World Vision

TACKLING AIR POLLUTION FOR CHILDREN'S HEALTH AND WELLBEING IN URBAN BANGLADESH

A CASE STUDY ON PARTNERING IN URBAN CONTEXTS

Objectives

The objective of this case study is to document the partnering practices and learnings in an urban context within a megacity like Dhaka, Bangladesh. Rather than presenting novel approaches, this study seeks to demonstrate how established theoretical frameworks are effectively implemented in this unique setting, offering practical insights for learning.

This case study focuses on exploring one key partnership facilitated by the World Vision Bangladesh (WVB) urban program in Dhaka. While the urban program has mapped out multiple partnerships, this case study specifically highlights a collaboration that brought together WVB, the government (Dhaka North City Corporation), a research center (Centre for Atmospheric Pollution Studies), and a civil society organization (Dhaka North Community Town Federation). The partnership was established with the primary goal of addressing the pressing issue of air pollution in Dhaka.

The objectives of this case study are to:

1. Document the experiences and insights from this unique partnership to tackle air pollution in Dhaka.
2. Showcase how WVB effectively brought together diverse stakeholders—government, research institutions, and civil society—to address urban environmental challenges in alignment to World Vision's urban programming approach.
3. Identify the alignment of this partnership with World Vision's partnering guidance.
4. Share best practices and lessons learned to inspire similar initiatives in other urban contexts.
5. Provide actionable recommendations to move this partnership towards a transformative collaboration that fosters urban sustainability, inclusivity, and resilience.

Introduction

Dhaka, the capital of Bangladesh, is one of the fastest-growing megacities in the world, grappling with the challenges of rapid urbanization, population growth, and environmental degradation. Among these challenges, air pollution has emerged as a critical issue, significantly affecting the health and well-being of its residents, particularly the most vulnerable communities. The city's fragile urban systems and the lack of coordinated action among key stakeholders exacerbate this issue, making it essential to adopt innovative and collaborative approaches.

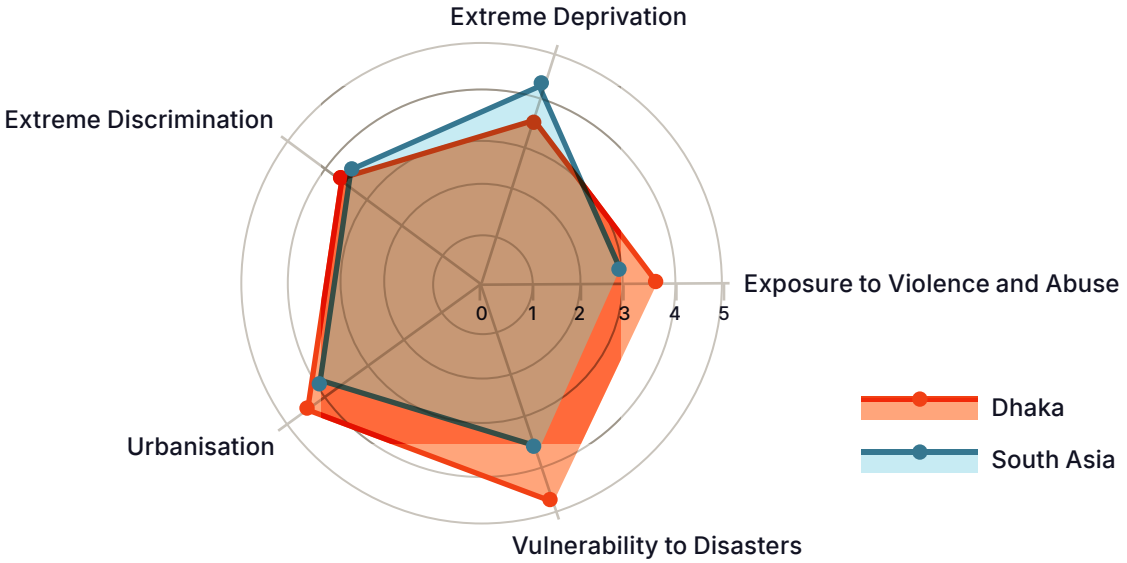
World Vision Bangladesh (WVB), through its urban program, is committed to addressing urban challenges by promoting inclusive and sustainable development, particularly for the most vulnerable children and their families. Recognizing the complexity of urban environmental issues, WVB has sought to foster partnerships that bring together diverse actors to address specific challenges that contribute to their goal of promoting a safe and healthy Dhaka.

