



**Proceedings of the Workshop
on
Transforming the Najafgarh Basin**



Organized by:

DLF Foundation, India Water Partnership and INTACH

*17th August, 2017
DLF City Club, Gurugram, Haryana*



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I. Brief Background of Najafgarh Basin

Najafgarh basin is a natural channel of 'Sahibi River' that originates in the Aravali hills in the Alwar – Rewari region of Rajasthan and Haryana. The basin enters National Capital Region of Delhi on the south western side and traverses a length of 41 km before falling into the river Yamuna in the northern part of Delhi.

Historically, it has served as a drainage network for storm water in parts of Haryana and Delhi. The river/drain along with its catchment (374 km²) forms a rich natural habitat for numerous species of flora and fauna. It was channelized in 1978 with the objective of integrating it with the storm water drainage system of the city and was renamed as 'Najafgarh basin. Currently, Najafgarh basin is the largest sewage carrying drain in the capital. It is 41km long and is joined by 22 smaller feeder drains. Najafgarh basin discharges about 2,000 MLD of waste water into the river Yamuna out of which 70% remains untreated.

II. Present Status of Najafgarh Basin

The Najafgarh basin is a key resource shared by Delhi, Haryana and Rajasthan and millions of the population benefit after harnessing its resources. The demands on the one-time Najafgarh basin (now almost become a drain) have increasingly exceeded the basin's natural capabilities and is being manifest as groundwater over-abstraction; reckless deterioration of catchment; reduced inflows; contested surface supplies; excessive diversion of surface water for urban use; dumping of sewage, industrial effluents, agricultural residues and other contaminants into the drainage system; reduced water security in both urban and rural areas; excessive seasonal flooding and waterlogging in Gurugram; floodplain encroachment and alteration due to rapid urbanization (especially in Gurugram and Delhi) and habitat destruction, are the few reasons for pathetic scenario in the basin at present.

III. Objectives and Purpose of the Workshop

Following were the key objectives of the workshop:

- Understanding the current scenario of Najafgarh basin;
- Highlight the ideal scenario;
- Identifying the gaps and challenges between current and ideal scenario; and,
- Identification of strategies to deal with identified gaps in a holistic and sustainable manner.

The main purpose was to “develop a multi-stakeholder approach for the rejuvenation of Najafgarh basin, augment strategies for self-purification of drains and control flood in Gurugram during monsoon. The long-term vision would be to develop a road map for the development of Najafgarh basin with the support of all stakeholders and to find-out the gaps and challenges for the cleaning of the Najafgarh drain and revival of Najafgarh Jheel in a sustainable manner.



View of Inaugural Session of the Workshop

(On the dais from Left to Right: Dr. D Suresh, Shri V Umashankar, Shri Rao Inderjit Singh, Shri Keshav Chandra & Shri Vinay Pratap Singh) – On podium speaking Dr. Veena Khanduri

With the above background and objectives, a day long workshop on “**Transforming the Najafgarh Basin**” was organized on 17th August, 2017 at DLF Club, Gurugram, Haryana by DLF Foundation, India Water Partnership and INTACH. The workshop brought over 100 key stakeholders (technical agencies, private sector foundations, NGOs, academia, citizen groups, media and government departments (Delhi and Haryana) across the basin, to collectively assess the core issues in the basin, discuss possible solutions for the rejuvenation of the Najafgarh basin in a holistic manner and improve the relationship between scientific evidence, effective policy development, judicial (Court and National Green Tribunal) decisions and implementation to draw up an Action Plan to rejuvenate the Najafgarh basin.

Hon’ble Minister of State for Urban Development, Government of India Shri Rao Inderjit Singh was the Chief Guest of the workshop. Shri Keshav Chandra, Secretary, Environment, Government of Delhi, Shri V Umashankar, Commissioner, Municipal Corporation, Gurugram, Dr. D Suresh, Commissioner, Gurugram Division and Shri Vinay Pratap Singh, Deputy Commissioner, Gurugram, Shri Manu Bhatnagar, Principal Director, INTACH,, Dr Veena khanduri, Executive Secretary and Country Coordinator, IWP, Col. Prakash Tiwari, ED(CSR), DLF Foundation and Dr. Vinay Sahni, CEO, DLF Foundation, were the another dignitaries present in the workshop who spoke in the inaugural session.

