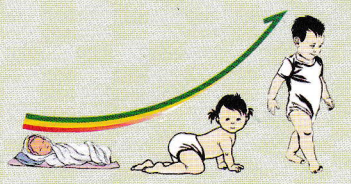
नेपाल सरकार
स्वास्थ्य तथा जनसंख्या मन्त्रालय
स्वास्थ्य सेवा विभाग
परिवार कल्याण महाशाखा

बाल स्वास्थ्य मञ्जरी
BAL SWASTHYA MANJARI
(A Healthy Baby Initiative)



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शुभकामना

डा. केशर बहादुर ढकाल, महानिर्देशक
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यस विभागको परिवार कल्याण महाशाखाबाट अर्धवार्षिक रूपमा प्रकाशन गरिदै आएको बाल स्वास्थ्यसम्बन्धी जानकारीमूलक सामग्री समेटिएको 'बाल स्वास्थ्य मञ्जरी' पत्रिकाको यस अंकको सफल प्रकाशनमा हार्दिक बधाई तथा शुभकामना व्यक्त गर्दछु।

यस प्रकारका रचनात्मक, अनुसन्धानमूलक तथा ज्ञानवर्धक सामग्री संकलन गरी प्रकाशन गर्ने कार्य अत्यन्त सराहनीय छ। यस कार्यलाई सफलतापूर्वक अघि बढाउनुभएकोमा परिवार कल्याण महाशाखाका निर्देशकज्यू, बालस्वास्थ्य तथा खोप सेवा शाखाका प्रमुखज्यू, तथा यसमा संलग्न सम्पूर्ण सहकर्मीहरूको समर्पण र मेहनतप्रति उच्च प्रशंसा व्यक्त गर्न चाहन्छु।

म विश्वस्त छु कि 'बाल स्वास्थ्य मञ्जरी' पत्रिकाले परिवार कल्याण महाशाखाको नियमित कार्य तथा उपलब्धिहरू स्थानीय तहसम्म पुऱ्याउन सहयोग पुऱ्याउनेछ र समुदायमा स्वास्थ्यप्रति सकारात्मक सोच र व्यवहार विकास गर्न प्रेरणादायी भूमिका निर्वाह गर्नेछ।

आगामी अंकहरूमा अझ सशक्त, ज्ञानमूलक तथा गुणस्तरीय सामग्री सहित निरन्तर प्रकाशन भइरहोस् भन्ने हार्दिक शुभकामना व्यक्त गर्दछु।

मन्तव्य

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परिवार कल्याण महाशाखाको बाल स्वास्थ्य तथा खोप सेवा शाखाबाट नियमित रूपमा प्रकाशन हुँदै आएको 'बाल स्वास्थ्य मञ्जरी' पत्रिका नवजात शिशु र बालबालिकाको स्वास्थ्यस्तर उकास्ने उद्देश्यले सञ्चालन गरिएका क्रियाकलापहरूको जानकारीमूलक सन्देश प्रदान गर्ने तथा स्वस्थ जीवनका लागि आवश्यक सरसल्लाहहरूको समृद्ध संग्रहको रूपमा रहेको छ।

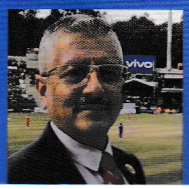
यस अंकमा समावेश गरिएको अनुसन्धानमूलक रचनाहरू र अन्य सामग्रीहरू संघ, प्रदेश र स्थानीय तहका साथै सम्बन्धित विकास साझेदार संस्था, राष्ट्रिय तथा अन्तर्राष्ट्रिय गैरसरकारी संघ-संस्थाबाट प्राप्त सूचनाका आधारमा तयार पारिएका छन्। यस माध्यमबाट सूचना प्रवाह भई जनसमुदायसम्म सन्देश पुऱ्याउन मञ्जरीले महत्वपूर्ण योगदान पुऱ्याएको देखिन्छ।

म विश्वस्त छु कि यस प्रकाशनले नवजात शिशु, बालबालिका तथा मातृ मृत्युदर न्यूनीकरणमा संलग्न स्वास्थ्यकर्मी र सरोकारवालालाई थप प्रेरणा प्रदान गर्नेछ। साथै, बाल तथा नवजात शिशु स्वास्थ्य क्षेत्रमा गरिएका नवीनतम् प्रयासहरू र तिनका उपलब्धिहरू सरोकारवाला समक्ष पुऱ्याउन पनि यो मञ्जरी प्रभावकारी माध्यम बन्नेछ भन्ने अपेक्षा गर्दछु।

