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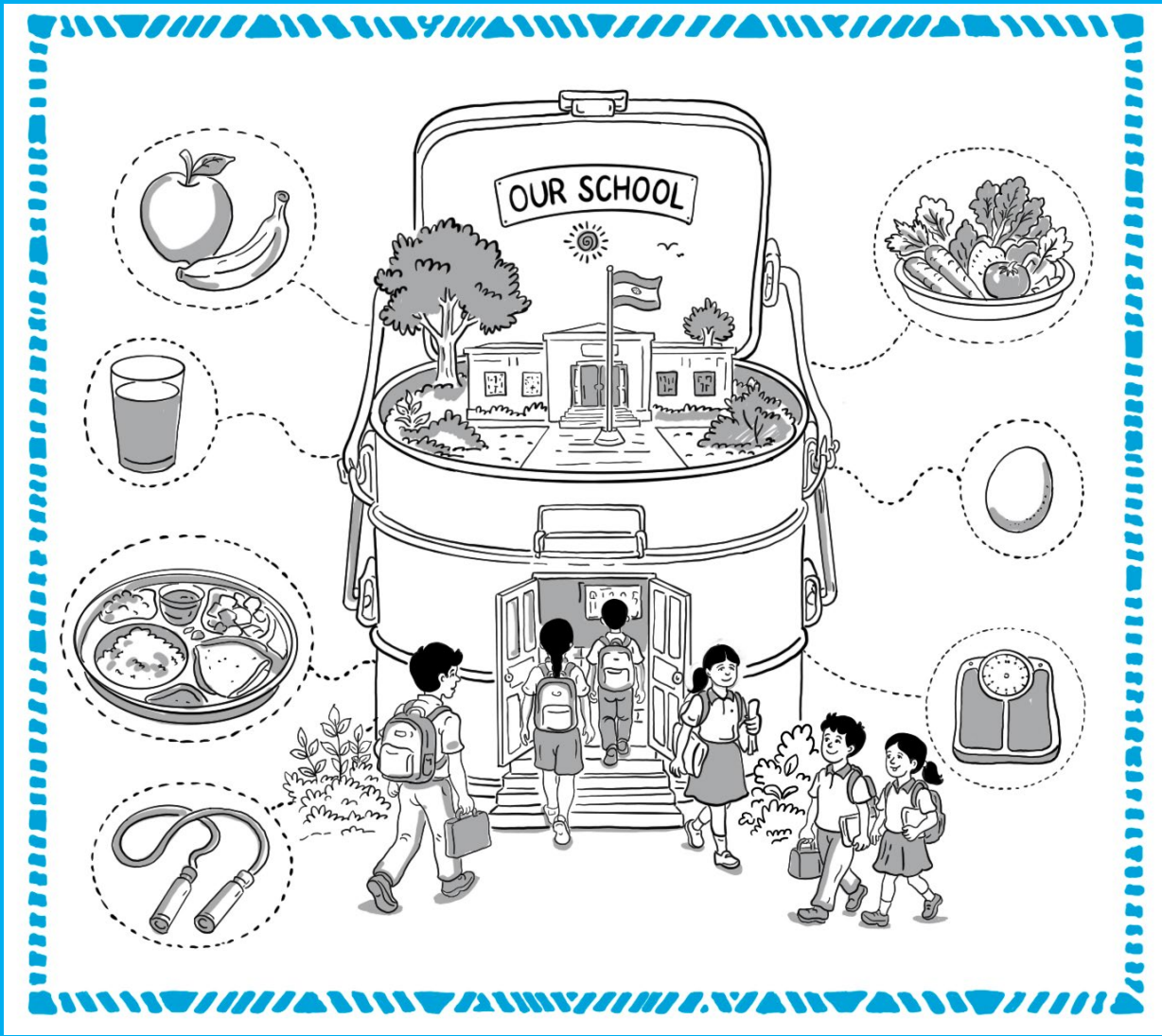
Strengthening Evidence on School Nutrition Environments in India

Insights from Feasibility Assessment of the Adapted Nutrition Environment Assessment Toolkit for School (NEAT-S)



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Strengthening Evidence on School Nutrition Environments in India

Insights from Feasibility Assessment of the Adapted NEAT-S Tool

Acknowledgement

This report is the outcome of an initiative led by the Nutrition Section, UNICEF India, in collaboration with the Public Health Foundation of India (PHFI).