This case study highlights one such partnership, which unites WVB, the Dhaka North City Corporation (government), the Centre for Atmospheric Pollution Studies (research institute), and the Dhaka North Community Town Federation (civil society organization). With the shared goal of tackling air pollution, this partnership exemplifies WVB's approach to leveraging the strengths of diverse stakeholders to achieve meaningful and sustainable urban outcomes.

Context

Dhaka, the capital of Bangladesh, is one of the most densely populated cities in the world. According to the World Population Review, the Greater Dhaka Area had a population of over 18 million as of 2016, while the city itself was estimated to have 8.5 million residents. By 2024, Dhaka's population was projected to reach around 24 million, with an annual growth rate of approximately 4.2%. This growth is driven by a vibrant economy and the influx of migrants attracted by both local businesses and international corporations. However, rapid urbanisation has brought significant challenges, including pollution, congestion, and increasing poverty. Figure 1 illustrates a five-dimensional child vulnerability mapping for Dhaka, which, compared to the South Asia region, ranks worse on four out of the five indicators, especially in relation to exposure to violence and abuse, and vulnerability to disasters.

Multidimensional Child Vulnerability Score Sub-indicators - Dhaka (Bangladesh)



Source: https://worldvision.economicsandpeace.org/

Figure 1. Multidimensional child vulnerability score sub-indicators – Dhaka (Bangladesh)

The urban challenges in Dhaka are multifaceted. The lack of proper planning and infrastructure development has resulted in severe traffic congestion, unreliable public transportation, and insufficient green spaces. These deficiencies contribute to deteriorating living conditions and compromised well- being for the city's residents. Marginalized communities are disproportionately affected, facing limited access to quality education, healthcare, and other essential services (UNFPA-2016; Statista-2021).

Bangladesh ranks as one of the world's most climate-vulnerable countries, and Dhaka is no exception. The city faces significant risks from climate change impacts, including rising temperatures and worsening air quality. Environmental degradation, including air pollution, is a critical issue in Dhaka. Industrial activities, unregulated emissions, and inadequate waste management have resulted in poor air quality and adverse health impacts. Dhaka ranked 17th among the most polluted major cities globally. Additionally, the city experiences significant climate-induced vulnerabilities, such as increasing urban heat island effects, which have been documented to rise at a rate of 0.03 °C per year during the day and 0.023 °C per year at night (Uddin et al., 2022).

These environmental challenges are compounded by weak institutional capacities and limited coordination among stakeholders, highlighting the need for comprehensive, climate-resilient urban planning and governance (Global Climate Risk Index 2021). Dhaka's socio-economic fabric is characterized by stark inequalities. A significant portion of its population lives in informal settlements, where poor sanitation, open drains, and waterlogging are common. These conditions are exacerbated by unemployment, low-paying jobs, and rising living costs, which leave many households in fragile economic conditions (Bangladesh Shishu Adhikar Forum, 2018).

Children face severe challenges in these settings. High rates of child marriage and child labor reflect systemic socio-economic issues. A study conducted between 2015 and 2018 found that 82% of girls in urban slums were married before the age of 18, with a median marriage age of 16 years. Similarly, the National Child Labour Survey conducted/published in 2022 estimated that 8.9% of children aged 5-17 years were engaged in labor, indicating a slight increase from 8.7% in 2013.

World Vision Bangladesh's urban approach

To address these challenges, World Vision Bangladesh (WVB)'s strategic approach is prioritizing partnerships that integrate diverse complementary strengths and resources to tackle pressing issues, including air pollution, lack of safe spaces and health issues. By fostering collaboration among government entities, research institutions, and civil society, WVB aims to promote inclusive and sustainable urban development whilst maximizing benefits to each stakeholder and therefore improve the sustainable well-being of the most vulnerable populations.