The workshop was divided in 3 sessions viz; Session-I: Inaugural Session- Setting the Context; Session-II – Technical Presentations (Part-1) ; and Session-III –Technical Presentations (Part-2).

IV. Proceedings of the Workshop

The session-wise Proceedings are as under:

Session-I: Inaugural Session- Setting the Context

1. Overview of the Workshop by Col. Prakash Tewari, DLF Foundation



Overview of the Workshop by Col. Prakash Tewari, Executive Director, CSR, DLF Foundation

The proceedings commenced with an outline of the purpose of the Workshop followed by a brief of the urban problems at present in Gurugram and the opportunity existing in line with the current scenario with reference to the water problem. Col. Tewari emphasized that it is important to look at the Najafgarh Basin and not just the Nalla or the Jheel due to its immense contribution to the Yamuna River which is a tributary of the Ganga River. Simply relegating efforts to one part of such an important riverine system will not bring about sustained change.

He reasoned that it was imperative to revive the Najafgarh Jheel as it would help in countering the looming problem of groundwater depletion, meet the water demand of the over increasing population, help to create a major biodiversity habitat as well as recreational zone and possibly in the future an 80 km navigable stretch. He also told that an integrated approach is required to transform the Najafgarh Jheel which will lead to the creation of a smart city and also improve connectivity.

2. Urban Water Scenario by Dr. Veena Khanduri, India Water Partnership

Dr. Veena highlighted that the plight of water scarcity is not just limited to Gurugram or Delhi but is a National and global problem due to growing population and economy that has altered the natural water balance, reduced the infiltration and increased the runoff.

She stressed on the fact that it is highly important for us to find ways to capture the runoff that is received during monsoon for use and consumption in the lean period. With reference to Gurugram which is a highly exploited region in terms of over extraction of ground water resources coupled with encroachment upon surface water resources and other traditional water harvesting systems, there is an urgent need to create a practice or mechanism that includes stakeholder consultation and participation with good governance to achieve Integrated Water Resources Management (IWRM). She suggested that much can be done at the local level itself by taking appropriate action across all components of water cycle. She stressed that Najafgarh basin existing issues required integrating different sector specific solutions for the rejuvenation and also political commitment from the concerned states.

3. Setting the Context by Shri Manu Bhatnagar, INTACH

Shri Manu Bhatnagar commenced the dialogue by underlining the fact that colonization of watershed is an inseparable limb of urbanization and thus Najafgarh basin loses priority in the eyes of both Delhi and Haryana where urban planning is concerned.

He stressed that after the construction of the Masani Barrage and various embankments along the stretch, there has been an interruption in the flow of the Sahibi river. Sewage from Haryana through the Mungeshwar Drain and storm water containing sewage from Delhi majorly contribute to the polluting of the Najafgarh basin.

Shri Manu Bhatnagar further stated that the National Disaster Management Authority (NDMA) of India advises against construction and other intensive activity in low lying areas, non-following the advice of NDMA is the reason for the waterlogging woes of Gurugram. He warned that construction in the low lying land of Najafgarh basin flowing through Gurugram

will not only invite waterlogging but also persistent inundation may actually weaken building foundations and cause them to collapse.

4. Perspective by Shri Vinay Pratap Singh, Deputy Commissioner, Gurugram

Shri Vinay Pratap Singh said that it is important to manage water at the local level. Waste water should be re-used for irrigation, gardening or construction. For this, public-private partnership is of immense importance for such initiatives. He stated that district administration motive is to capture water that flows into the district and allow lesser amount of water to leave the administrative premises. He accepted the fact that in terms of abstraction of groundwater, all the blocks of Gurugram lie under the category of heavily exploited. He emphasized that thus it is imperative for all of us, to use the existing surface reserves in-situ instead of extracting groundwater. Lastly he said that most of the rainwater goes into gutter and drains and for conserving it through rainwater harvesting is the best option.

