

BREATHLESS FUTURE:

UNVEILING THE IMPACT
OF AIR POLLUTION ON
CHILDREN AND WOMEN
IN KATHMANDU AND
SAPTARI



Art by Sarbani

RESEARCH INSIGHT



**Save the
Children**



Kayapalat
An Effort for change

“ People say the sky is blue. But the sky that I see is dark. The air burns my eyes, and it's hard to breathe. The air is toxic. ”
- 16 years old girl



Art by Arshika

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INTRODUCTION:

Air pollution poses a pressing threat to global health, with far-reaching consequences for both the environment and public well-being. It encompasses a complex array of pollutants, including particulate matter (PM) and gases such as ozone (O₃), nitrogen dioxide (NO₂), volatile organic compounds (VOCs), carbon monoxide (CO), and sulfur dioxide (SO₂) (Gautam, D.R., 2015). These pollutants originate from various sources, including vehicular emissions, industrial processes, household combustion, and practices leading to forest fires. Beyond immediate health risks, air pollution contributes to broader issues such as, climate change and ecological degradation.

The severity of this issue is highlighted by escalating rates of morbidity and mortality worldwide. In 2019, an alarming 99% of the global population lived in areas where air quality guidelines set by the World Health Organization (WHO) were not met, resulting in an estimated 6.7 million premature deaths annually (WHO, 2022). Long-term exposure to polluted air increases the risk of mortality from cardiovascular and respiratory diseases, while short-term exposure leads to higher hospitalization rates and restricted activity days. Vulnerable demographics, including children, pregnant women, elderly people, and individuals with pre-existing health conditions, bear a disproportionate burden of these adverse effects.

To gain insight into the repercussions of air pollution on children, women, and vulnerable populations, Save the Children collaborated with the Youth Alliance for Environment (YAE) and Kayapalat to conduct rapid research in Kathmandu and Saptari that were identified as the most polluted areas in Nepal. The study conducted with 300 respondents at household level, seven key informant interviews (KIIs) and three focus group discussions (FGDs) with children, women, youth, climate change experts, and policymakers delved into the adverse effects of air pollution, particularly focusing on its impact on these demographics. Evidence suggests a direct correlation between air pollution and industrial as well as agricultural activities, indicating a significant decrease in life expectancy, especially in the mid and eastern Terai regions. Moreover, an analysis of the Air Quality Life Index (AQLI) highlighted the tangible consequences of air pollution on life expectancy, underscoring the pressing need for comprehensive measures to address this issue, safeguard public health, and foster sustainable development.



Art by Merry



Art by Lishma

IMPACT OF AIR POLLUTION IN CHILDREN, WOMEN, AND VULNERABLE POPULATION:

1

Existing studies demonstrate linkages between air pollution and various health risks, particularly for women and children. Women, especially those exposed to indoor air pollution, face increased risks of lung cancer and adverse pregnancy outcomes. Long-term exposure to pollutants like PM2.5 and NO2 is associated with elevated blood pressure in women, contributing to higher morbidity and mortality from cardiovascular diseases.



“ IN FEW YEARS, WE MIGHT FIND OURSELVES IN HOSPITAL BEDS WITH OXYGEN MASKS ON BECAUSE THE AIR OUTSIDE IS TOO TOXIC TO BREATHE. ”
(GIRL, 15)

2

Children are highly susceptible to the health effects of air pollution due to their ongoing physiological development. Exposure to toxic air can lead to neurodevelopmental problems, asthma, childhood cancer, and compromised lung function. Alarming, millions of children worldwide are exposed to harmful air daily, leading to respiratory issues like, pneumonia and bronchitis. Air pollution also poses risks to children's cognitive development and future potential.



3

In Nepal, respiratory issues, such as Chronic Obstructive Pulmonary Disease (COPD), pneumonia, and asthma are prevalent among children, highlighting the urgent need for interventions to protect their health. Cardiovascular diseases, chronic respiratory diseases, and neoplasms are among the top causes of death in both men and women in Nepal, which underscores the far-reaching impact of air pollution on public health.



MULTI-LAYERED IMPACT OF AIR POLLUTION:

Findings from Focus Group Discussions (FGDs) with children and adolescents reveal that air pollution constitutes more than just a health crisis; it profoundly affects education, socialization, and mental well-being in this demographic.

Participants expressed concerns about the fear of school closures due to air pollution, resulting in restricted outdoor activities and limited social interaction with peers. Moreover, anecdotal evidence highlights the negative impact of air pollution on learning and educational continuity.