अन्त्यमा, यस अंकको प्रकाशनका लागि लेख तथा रचना उपलब्ध गराई सहयोग गर्नुहुने स्वास्थ्यकर्मी, परिवार कल्याण महाशाखाका सहकर्मी, सम्पादन टोलीका सदस्यहरू, साथै यस कार्यमा निरन्तर प्राविधिक सहयोग प्रदान गर्दै आएका आङ्रा नेपाल र जापान सरकारप्रति हार्दिक आभार व्यक्त गर्न चाहन्छु।

सम्पादकीय

हालसम्म बाल स्वास्थ्यको क्षेत्रमा बाल बचाऊ अभियानअन्तर्गत सञ्चालन भएका भर्टिकल तथा रोगकेन्द्रित (disease–specific) कार्यक्रमहरू तथा त्यसपछि एकीकृत रूपमा कार्यान्वयन गरिएका CB–IMNCI र FB–IMNCI जस्ता कार्यक्रमहरूले नवजात शिशु तथा बालबालिकाको मृत्यु दर घटाउन महत्वपूर्ण तथा उल्लेखनीय योगदान पुऱ्याएका छन्। यद्यपि वर्तमान सामाजिक, आर्थिक तथा विकासको आवश्यकतालाई मध्यनजर गर्दा बालबालिकाको जीवन रक्षा मात्र नभई उनीहरूको सर्वाङ्गीण विकास सुनिश्चित गरी भविष्यमा राज्यलाई टेवा पुऱ्याउने सक्षम, उत्पादनशील र जिम्मेवार जनशक्ति निर्माण गर्नु आजको प्रमुख आवश्यकता बनेको छ। यसैसन्दर्भमा प्रारम्भिक बाल विकास (Early Childhood Development) को एजेन्डालाई केन्द्रमा राखी "From survival to thriving and transformation" तर्फ हाम्रा नीति तथा कार्यक्रमहरू निर्देशित हुनुपर्ने देखिन्छ। WHO र UNICEF द्वारा प्रतिपादित "Nurturing care framework" लाई आधारमानी बाल स्वास्थ्य, पोषण, शिक्षा, संरक्षण तथा प्रारम्भिक सिकाइसँग सम्बन्धित कार्यक्रमहरूको एकीकृत विकास र कार्यान्वयन मार्फत प्रत्येक बालबालिकाको शारीरिक, मानसिक, सामाजिक तथा भावनात्मक विकास सुनिश्चित गर्नु अपरिहार्य देखिन्छ। प्रारम्भिक बाल विकासले दिगो विकास लक्ष्य (SDGs) का १७ मध्ये ११ लक्ष्यसँग प्रत्यक्ष वा अप्रत्यक्ष रूपमा सम्बन्ध राख्ने भएकाले पनि यस क्षेत्रमा गरिएको लगानीले दीर्घकालीन राष्ट्रिय विकासका लागि अत्यन्त प्रभावकारी र रणनीतिक महत्त्व राख्दछ।



The Silent Emergency:
Air Pollution, Child Health, and the Transformative Role of Professional Societies in Nepal

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Clean air is a basic biological need. Yet for millions of children in Nepal, this need is unmet every single day. Air pollution is no longer a distant environmental problem; it has become a silent and pervasive threat to child health, beginning in the womb and continuing across the life course. At the intersection of climate stress and public health, air pollution is one of the most urgent yet preventable crises affecting Nepal's next generation.

Nepal's vulnerability is both geographic and demographic. Ageing vehicles, brick kilns, biomass burning, road dust, and transboundary pollution cause ambient PM2.5 levels that routinely exceed WHO standards by several folds. With nearly half of Nepal's population below 24 years, exposure during sensitive windows of growth places children at disproportionate risk. Air pollution in Nepal is not just an environmental issue; it is a paediatric health emergency.

This article summarises three interconnected themes:

1. How air pollution harms children,
2. Nepal's evolving policy response, and
3. The leadership role of professional societies such as NEPAS.

1. How Air Pollution Damages Child Health

A. Perinatal and Neonatal Impacts

The harm begins even before birth. Many air pollutants cross the placental barrier, triggering oxidative stress and systemic inflammation that interfere with foetal growth. Evidence shows that prenatal exposure, especially to PM2.5 and nitrogen oxides increases the risk of preterm birth and low birth weight, both major contributors to neonatal mortality in Nepal. Early exposure may also impair lung development, alter immune function, and increase lifelong susceptibility to respiratory and chronic diseases. In a country where neonatal mortality remains a significant challenge, air pollution is likely an un-recognized multiplier of prematurity, birth asphyxia, and infection vulnerability.

B. Respiratory and Immune System Effects

Young children inhale more air per kilogram of body weight and spend more time outdoors. Their immune system is still developing, making them especially susceptible.