5. Perspective by Shri Keshav Chandra, Secretary - Environment, Government of Delhi

Shri Keshav Chandra began the conversation by underlining the fact that the problem of sewage creating havoc in rivers and canals is neither new nor local.

Starting off, he elaborated that Najafgarh drainage system is actually the largest drainage basin in Delhi catering to the largest proportion of population among the three drainage basins. Explaining the methodology on rejuvenating a water body, Shri Keshav Chandra clarified that it is basically consisted of 7 important steps; (i) identifying the sources of pollution, (ii) identifying the technologies useful in tackling the pollutant and existing pollution, (iii) sludge management, (iv) seepage management, (v) solid waste management, (vi) capturing the recreational value, and lastly (vii) salvaging the economic value of the area. He said that watershed management needs to be looked on priority basis to avoid sewage from flowing into water bodies. Natural water bodies need to be revised and encroachments need to be removed in the interest of lending recreational value to water bodies.

6. Perspective by Dr. D Suresh, Commissioner, Gurugram

Dr. D Suresh explained that the inability to harness the existing resources coupled with absence of 24/7 water supply and the persistent drainage problem is primarily a management issue. He emphasized the importance of doing away with non-revenue water (NRW) and unauthorized water connections and introducing metering, billing and user charges as a way of sustainable water management. He told that the investments required creating improvements and up-gradations in the water supply and management systems are massive and also requires the co-operation between Government of India, State governments and private entities.

7. Perspective by Shri V Umashankar, Commissioner - MCG, Gurugram

Shri V Umashankar agreed with the views of his fellow colleagues and raised the issues like the lack of equity in water supply, haphazardness in planning and stressed on the importance of decentralization of waste water treatment and rejuvenation of existing water bodies at community spaces. He also commended the local communities for their contribution in upholding the rainwater harvesting initiative. He further said that while part of the Najafgarh drain that falls under Delhi territory has embankments, there are no embankments from Haryana side; hence development of Najafgarh drain is a priority. The wetland project spread over 700 acres, is likely to cost over Rs. 7,000 crores. Thus the project being capital intensive, we should consider to go for a public-private partnership model for implementation.

8. Address by Shri Rao Inderjit Singh, Hon'ble Minister of State, Ministry of Urban Development, Government of India



The Chief Guest, Honorable Minister of State, Ministry of Urban Development, Government of India – Shri Rao Inderjit Singh in his address applauded and praised the commendable efforts and commitment put together by INTACH, India Water Partnership and DLF Foundation and wished them success in their future endeavors. He told that water conservation and sewage disposal are essential issues which need to be addressed for Gurugram's growth as these have become a matter of great concern for present and future generation. Government efforts alone are not enough and the private sectors should also contribute under their Corporate Social Responsibilities (CSR).

Address by the Chief Guest, Shri Rao Inderjit Singh, Hon'ble Minister of State for Urban Development, Govt. of India

Session II: Technical Presentations (Part-I)

Chair- Shri AB Pandya, Former Chairman, Central Water Commission (CWC), Government of India

1. Gurugram : Issues of Water Scarcity and Waterlogging by Smt. Subhra Puri, Gurgaon First

Smt. Subhra Puri, in her opening remarks described the problems plaguing the urban cities which are following an environmentally unsustainable growth pattern and thus compromising the health and livelihood of its people. She blamed solid waste clogging water channels and drains, concretization of soft surfaces, cutting forests and bad planning as the driving factors of the water issues in Gurugram. She added that to save the Najafgarh basin, it is important to salvage our recharge zones and aquifers like the Aravallis. She also stressed on demand side management of water like water metering and use of waste water by industries to reduce dependence on fresh water resources or supply water.



View of Session-II: Technical Presentations (Part-1)

2. Groundwater Scenario of Gurugram by Shri Durjoy Chakraborty, Central Ground Water Board (CGWB), Government of India

Shri D. Chakraborty lamented that excessive groundwater drafting from unregistered tube wells have aggravated the situation for Gurugram district. He emphasized that development should be resource based and not price based with a collective approach and complementary interventions should be indulged.