Enabling multi-stakeholder action: the collaboration space in Dhaka

World Vision Bangladesh's urban program actively fosters collaborations with a wide range of stakeholders to address complex urban challenges, recognizing that no single actor can tackle these issues alone. These are represented by the Collaboration Space map (Figure 2).

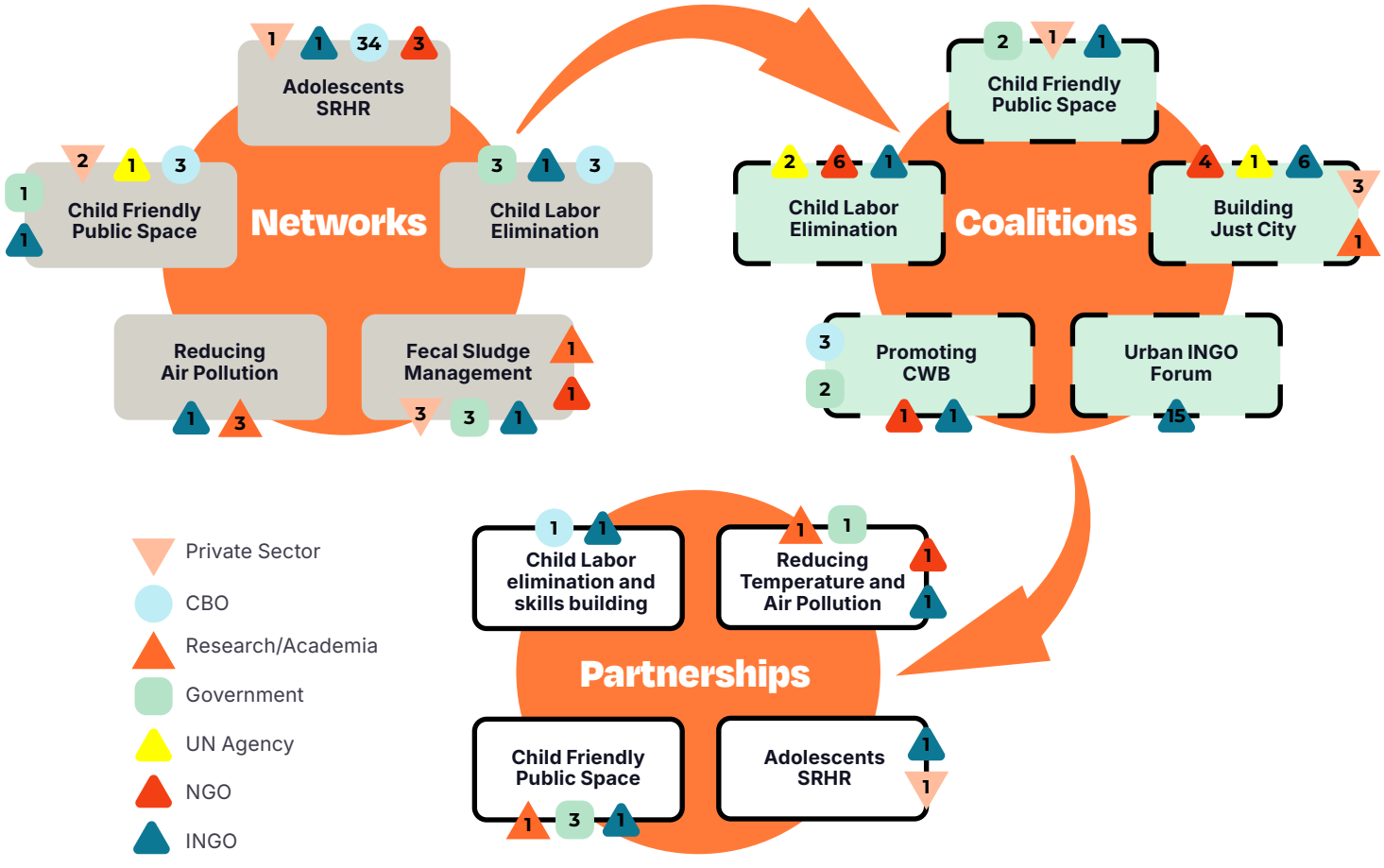


Figure 2: Collaboration space map urban program, WVB

Tackling air pollution together

One of these collaborations is the Air Pollution Partnership (see Figure 3). This partnership brings together World Vision Bangladesh with the Dhaka North City Corporation (DNCC), a government institution; the Centre for Atmospheric Pollution Studies (CAPS), a research institution; and the Dhaka North Community Town Federation (DNCTF), a civil society organization, to address the critical issue of air pollution in Dhaka. The overarching objective of this collaboration is to contribute to improved child well-being in the city by creating a healthier, safer, and more livable urban environment for the most vulnerable children and their families.