The limitations in mobility and prevalence of respiratory diseases due to air pollution are closely associated with restricted livelihood opportunities for individuals, and their families. Many participants reported that air pollution acts as a barrier to engaging in income-generating activities, thereby impacting the financial stability of families, particularly those reliant on daily wages.

The economic burden of air pollution exacerbates the situation further, as respondents noted that parents and guardians may lack the financial means to seek medical treatment for pollution-related health issues, further straining household resources.

“GREENHOUSE GASES CONTINUE TO INCREASE THE TEMPERATURE OF OUR PLANET. IF THIS GOES ON, CHILDREN WILL FACE CRISIS IN THEIR HEALTH, NUTRITION, EDUCATION, DEVELOPMENT, SURVIVAL AND ULTIMATELY THEIR FUTURE.” (GIRL, 14)

The research conducted in Kathmandu and Saptari highlights a concerning lack of awareness among respondents regarding the multifaceted consequences of air pollution. Particularly alarming is the widespread unawareness of its disproportionate impact on vulnerable groups, such as children, women, and other marginalized populations. Beyond mere ignorance, there is evidence of a

disoriented attitude towards addressing this issue, compounded by societal norms that prioritize development and industrialization over environmental concerns. This prevailing mindset fosters acceptance of air pollution as an inevitable consequence of progress, further exacerbating the problem.

KEY FINDINGS:

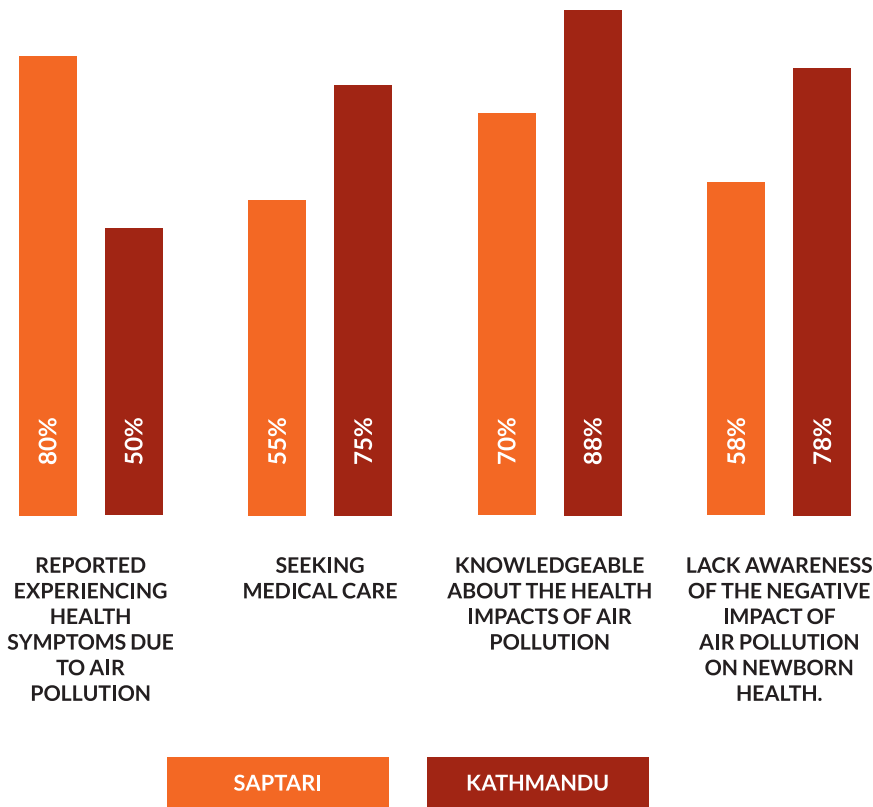
Respondents in Saptari identified skin disease as the top health concern, whereas respondents in Kathmandu reported respiratory diseases as their primary health issue. Other health impacts reported included common cold, fever, headache, nausea, suffocation, coughing, throat pain, breathing problems, lung and respiratory problems, sneezing, eye problems (burn and irritation), chest pain, asthma, allergy, infection, cardiovascular disease, stress, reduced concentration, reduced visibility, ecosystem damage, and pollution (soil and water), reduced agriculture (vegetable) harvest (affecting food availability), all of which ultimately affect human health.

Over 70% of respondents in both districts reported that air pollution had impacted their livelihoods and quality of life.