3. Hydrology of Najafgarh Basin by Shri S.K. Sharma, Consultant, WAPCOS and Ex-Member, Central Ground Water Board, Government of India

Shri S. K. Sharma stressed on the importance of Najafgarh basin by expounding on the fact that it can be attributed to approximately 60% of the pollution in Yamuna. He argued that drafting was done over and above the annual recharge capability of the aquifers which has led to severe decline in groundwater levels in the basin. He commented that encroaching upon the static reserves is dangerous to the water security for coming generations. He stressed on the following measures to be adopted to mitigate the situation:

- Aquifers to be mapped with deeper hydrological understanding;
- Comprehensive and integrated Rain Water Harvesting (RWH) and Artificial Groundwater Recharge (ASR) plan (use of ASR technology in urban landscapes);
- Use of constructed and natural wetlands for groundwater recharge and wastewater purification; and,
- Avoiding entry of sewage in storm water drains

4. Revival Prospects of Najafgarh Jheel by Shri Manu Bhatnagar

Shri Manu Bhatnagar highlighted that lake revival provides the opportunity of climate change resilience. He pointed out three ways for revival of Najafgarh basin i.e. tertiary treated sewage, conservation of local flood waters and Yamuna water via Haryana canal. He reasoned it is imperative that the Najafgarh Jheel be notified as wetland and area under the 209 contour to be an area of permanent water spread. He proposed that punctures in the embankment along the Delhi side of Najafgarh basin will help in allowing a more natural spread and a regulator upstream of Jhatikra Bridge to maintain 209 mamsl water level. Most importantly, that the Najafgarh Jheel be developed as a natural bird habitat along with constitution of a Jheel Conservation and Management Board under NCRPB.

Chair's Remarks- Shri A B Pandya, concluded the session with the remarks that subsurface hydrology needs to be studied considering the change in land use over the period and subsequent changes in drainage patterns. He also said that Sahibi river need to be studied in a holistic manner to come up with an integrated plan of action.

Session III: Technical presentations (Part-2)

Chair: Shri Avinash C Tyagi, Secretary General, International Commission on Irrigation and Drainage (ICID) and Vice-President, India Water Partnership (IWP)

1. Avian Biodiversity, Flamingos and Conservation Needs of Najafgarh Basin by Smt. Neha Sinha, BNHS



View of Session-III: Technical Presentations (Part-2)

Smt. Neha Sinha made the case that Najafgarh Jheel had more birds coming in more than Okhla Bird Sanctuary. She pointed out that main problem in the Jheel was inability to provide protection to bio-diversity in the absence of a wetland notification by the

State Government.

While addressing a pertinent question from the audience regarding the change in biodiversity of the Jheel, she replied that the impacts of this ecological change are not well understood at this stage. However, if Najafgarh Jheel is granted status of a wetland, then measures can be taken up to restore its biodiversity or mitigate any harmful impact of this ecological change.

2. Integration of Badshahpur and Najafgarh Drain in Gurugram, Haryana by Shri S S Rawat, Superintending Engineer, I&WR – Government of Haryana

Shri S S Rawat informed that presently his Department is working to prevent flooding from the backflow of Najafgarh Drain which is due to the absence of a right bank on the Haryana Side. He has proposed de-silting of both Najafgarh and Badshahpur drain along with water body restoration as short term measures for the same cause. As long term measures he proposes channelization of Badshahpur drain, construction of embankment on the Najafgarh Drain, and recycle-reuse behavior.

3. Lakes and the Urban Fabric in Gurugram by Shri R. Mirza, INTACH

Shri R Mirza complemented the ongoing dialogue by adding that lakes also need to play a part in the urban fabric and life of the city. A connection will not only provide a sense of ownership but also with a credible revenue stream.

4. Designing a Multi-stakeholder Approach for Rejuvenation of Najafgarh Basin : Lessons from Ram Ganga by Shri Suresh Babu, WWF

Shri Suresh Babu added that for multi – stakeholder participation it is important to create a sense of ownership through engagement/participation and institutional setup. He placed emphasis on capacity building and alternate approaches and a workable mix of the top-down bottom-up approach.