The partnership focuses on reducing air pollution through urban greening initiatives—such as planting vegetation to improve air quality and mitigate rising temperatures—while also raising community awareness and building local capacity to respond to environmental challenges. By harnessing the complementary strengths of government, academia, civil society, and a child-focused humanitarian organization, the partnership lays the groundwork for impactful, inclusive, and sustainable improvements in urban health and child well-being.

Achievements till date are:

1. Conducting a baseline study jointly with all the partners to benchmark future progress.
2. Conducting ongoing community awareness on the adverse effect of increased heat and air pollution.
3. Socializing the importance of tree plantation and vertical gardening as a response to air pollution and to mitigate temperature rises.
4. Recording and analyzing the air pollution data at the five selected locations in Dhaka using the installed machines. Refer to the Annex 1 for a sample.
5. Sharing the air pollution analyzed results with media outlets.

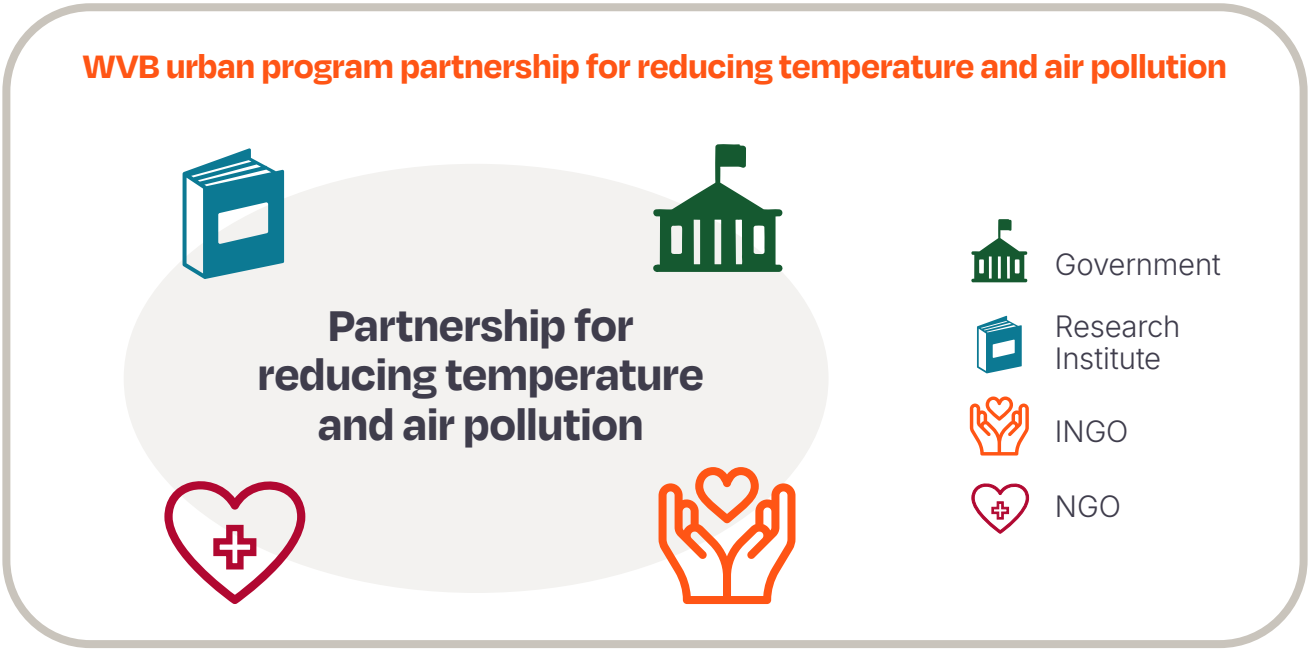


Figure 3: WVB urban program partnership for reducing temperature and air pollution

