues put it upon a resident who operates the system without proper guidelines. However, the bore well operators review their work as social services in return for earning a bare minimum wage.

The local political milieu did not benefit the areas, and the representatives have never taken much interest in working for the water provisions. The DJB seems to be working in phases to see that a regularised water supply can be provided for the Khadar Extension though the progress was slow. Whereas for Sanjay Colony which comes under a forested area, there is no such plan for regularisation even in the near future. The residents in the UCs seem to have accepted the fate of informality with barely any effort made to approach the authorities.

Conclusion

This paper has discussed the issues of water provisions in UCs and the resultant marginalisation in access. Water stress has been a key concern for many decades since the re-settlement process of these localities. However, improvements in bringing water within premises have pushed further informal arrangements to settle in. Thus, the vacuum created due to the lack of formal piped supply has allowed both private water options and quasi-public water distribution to thrive. To the extent that authorised groundwater use for domestic purposes became a common feature further straining the water resources. It was observed that a minimum fulfillment of daily water needs has diverted people's attention, diluting their demands for acquiring piped supply.

Household expenses are met for establishing and extending an informal local water network for the neighbourhood that allows the non-state providers to become a permanent feature. It is observed that the pattern is almost similar and expensive for the low-income families residing in both the UCs yet failing to avail security of quality water. Social background of education and income often guide perspectives and negotiation rules. The lack of work opportunities is a lived reality that interferes with giving economic stability and leaves residents surrendered to the informal water situations. The gender dimension adds further disadvantage to women who may not question their active participation in taking the household water roles. We can conclude by saying that the range of adjustment practices is complex, intersecting with many other social complexities bearing varied local dynamics in the UCs.

End notes

1. The study acknowledges the minor research grant, 2022-23, from Dr. B. R. Ambedkar University Delhi. This paper is based on a section of the field research in the UCs. I am particularly thankful to Harshita and Shakil Shokeen for their field assistance.
2. The identified informal urban settlement types of Delhi are the Regularised Unauthorised Colonies, Resettlement Colonies, Slum Designated Areas, Jhuggi Jhopri Clusters and Unauthorised Colonies. There are further variations in the status depending on whether they fall into the legal ambit.
3. The Delhi Government has announced Rs. 13000 million for the development of UCs in the fiscal year 2022-23 (NDTV 2022).

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