Chair’s Remarks- Shri Avinash C Tyagi concluded the session with the remarks that an inclusive framework for reviving the basin needs to be formulated. He stressed on formation of an inter-expert committee for forming and execution of plan of action. He commented that there is contention of opinions regarding the status of Najafgarh jheel as lake which should be addressed as well to avoid any administrative or policy barrier which may arise later.

V. Gist of the Interactive session and Major discussions of the Workshop

Restoring the basin characteristics to a reasonable extent

The specific problems that need to be addressed in the city of Gurugram include “unplanned drainage system leading to flooding and clogging of roads, unsafe drinking water, inadequate waste management systems and more broadly the absence of social infrastructure facilities. As per a study by Megha Shenoy of Resource Optimization Initiative “Gurugram will be able to provide less than half the per capita water recommended internationally by 2020. It would have only around 48 litres per capita per day (lpcd) of water by 2020. The international standard is 130 lpcd. The population of the city would have increased from 25 lakh to 43 lakh by then. The study also says that in 2010, water availability in the city was 83 lpcd. The reduced water availability poses a severe challenge to water security and needs to be addressed. The survival of Gurugram as a megacity is contingent on the survival of the Najafgarh drain.

Najafgarh drain, flowing through the north-west part of Gurugram is the backbone of its drainage network. Excessive flooding that occurred in parts of Gurugram over the years due to overflow and backflow from drains during the monsoon season needs to be dealt with. There were quite a few stakeholders felt that the conditions for production of the built environment need to be stable and relatively predictable.

Seventy percent of Delhi's drainage network of 700 km lies in the Najafgarh basin. "Of the total 1011 water bodies in Delhi, most have gone dry and some have sewage flowing in them from adjoining colonies. The drainage from the larger catchment of almost all water bodies has been disturbed due to ill-planned development over the years.



View of an Interaction during discussions

Natural, restored and constructed ecosystems

within cities can provide natural infrastructure to support sustainable urban water drainage and storage. Healthy watersheds also regulate both surface and groundwater recharge of reservoirs.

Some of the key concerns related to "drains in Delhi are (a) multiplicity of ownership – Irrigation and Flood Control Department, Delhi Development Authority, Municipal Corporation of Delhi, Public Works Department, Delhi Jal Board etc., other than Irrigation and Flood Control Department, pro-active management of drains is not the mandate for any other agency. Management is currently limited to the realm of flood mitigation and not active restoration. Similarly regarding water bodies the "key concerns are (a) multiplicity of ownership – Block Development Office, Delhi Development Authority, Municipal Corporation of Delhi, Archeological Survey of India, Forest Department and Delhi Jal Board. Pro-active management of water bodies is not the mandate for any and they tend to be seen more as a liability than asset. Most water bodies are not demarcated by the Revenue Department. Most agencies do not have any powers to control/ manage encroachments or solid waste.

"There is a need to actively rejuvenate all water bodies and drains in the National Capital Regional (NCR) by cleaning the water, restoring its ecological and economic value in the city and putting in management regimes that are sustainable for the long term. In doing so, creating city level public assets for all will not only substantially increase the provision of public open space but also enhance biodiversity and mobility across the city.

Drains can be restored by "trapping and cleaning water at or before point of outfall into the main drain through site specific solutions – both conventional and non-conventional. A two pronged strategy can be adopted by - i) creating constructed wetlands at point sources where flow / contamination is high and ii) enhancing aeration and bioremediation along the length of

the drain to create a polishing unit for other non-point sources. Solid waste should be effectively managed within and along the drain. Historical sludge should be removed and future deposits should be managed effectively.

“There is a need to reconnect the larger catchment to the water body and accommodate higher flows during floods. Ecologically designed easy to maintain water-based landscapes should be created for public use. In doing so, we can restore and enhance biodiversity locally. Corridors should be created for enhanced mobility for non-motorized modes.