The partnership leverages the unique strengths and complementary resources from each type of partner to impact the child wellbeing in the city:

1. **Dhaka North City Corporation (DNCC):** As the city authority, DNCC provides institutional support and access to municipal resources. They have provided the approval, and the space needed to install the air quality monitoring machine to record the levels of pollutants in the air in five different locations. The DNCC supports the technical process of the air pollution data analysis as well as dissemination of findings with relevant stakeholders, such as media outlets.
2. **Centre for Atmospheric Pollution Studies (CAPS):** A leading research institution, CAPS contributes with scientific expertise, advanced technology for monitoring air quality, and evidence-based insights to guide interventions.
3. **Dhaka North Community Town Federation (DNCTF):** A woman-led civil society organization, DNCTF plays a pivotal role in reaching and accessing the most vulnerable populations, playing a role in community mobilization, raising awareness about the health impacts of air pollution, and engaging vulnerable populations in urban greening initiatives.
4. **World Vision Bangladesh (WVB):** WVB brings expertise in strategic direction, coordination and facilitation skills among partners in addition to having strong grassroots presence to promote child focused programing. WVB is also financially invested in this partnership.

Partners have also benefited from this partnership:

- Dhaka North City Corporation (DNCC): benefited from the implementation of the city-wide environmental policies and usage of evidence to address environmental issues and scale up through acquiring additional resources for future projects.
- Centre for Atmospheric Pollution Studies (CAPS): benefited from a bolstered reputation from working with INGO and government on important issues such as pollution. It also contributed to their mission to promote awareness on environmental issues to a wider audience including media outlets.
- Dhaka North Community Town Federation (DNCTF): benefited from a contribution to their objective, fund, capacity strengthening and reputation.
- World Vision Bangladesh (WVB): benefits include contributions to goals, and wellbeing of most vulnerable, access to vulnerable communities and increased trust from communities, technical expertise and reputation. In addition, strengthening the relationship with different government entities will contribute to future collaborations.

The collaborative advantages[1] that this partnership creates:

- **Holistic approach through ensuring a community-centered approach:** DNCTF's role in mobilizing community members and engaging vulnerable populations ensured that the partnership was inclusive and addressed the needs of those most affected by air pollution. This has ensured the involvement of different groups: vulnerable groups, government, research centers and civil society, which maximized the holism collaborative advantage.

[1] *Collaborative advantage is the ability of the partners to do more together than through working alone.*

- **Reinforcing institutionalization of project outcomes and possibility of scale:** With a government entity on board, the partnership ensured that the project aligned with citywide environmental and urban planning strategies, increasing its relevance and potential for scaling. Dhaka North City Corporation has a climate action plan to address environmental issues. However, WVB were not engaged during the development of this plan. Also, during the planning phase of the partnership, we have not discussed how the project can contribute to the action plan of DNCC. Nevertheless, we believe that our research can make a valuable contribution to the implementation of DNCC's climate action plan which aims to reduce city-wide emissions by 70.6% by 2050, with a focus on transportation, waste management, and energy efficiency. This action plan encapsulates the collective efforts of our city's finest minds, dedicated experts and passionate community members who have worked tirelessly to shape a sustainable and resilient future for Dhaka North City. Thus, the scale advantage has been discussed, and with additional resources the government will be able to scale the project.
- **Complementarity:** Each of the partners has built on the strengths and resources each bring to achieve the objective and maximize impact; CAPS provided scientific data and research insights, which informed targeted interventions, such as urban greening initiatives, to reduce air pollution. The use of advanced air quality monitoring technology ensured that the project outcomes were measurable, and evidence based. The DNCTF supported reaching and accessing the most vulnerable populations by engaging them in urban greening initiatives whereas WVB had the expertise in strategic coordination and mobilizing resources.
- **Potential for shared learning and scale:** The initiative to plant vegetation as a means of improving air quality and mitigating rising temperatures as well as the use of technology as an enabler to track air quality, demonstrated a practical and replicable solution to urban environmental challenges. These learnings can be maximized and shared with others, utilized in other projects or by other stakeholders, ultimately maximizing the shared learning and the scale advantages.