The study was undertaken by a multidisciplinary team comprising:

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The active engagement and insights of the participating students were instrumental in shaping the India-adapted NEAT-S toolkit, and their contribution is deeply appreciated.

The adapted NEAT-S India tool draws upon the original NEAT-S tool developed by the UNICEF East Asia and Pacific Regional Office (UNICEF EAPRO) and Deakin University, and upon guidance provided by the UNICEF Regional Office for South Asia (UNICEF ROSA). Their support and contributions are sincerely acknowledged.

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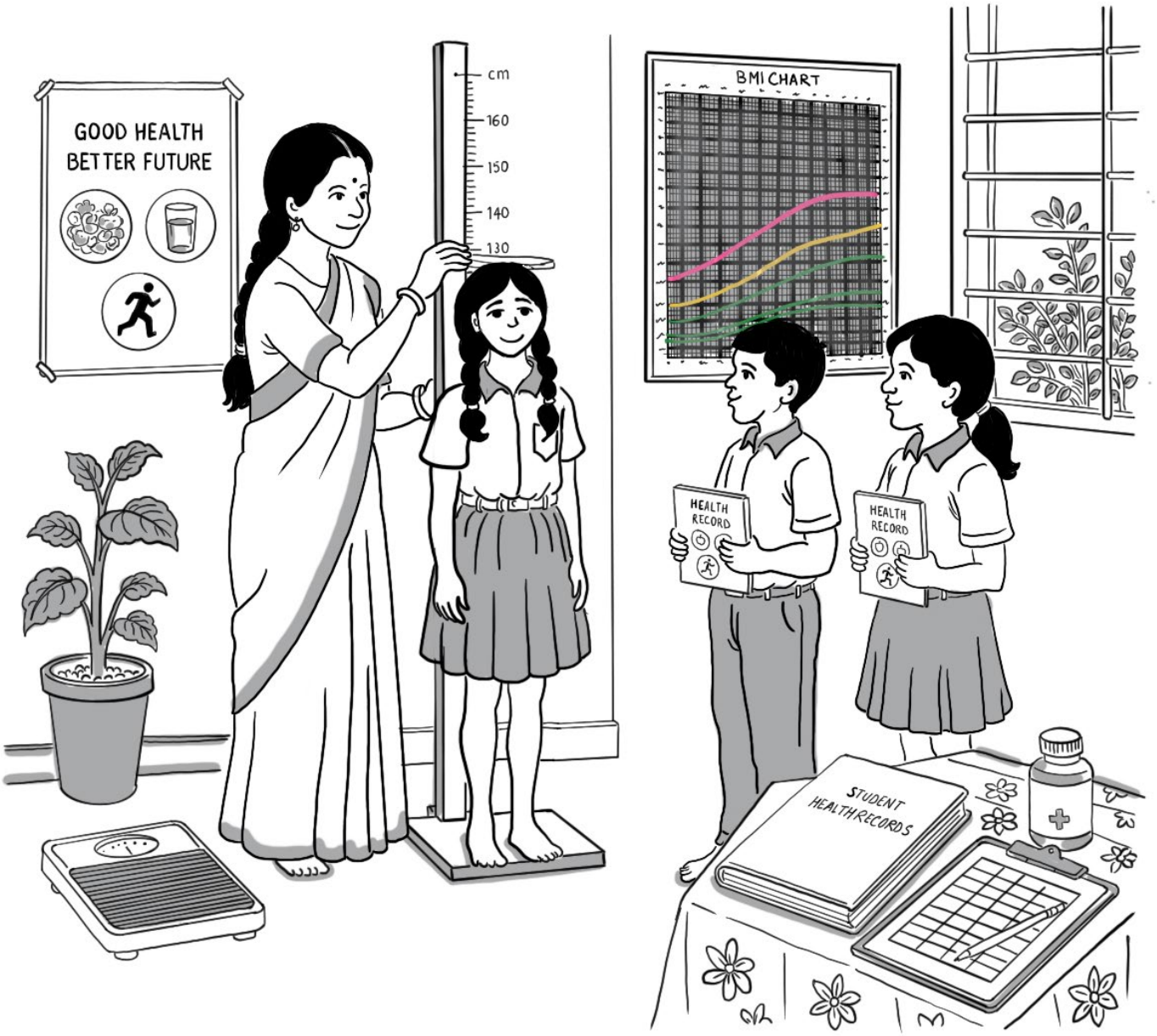
Abbreviations