Chronic exposure to pollutants leads to:

- Inflammation of the airways.
- Reduced innate immunity.
- Higher risk of pneumonia and acute lower respiratory infections.
- Asthma onset and exacerbations.

Winter pollution spikes often coincide with increases in emergency visits and hospital admissions. Slowed lung growth during childhood can limit maximum lung capacity, thus predisposing to chronic respiratory diseases during adulthood.

C. Neurodevelopmental and Mental Health Risks

Ultrafine particles can enter the brain via the bloodstream or olfactory nerves. Research links early-life exposure to:

- Reduced cognitive performance.
- Lower academic achievement.
- Memory problems.
- Higher rates of attention-related and behavioural concerns.
- Increased anxiety and emotional vulnerability.

In Nepal, where pollution frequently co-exists with heat stress, noise, and social disruption, the combined psychological burden on children may be much greater than recognized.

D. Multiple Exposures, Compounded Harm

Many Nepali children could experience overlapping hazards like ambient pollution, indoor smoke from solid fuels, lead exposure, and unsafe water. These cumulative exposures amplify health risks. Climate change worsens this feedback loop through increased heat, wildfires, and black carbon deposition.

2. Nepal's Policy Response: Progress with Gaps to Address

A. Constitutional and Legal Foundations

The Constitution of Nepal (2015), Article 35, guarantees every citizen the right to free basic health services, emergency care, information about treatment, and equal access, and the right to clean water, sanitation, and a healthy environment. This legal foundation is especially critical for children, who bear the burden of exposure without agency.

B. Integration within Climate and Health Planning

Several national frameworks now recognize air pollution as a child health and climate priority:

- National Climate Change Policy (NCCP) 2019/2076.
- National Adaptation Plan (NAP) 2021-2050.
- Health Sector National Adaptation Plan (H-NAP) 2023-2030.
- Nationally Determined Contributions (NDCs).

Nepal's first health-sector greenhouse gas baseline has highlighted the need for climate-resilient, low-carbon health systems.

C. Sectoral Action and Child-Centred Platforms

The National Clean Air Action Plan (2020) outlines cross-sector strategies in transport, industry, waste, and household energy. Expansion of air quality monitoring especially in the Kathmandu Valley, has strengthened air pollution data availability.

Platforms like the BaYu Dialogue at Sagarmatha Sambaad have begun involving children and youth in climate and air quality discussions.

However, major gaps remain:

- Weak enforcement of clean air standards
- Limited financing
- Insufficient integration of pollution mitigation into maternal, newborn, and child health programmes
- Slow transition away from solid fuels

These gaps highlight the need for continued scientific advocacy and professional leadership.

3. The Transformative Role of Professional Societies like NEPAS

Professional medical societies act as a bridge between evidence, policy, and public understanding. Amongst them, the Nepal Paediatric Society (NEPAS) has recently emerged as a crucial voice for children's environmental health and clean air.

A. Evidence-Based Leadership

Backed by clinical expertise, NEPAS is uniquely positioned to highlight how air pollution contributes to pneumonia, asthma, prematurity, and developmental impacts. Paediatricians witness the consequences almost daily, creating a moral obligation to address root causes rather than only treat symptoms.

NEPAS has been actively:

- Participating in regional online workshops with paediatric associations from India, Pakistan, and Bangladesh
- Collaborating with the Royal College of Paediatrics and Child Health (RCPCH) for technical and financial support, evidence generation and documenting available data.
- Advocating for air pollution to be recognized as child rights and child survival issues
- Producing position papers and engaging in targeted advocacy.

B. Reframing the National Narrative

NEPAS has helped shift the narrative of air pollution from a purely environmental issue to a core child health and equity issue. This reframing elevates responsibility beyond the environment sector to all levels of governance. By communicating air quality risks in simple, family-relevant terms, NEPAS has increased public awareness and made the issue personal and urgent.

C. Mechanisms of Influence

NEPAS contributes by:

- Providing technical input to government strategies.
- Training health workers on environmental health and effects of air pollution in children.
- Translating complex data into actionable messages.
- Supporting hospital-based environmental health surveillance.
- Strengthening accountability by linking disease patterns with sources of pollution.

Such efforts are important and essential in turning policy commitments into real-world health improvements.

Three Interconnected Themes

Conclusion

Air pollution affects Nepali children before birth, throughout childhood, and far into adulthood, undermining survival, development, and future productivity. Although Nepal has made impressive commitments to address this crisis, implementation and accountability needs to be accelerated. Professional bodies like NEPAS carry immense responsibility: in amplifying the voice of children, to guide policy with science, and to ensure that clean air becomes a guaranteed right and not just a privilege. Protecting children from polluted air is not only a public health duty but also an investment in Nepal's human capital, equity, and future prosperity.