Women respondents in Kathmandu predominantly cited respiratory diseases (32%) as the primary health impact, whereas in Saptari, 35% identified skin diseases.

A significant portion of respondents reported limited to no understanding of indoor air pollution. Moreover, they lacked awareness of the potential health risks associated with poor indoor air quality, particularly its impact on women and children who often spend extensive periods indoors. The World Health Organization (WHO) recognizes indoor air pollution as a gender issue, as women and children account for over 60% of all premature deaths worldwide resulting from indoor air pollution. It stands as the primary environmental health risk for women in low- and middle-income countries like Nepal.

Research highlights a knowledge level gap related to the impact of air pollution in women, as most women respondents expressed uncertainty about the differential impacts of air pollution. This is evidenced by the fact that only 17% and 30% of participants from Kathmandu and Saptari, respectively, sought medical care due to air pollution-related health concerns.



In Saptari, 80% reported experiencing health symptoms due to air pollution, with 55% seeking medical attention. In Kathmandu, only 50% reported experiencing symptoms, with 75% seeking medical care.

In Saptari, 70% of respondents were knowledgeable about the health impacts of air pollution, compared to 88% in Kathmandu.

A notable percentage of participants, 78% in Kathmandu and 58% in Saptari, lack awareness of the negative impact of air pollution on newborn health.

AGE-OLD PRACTICES AND SOCIAL NORMS:

There is evidence to suggest that age-old practices, deeply ingrained as staple norms within many communities, often create resistance to changing behaviors and embracing more climate-friendly actions. For instance, in Madhesh, the tradition of burning fires (hay) to repel mosquitoes and preparing fodder for cattle is culturally accepted and endorsed by the community. Additionally, cow dung is commonly used as fuel cakes and for cooking and boiling water. However, the smoke emitted from these practices poses health risks, particularly to vulnerable groups such as

children, women, and the elderly, especially in poorly ventilated spaces.

Therefore, addressing air pollution requires an understanding of behavioral actions at the societal level and consideration of socially accepted norms. Leveraging choice architecture is essential to provide culturally accepted solutions and alternatives. This approach ensures that interventions are effective and respectful of local customs and traditions.

INADEQUATE POLICY IMPLEMENTATION AND OVERSIGHT:

A quick review of air pollution policies in Nepal reveals the existence of substantial frameworks and strategies aimed at mitigating this pressing issue. However, a notable disparity emerges between policy formulation and effective implementation, underscoring a deficiency in ownership and commitment. This gap not only reflects a lack of political resolve but also highlights shortcomings in

oversight mechanisms essential for accurately assessing and tackling the ramifications of air pollution on public health and well-being. Moreover, there appears to be a lack of socialization and awareness surrounding these policies, resulting in tepid advocacy efforts, campaigns, and lobbying initiatives by civil society organizations.



MAJOR GAPS IN POLICY SOCIALIZATION AND IMPLEMENTATION:

Awareness of environmental and air pollution issues could be clearly included in several key policies, such as the National Environment Policy 2019; Environment-Friendly Vehicle and Transportation Policy, 2014; Industrial Policy, 2011; Civil Aviation Policy, 2006; National Transport Policy, 2002; and National Climate Change Policy, 2019.

The implementation status of some policies is feeble, with outcomes remaining unmeasurable. Some provisions within these policies are ambitious and may not align with current contexts, such as, the promotion of hydrogen fuel-based vehicles. Furthermore, the government has mentioned that by 2030, a 200 km long electric rail network to support public commuting and mass transportation of goods will be introduced. However, this action remains stagnant.

Additionally, there is a lack of financial resources and clearly defined institutional roles and responsibilities in the present governance systems. Moreover, vertical coordination between concerned ministries, departments, and local governments, as well as horizontal coordination between local governments or other levels, remains weak.

Policies such as, Kathmandu Valley AQMAP mentions actions to address air quality. However, there are gaps in specificity and comprehensiveness. Without targeted policies, sources of pollution may go unchecked, leading to increased exposure and health risks. The absence of specific regulations can contribute to elevated pollutant levels, impacting respiratory health and overall well-being.





The monitoring system and mechanism for air quality are weak or undefined, leading to challenges in consistently and accurately measuring pollutant levels and policies. This may be due to insufficient equipment, trained personnel, or a lack of centralized monitoring authority. Inadequate monitoring hampers the ability to understand pollution patterns, identify sources, and implement timely interventions, highlighting the need for a robust monitoring system. The lack of a robust monitoring system and effective dissemination practices is insufficient, especially considering that vulnerable populations affected by air pollution have limited access to air quality information.