Image 1: Colleagues from WVB and DNCC showcasing the project terms

Image 2: Colleagues from CAPS and DNCTF holding up the project draft

Best Practices

The partnership between World Vision Bangladesh (WVB), the Dhaka North City Corporation (DNCC), the Centre for Atmospheric Pollution Studies (CAPS), and the Dhaka North Community Town Federation (DNCTF) highlights several best practices that contributed to its success and can serve as a model for other urban programs:

1. **Understanding the roles and resources of each of the potential partners:** Before forming the collaboration, and based on the stakeholders mapping exercise, the team facilitated the process of engaging with partners, bringing them together, mapping resources and discussing roles and responsibilities.

2. **Cross-sectoral collaboration:** The partnership leveraged the unique strengths of diverse stakeholders—government, research institutions, civil society, and humanitarian organization. This helped to maximize the benefits created and contributed to more effective impact with technical expertise at an academic, institutional, and government level.

3. **The partnership has applied partnering principles and good practices:**

    a. **Equity:** Each partner's role is recognized and respected; the partners together direct the partnership. The agreement of shared governance for the partnership was realised through mutual discussion. The Memorandum of Understanding (MOU) was drafted upon based on meeting decisions and then shared with the partners and discussed until consensus.

    b. **Facilitated:** WVB has played a proactive organizing and facilitating role, from initial scoping and identifying of partners, through developing governance and ongoing partnership management. There is an ongoing coordination of open channels of communication to share obstacles and risks among partners, whilst recognizing challenging power dynamics.

c. **Co-creation:** The design was developed with partners, based on their strengths, resources, abilities to contribute, and needs.

d. **Transparency:** Each partner shares openly the issues and supports the ongoing communication, which may be jeopardized by the existing power dynamics of the diverse actors in the partnership.

e. **Mutual benefit:** WVB has ensured understanding while discussing the interests and benefits for each partner. WVB followed the Partnership Planning Tool to facilitate the drafting of the MOU for the partnership. This tool, in addition to helping to structure the goal and objectives of the partnerships, also helps to identify interests and sought-after benefits of each partners' scope of work, roles, and responsibilities, to capture these in the MOU. These key benefits that enable each partners ongoing contributions are highlighted in the section above.

4. **Mutual capacity strengthening:** WVB followed their plan for regular capacity assessments followed by capacity strengthening. WVB used WV's global tool, OCA Tool for Small Organizations to conduct assessments, and a capacity strengthening plan was developed and budgeted for. This capacity strengthening plan was developed individually for the local NGO In addition CAPS provided technical guidance on the use of advanced monitoring tools, while DNCTF led community engagement training.

5. **Flexible and adaptive partnership management:** The partners maintained regular communication through formal meetings, informal discussions, and email updates. This flexibility allowed the partnership to adapt to challenges, such as delays in acquiring air quality monitoring equipment, and find solutions collaboratively.

By incorporating these best practices, the partnership addressed air pollution and laid the groundwork for transformative collaboration that prioritizes sustainability, inclusion, and resilience in urban settings.

Ongoing Challenges

- The application of the equity principle is challenged by existing power dynamics among stakeholders; particularly in the presence of government representatives that can be seen as taking control
- Recent transitions in government focal points have disrupted established relationships, requiring renewed efforts to rebuild trust and foster effective engagement with the new representatives.
- While project activities are being monitored, the quality of relationships among partners is not systematically tracked, limiting opportunities to assess and strengthen the partnership itself.