CBSE	Central Board of Secondary Education
DBM	Double Burden of Malnutrition
DDS	Dietary Diversity Score
DQQ	Diet Quality Questionnaire
FSSAI	Food Safety and Standards Authority of India
HFSS	High in Fat, Sugar and Salt
IEC	Institutional Ethics Committee
IFA	Iron and Folic Acid
KII	Key Informant Interview
MoE	Ministry of Education
MoHFW	Ministry of Health and Family Welfare
MVPA	Moderate-to-Vigorous Physical Activity
NCD	Non-Communicable Disease
NEAT-S	Nutrition Environment Assessment Toolkit for Schools
NEP	National Education Policy
PHFI	Public Health Foundation of India
PM POSHAN	Pradhan Mantri Poshan Shakti Nirman
RBSK	Rashtriya Bal Swasthya Karyakram
RKSK	Rashtriya Kishor Swasthya Karyakram
SD	Standard Deviation
SHWP	School Health and Wellness Programme
SMC	School Management Committee
TBM	Triple Burden of Malnutrition
UDISE+	Unified District Information System for Education Plus
UPF	Ultra-Processed Food
WASH	Water, Sanitation and Hygiene
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Summary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HEALTH RECORD
HEALTH RECORD
STUDENT HEALTH RECORDS

India is experiencing a triple burden of malnutrition among children and adolescents, where undernutrition and micronutrient deficiencies persist alongside rapidly rising overweight and obesity. National data indicate that more than half of children (51 per cent) and adolescents (53 per cent) are affected by the double burden of malnutrition, while the triple burden affects 14 per cent of children and 13 per cent of adolescents. These trends are driven by suboptimal diets, increasing consumption of ultra-processed foods, physical inactivity and unhealthy dietary patterns, contributing to the early onset of obesity, diabetes and cardiovascular risk.

Schools play a critical role in shaping children's health and nutrition and offer an important entry point for delivering a comprehensive package of interventions. With 246 million children enrolled across 1.47 million schools, India's school system provides sustained, daily access to children during key developmental periods. Over 12,000 hours are spent in school across 10–12 years – a critical window during which dietary behaviours are formed and long-term health outcomes are established.

We examined how effectively a school-based assessment tool can capture nutrition environments in Indian schools. To generate actionable evidence, we adapted and pilot-tested the Nutrition Environment Assessment Toolkit for Schools (NEAT-S), developed by the UNICEF East Asia and Pacific Regional Office (UNICEF EAPRO), for the Indian context. The pilot was conducted between March and August 2025 in ten private schools in Uttar Pradesh and combined a policy desk review, key informant interviews (KIIs) with 25 stakeholders and primary data collection from school administrators and 324 adolescent students.