Need to control floods in the basin

“Severe floods have occurred in the past, notably in the year 1967 and consecutive floods in the years 1975-1977 as well as in 1995-1996. The effect of floods is exacerbated by anthropogenic activities such as infrastructure development, which obstructs the natural flow of water. This is notably seen in the Badshapur drain (that drains into Najafgarh drain) near Khandsa village. Infrastructure development in the catchment area of the drainage basin increases the runoff generated from the region. This has led to overutilization of the drain, the effect of which is exacerbated by poor management of the drains itself. The floods have resulted in severe drinking water and soil contamination in the region. For instance, 200 acre of land adjoining the Najafgarh drain (in Gurugram) remained uncultivated in 2015 due to soil contamination from toxic effluent overflow from Najafgarh drain during floods as per a report in Times of India, 2015. Also, flooding that occurred on 500 acres of land destroyed crops at Daulatabad (ToI 24/11/2016).

Revival of Najafgarh jheel

Rain water accumulating in the Najafgarh lake or jheel had been recorded to have occupied more than 300 square kilometres in many years till the 1960s. After that, the Flood Control Department of Delhi kept widening the Najafgarh drain to save Delhi from floods and eventually quickly drained the once huge and ecologically rich lake. Najafgarh jheel is already listed with birdlife international as an important bird and biodiversity area (IBA). The revival of lakes can help store rainwater, counter waterlogging, and enhance water supplies, recharge aquifers, climate change resilience, public recreation and nature habitat/bird sanctuary. The house was divided on whether the Najafgarh Jheel (wetland) should be developed as a wetland, or a bird sanctuary. The Najafgarh Jheel is one of the prominent remaining habitats for migratory birds in the NCR and flamingos are skipping Sultanpur and Okhla. Many felt that the wetland needs to be promoted as a bird habitat but some were skeptical.

Some felt that “the low lying area in the revenue village of Raota, Gumanhera, Jainpur, Shikarpur, & Jhatikara measuring about 356 ha (890 acres) adjoining Najafgarh drain has potential to be developed as a lake, which is to be utilized for recreational activities as well as water recharging area. The development of the lake shall be taken up in a comprehensive manner by the Government of Delhi, Municipal Corporation of Delhi, Delhi Development Authority along with the Haryana Urban Development Authority as part of the area of the

proposed lake falls in Haryana. Tourist infrastructure would be permitted on the banks of lake, and artificial islands will be created

“A multipronged approach of creating a major biodiversity habitat, a recreational water zone and an 80 km navigable waterway was suggested and it was claimed that this can “provide 30 million gallon per day of water to Gurgaon and Delhi. The need for developing and beautification of the lake front as a promenade for visitors, with a buffer zone with plantation was stressed.

Concerns were raised that the “notification of a wetland would become a site for conflict given the adverse impact on livelihoods of rural farmers”.

Concerns were also raised regarding the “limited utilitarian engineering-cum-economic-cum-aesthetic view of Najafgarh basin ignoring its multiple dimensions.

Multi-stakeholder approach for Najafgarh basin

The need for “developing a multi-stakeholder approach for Najafgarh basin rejuvenation was highlighted. It was also felt that “planning processes that are going to shape the future of a basin on which millions depend must recognize its socio-spatial context and cannot be done in a farcical manner and the process should be collaborative, thorough, inclusionary and consensus based.

VI. Key Recommendations of the workshop

Some of the key recommendations of the workshop are as under:

- There should be an immediate stop to interventions that are a threat to the health of Najafgarh basin and it should be restored to a reasonable state within a definite time. In particular, considering its biodiversity and social significance for the urban stretches of Gurugram and Delhi as well as rural areas, the existing river (drain) flows should be left untouched.
- Abstraction of both surface and ground water from the basin needs to be minimized in every possible way. The inter-relationship between the river and the associated aquifers should be looked into carefully. Local options by way of rainwater-harvesting, groundwater recharge and protection of local water systems needs to be deployed.
- Any proposal to convert the Najafgarh drain into a lake should be subjected to a stringent scrutiny and should take into account adverse impact on livelihoods of rural farmers, who will be displaced from their lands. Any project planned within a river-basin using hydrological and ecological framework, should be governed by a perspective of social justice and equity.
- The decision-making on any project in Najafgarh basin should keep in mind the approach and criteria recommended by the World Commission on Dams (2000), especially in terms of “Who will benefit from the project and who will bear the risks and costs of the project”.