Image 3: Partners meeting 1

Image 4: Partners meeting 2

Recommendations for more effective and transformative partnership

To build on this remarkable and important partnership between World Vision Bangladesh (WVB), Dhaka North City Corporation (DNCC), Centre for Atmospheric Pollution Studies (CAPS), and Dhaka North Community Town Federation (DNCTF) to a transformative collaboration, the following recommendations are proposed:

1. Enhance the application of partnering principle

A critical factor in strengthening partnerships is establishing clear, co-created agreements that reflect shared principles and priorities. Partners should collaboratively determine how key partnership principles need to be enhanced and ensure these are embedded in formal agreements. This includes agreeing on governance structures, decision-making processes, and clearly defined roles, while also recognizing and accommodating the specific needs and capacities of each partner. Transparent and inclusive collaboration can be reinforced through regular joint planning and review meetings, or by using shared online platforms that allow all partners to track progress in real time. Creating a safe space for open dialogues such as monthly meetings focused on surfacing concerns, resolving challenges, and monitoring agreed-upon actions—strengthens mutual trust and accountability. Finally, the use of a partnership performance health check tool, combined with well-prepared negotiation strategies such as the 3-Dimensional Negotiation approach (Lax, & Sebenius; 2006), can further improve partnership effectiveness, particularly when engaging with government actors where trust-building is essential.

Figure 8

2. Institutionalize and scale up evidence-based practices

Leverage CAPS' research capacity to institutionalize the use of data and evidence in municipal policies and urban projects. This may include establishing a centralized air quality monitoring system with open data access to inform citywide interventions and raise public awareness.

3. Partnership to enhance community participation

Build on DNCTF's strengths in community mobilization by creating platforms for more robust community engagement. This can include capacity-building programs to enable vulnerable populations to actively participate in decision-making processes and advocacy efforts.

4. Improve the structure, governance, and accountability mechanisms of partnership

Develop a clear governance structure with defined roles and responsibilities for each partner, ensuring transparency and efficiency. Regular performance reviews and collaborative decision-making processes will help maintain trust and shared ownership among stakeholders.

5. Strengthen the capacity building across partners

Provide training and resources to enhance the technical and operational capacities of all partners. For instance, DNCC staff could receive training in urban greening techniques, while DNCTF could benefit from workshops on advocacy and community-led monitoring.

6. Leverage multi-stakeholder funding opportunities

Explore funding opportunities from diverse sources, including international donors, private sector actors, and multilateral agencies. Co-develop proposals to secure long-term financial sustainability for scaling the partnership's impact.

7. Document and share learnings

Establish a system for documenting successes, challenges, and lessons learned from the partnership. Disseminating these findings through reports, workshops, and regional forums will enable replication in other urban contexts.

By adopting these recommendations, the partnership can transition from a project-based collaboration to a transformative model that fosters systemic change, addressing not only air pollution but also broader issues of urban sustainability, equity, and resilience.

8. Link different partnerships at the different levels of the city levels

Strengthen the involvement of all partners at different levels of the city by fostering a shared vision for long-term urban resilience. This could involve co-developing a strategic roadmap that aligns the goals of each stakeholder, ensuring sustained commitment and accountability. This partnership is still ongoing with the vision that it will eventually support in strengthening the relevant national and citywide policies.

9. Scale up technological innovation

Technology is seen as an enabler of change in cities due to the availability of infrastructure, private sector, technical skills to invest in technological solutions and appetite from citizens to engage .