This is evident from the fact that 91% of participants in Saptari and 82% of participants in Kathmandu are unaware of the Air Quality Index (AQI) of their locality, even when there are AQ monitoring stations present.

Fragmentation and lack of coordination among various government bodies responsible for addressing air pollution may lead to challenges in effective implementation and enforcement of policies. Vertical coordination between concerned ministries, departments, and local governments, as well as horizontal coordination between local governments within Kathmandu Valley, are poorly defined, further complicating efforts to address air pollution effectively.

The Department of Environment (DoE) is the governmental focal point for controlling and managing overall pollution in the country at the federal level. However, there is a challenge in enforcing policies due to a lack of authority, technical capacity, and financial resources, which are also prevalent at the provincial and local levels. Without the ability to enforce regulations, there is a risk of non-compliance by industries and individuals.

Air pollution mitigation is incorporated majorly in the transport, industry and energy sectors, and majority of policies have not outlined the co-benefits of climate change mitigation and pollution prevention. The targets set in the Nationally Determined Contribution (NDC) has ambitious plans for climate change mitigation to contribute to ambient air quality.

KEY RECOMMENDATIONS:

INCLUSION OF CHILDREN AND WOMEN IN DISCOURSES AROUND AIR POLLUTION:



Emerging research confirms that children and women are disproportionately affected by air pollution. Evidence indicates that poor air quality exacerbates maternal health issues, leading to increased rates of pregnancy loss and complications, as well as adverse effects on children's vulnerability, organ development, and growth. It is evident that current policies and

actions to mitigate air pollution often overlook these harmful implications on women and children. Thus, there is a pressing need for targeted research initiatives, inclusive consultation platforms, sharing of lived experiences, and policy dialogues informed by gender and child-specific considerations to address this critical gap and inform more effective policy formulation and implementation.

SOCIAL AND BEHAVIOR CHANGE (SBC)-INFORMED CAMPAIGNS, AND BEHAVIOR ANALYSIS TO SHIFT AIR POLLUTION RELATED NORMS:

The research underlines the imperative for social and behavior change (SBC) campaigns, coupled with community engagement initiatives. These efforts must involve diverse stakeholders to effectively inform, educate, and motivate individuals and communities to adopt positive behaviors aimed at mitigating air pollution. Research reveals that community members are significantly unaware of the impact of air pollution, particularly on children and women, highlighting the necessity for actions to shift norms through mass media, community influencers, and incentivization strategies. For instance, showcasing

individuals who choose electric vehicles can serve as role models, promoting the adoption of electric vehicles as a recognized social norm. Additionally, mobilizing community leaders and trusted sources of information to discourage practices such as open burning of waste and agricultural residue can effectively influence individuals and communities to modify their behaviors. These approaches can create a ripple effect within communities, fostering a collective shift towards more sustainable practices and behaviors. Furthermore, there is an urgent need to provide information and access to air quality information to those most vulnerable.



GREATER NEED TO SOCIALIZING EXISTING POLICIES AND FRAMEWORKS:



There is a pressing need to socialize and establish accountability mechanisms to ensure that existing policies and actions related to climate change, particularly policy initiatives addressing air pollution, are effectively communicated. This includes conveying national and international frameworks aimed at safeguarding and regulating both developmental and non-developmental activities. Additionally, there is a necessity for a coherent community of practice, involving civil

society organizations (CSOs), relevant line ministries and policymakers, children and youth activists, journalists, academia, and the private sector. This collaboration is crucial for collectively leveraging expertise to address the issues and consequences of air pollution, thereby fostering greater political and social will to tackle the problem. This collaborative effort should lead to informed decision-making and effective pollution reduction efforts.

STRENGTHEN COLLABORATION AND PARTNERSHIP WITH PRIVATE SECTOR:

Furthermore, there are reflections on the lackluster engagement of the private sector and their role in addressing air pollution concerns. The private sector can play a catalytic role in supporting regular supervision practices of pollution by the Department of Environment, which is crucial for reducing pollution levels and increasing awareness

among polluters about the impacts of pollution. However, it is also recognized that imposing sanctions on the private sector may create further adversities. Therefore, it is advisable to strategically identify and incentivize industries that adopt better air quality management practices.





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