- Any proposal to build structures for inland waterways needs to be properly scrutinized and as far as possible a drain should not be re-engineered for navigational purpose.
- The preservation of bio-diversity (flora and fauna) needs to be carefully looked into.
- Within the government, there is a need to create a water body authority - a nodal agency that owns all water bodies/ drains and plans for, coordinates and delivers sustainable restoration of these natural assets in the area. In doing so, it protects, conserves, reclaims, regenerates and restores all water bodies/ drains and facilitates recharge of depleting groundwater. In the short term, while the ownership of the water body should remain with the Revenue Department, for all water body development projects under rural development, Irrigation and Flood Control Department may be assigned as the nodal agency to undertake the following with an appropriate budget head and allocation:
 - (a) identify/ select water bodies for restoration in addition to proposals from Rural Development Department & Panchayats
 - (b) plan for water body restoration & creation of supporting public open space/ amenities
 - (c) Execute the planned restoration works and
 - (d) Manage restored water body and assets on a perpetual basis.
- There is a need for developing a multi-stakeholder approach for Najafgarh basin rejuvenation. The spirit and integrity of the consultative process should not be compromised by an undue concern for promptness. The structure and functioning of the multi-stakeholder platform should be real and effective and not nominal and ritualistic. The Najafgarh basin committee should be embedded in the district administration and should be three tiered: district, block and village. Avenues should be created for stakeholder participation through meetings, marches, choupals to anchor dialogues and action, door to door campaigns, river/basin health assessment, citizen report cards, citizen survey of urban wetlands/pa9999leo-channels.
- All data relating to the Najafgarh basin should be in the public domain, and should be accessible to all citizens. The mutli-stakeholder platform can start with this activity as a starting point.
- Restored and constructed ecosystems within cities can provide natural infrastructure to support sustainable urban water drainage and storage, an effort should be made in that direction. Protecting the wetland should involve conserving the zone of influence, and thus rejecting construction plans on the basin. Water bodies/drainage spaces should not be commercialized under the garb of 'waterfront development' schemes.
- There is a need to save Aravallis as a natural aquifer and water recharge zone and notify it as a Natural Conservation Zone. Its forests should be surveyed and demarcated completely and the core area of Mangar Bani grove in Aravallis should be accorded highest protection.
- There is a need to promote rainwater harvesting in buildings and houses; tighten laws and implementation around it; promote decentralized waste water treatment for recycling; mandate construction industry to use treated water; regular cleaning and desilting of storm water drains; maintenance of pipes and pumping stations; use technology to map tube wells and maintain their records of location, depth, etc; and construct permeable pavements.
- A basin-wide campaign should be launched for the restoration of its catchment/ drainage.

VII. Conclusion

By convening key stakeholders across the basin, the meeting was able to assess the current state of knowledge, practice and identify gaps and support ways of further intervention. The core focus is on greater co-production of knowledge and sharing in ways that can enhance the relationship between scientific evidence and effective policy development and implementation. The workshop was an important step towards this goal.

VIII. Vote of Thanks

The workshop ended with vote of thanks presented by Col. Tewari, DLF Foundation. On behalf of the organizers, he expressed his gratitude to all the speakers and the audience for actively taking part in the workshop and making it a success.

Following are the few links of Press Release of the workshop appeared in leading Newspapers:

<http://www.thehindu.com/news/cities/Delhi/public-private-participation-need-to-rejuvenate-najafgarh-drain/article19512665.ece>

<https://www.newstread.com/regional-news/india/gurgaon/efforts-to-rescue-water-bodies-begins-in-gurugram/>

<https://dailyworld.in/stakeholders-deliberate-on-najafgarh-drain-issue/>

http://www.business-standard.com/article/news-ians/stakeholders-deliberate-on-najafgarh-drain-issue-117081701307_1.html

<http://www.hindustantimes.com/gurgaon/gurgaon-holds-meet-to-discuss-issues-plaguing-najafgarh-drain/story-Uc0229yk1OapFnv2J4kUfM.html>