Annex 1:
Sample Air Pollution report

Vashantek 2CCD30

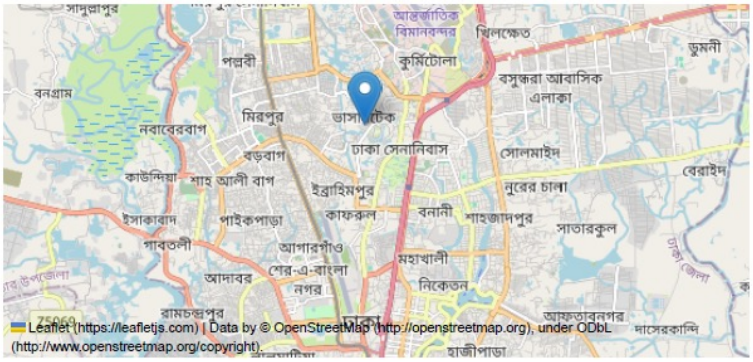
1 Hour 8 Hours **24 hours** 7 Days 30 Days 90 Days

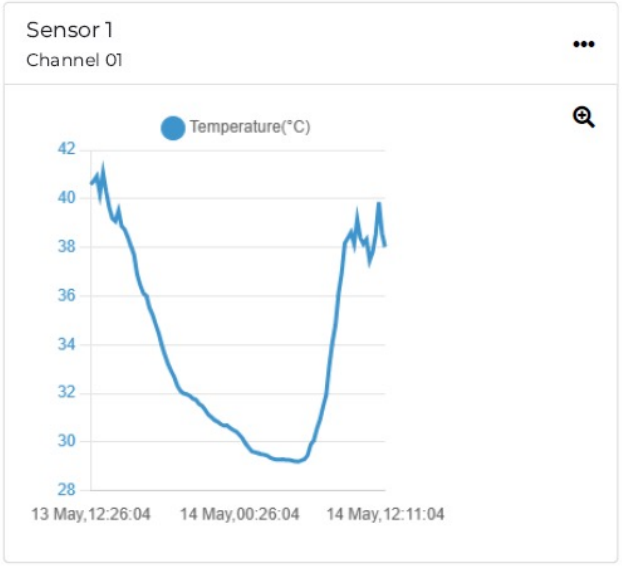
Custom Range

Summary

Log Interval: 900 second(s)
Data Points: 96
Start Date-time: 13 May 2025, 12:11:44
End Data-time: 14 May 2025, 12:11:44

Parameter	Min	Max	Average
Temperature(°C)	29.19	41.06	33.81
Relative Humidity(%)	50.30	83.42	69.19
Barometric Pressure(mbar)	1001.58	1007.42	1004.78
PM 1.0(ug/m3)	21.80	106.25	39.07
PM 2.5(ug/m3)	22.90	111.43	40.98
PM 4.0(ug/m3)	22.90	111.43	40.98
PM 10.0(ug/m3)	22.90	111.43	40.98
Carbon Dioxide(ppm)	440.00	491.00	457.55
Sulfur dioxide (SO2) (ppm)	0.00	0.40	0.03
Nitrogen dioxide (NO2) (ppm)	0.00	0.61	0.05





Annex 2:
Definitions

Mechanism	Description
Connection	Networking, connecting, building relationships
Complementarity	**Bringing together essential complementary resources** Impact delivered by a complete, workable solution impossible without the full set of key resources
Standards	**Creating collective legitimacy and knowledge** Developing and disseminating norms, standards and policies to raise standards / create a level playing field across a whole sector, enabling ongoing impact
Innovation	**Combining diverse resources, thinking, approaches** Creating new, more effective approaches, technologies, services and/or products with the greater impact they will deliver
Holism	**Converting holistic range of actors across traditional silos** More workable, context-appropriate, cross-cutting and implementable approaches increasing the quality and breadth of impact.
Shared learning	**Creating a mechanism for collective learning and capability-building** Raising the level of knowledge, epertise and capacity widely, leading to more effective practice and greater impact.
Shared link	**Collectively sharing risk of major investments / implementation** Companies, banks, donors are willing and able to make large investments or loans jointly, or NGOs willing to co-deliver major scale programmes, otherwise too risky
Synergy	**Aligning programs / resources and cooperating to exploit synergies** Increasing the degree of impact from the input resources available (or achieving the desired outputs with lower input)
Scale	**Combining delivery capacity across geographies** Taking successful programmes, products and approaches to scale multiply the impact
Critical mass	**Collectively providing sufficient weight of action** Combining / aligning / coordinating resources to create the critical mass needed to deliver otherwise impossible outcomes / impact.

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