We developed four context-specific versions of the NEAT-S tool for assessing the school food environment in India: two for schools with meal facilities (long and short versions) and two for schools without meal facilities (long and short versions). The tool was adapted to align with national policies, school system characteristics, and local dietary practices, ensuring its relevance and applicability in the Indian context. Pilot testing demonstrated that the tool is feasible to administer and can generate comprehensive, multi-domain data on school nutrition environments.

We report significant and consistent gaps across school nutrition environments. School canteens predominantly offered ultra-processed foods, with limited availability of nutritious alternatives. A clear disconnect was observed between reported food policies and actual practices. In 40 per cent of schools,

students had access to unhealthy foods through external vendors. Preventive health services were inconsistent: none of the schools provided iron–folic acid supplementation, and only 30 per cent offered deworming services. Nutrition education was limited in both depth and frequency, participation in physical activity declined in higher grades, and water, sanitation and hygiene (WASH) facilities required improvement. Students reported low availability of healthy food options (20 per cent), despite expressing strong support for healthier school food policies, indicating that demand exists, but supply and enforcement remain inadequate. The mean dietary diversity score was 6.5 (±1.4), with 93 per cent of students consuming five or more food groups. No significant gender differences were observed.

We recommend:

At National level

Policy recommendations

1. A standardized regulatory definition of foods high in fat, sugar and salt (HFSS) should be developed and formally adopted by the Food Safety and Standards Authority of India (FSSAI) to ensure clarity, uniformity and consistency in the implementation, monitoring and enforcement of regulations and advertising restrictions related to unhealthy foods in India.

2. The Government should notify and immediately operationalize the pending provisions and sub-regulations under the FSSAI *Food Safety and Standards (Safe Food and Balanced Diets for Children in School) Regulations, 2020*, particularly Regulation 3(5), which mandates that school authorities ensure no person sells or permits the sale of foods high in saturated fat, trans-fat, added sugar or sodium within school premises or campuses, and Regulation 5(1), which prohibits the advertisement, marketing, sale, or offering for sale of such food products within school campuses and within a 50-metre radius of school gates.

3. The Ministry of Education and the Ministry of Health and Family Welfare should issue a joint directive to institutionalize structured, skill-based nutrition education within the school timetable for Grades 1–12, with a minimum allocation of 45–60 minutes per week. The curriculum – across all school boards – should be aligned with the *Dietary Guidelines for Indians, 2024* and the *National Education Policy (NEP) 2020*, and should include age-appropriate, skill-based learning on healthy diets, food label interpretation, food systems awareness and informed food choices, complemented by practical school-based initiatives such as Sugar, Oil and Salt Boards and other nutrition literacy activities.

Implementation recommendations

4. Enforcement of the FSSAI *Food Safety and Standards (Safe Food and Balanced*

Diets for Children in School) Regulations, 2020 should be strengthened through standardized statewide compliance checklists for mandatory display of HFSS food prohibition signage in and around schools, clearly defined institutional responsibilities, routine monitoring and inspections, and penalties for non-compliance based on the *Ten-Point Charter for Food Supplied to School Children, 2020.* A structured benchmarking system for school food environments, including star ratings across all school canteens, should be established.

5. All direct and indirect marketing of HFSS foods to children under the age of 18 should be prohibited, including sponsorship of school events, sports activities and digital platforms by such brands – thereby extending the scope of existing Regulation 3(5) provisions beyond their current limitations.

6. All relevant notifications, circulars, advisories and regulations issued by FSSAI and other concerned government departments related to school food environments, HFSS food restrictions, food safety and nutrition standards should be mandatorily disseminated to all schools and School Management Committees (SMCs), including parents, to ensure awareness, compliance and uniform implementation across educational institutions.

7. Existing initiatives such as Sugar Boards, Oil Boards and other nutrition literacy activities should be scaled up and mandatorily extended across all types of schools in India to strengthen practical nutrition awareness and promote healthier food choices among students.

Monitoring and evaluation recommendations

8. Periodic assessment of school food environments through NEAT-S should be institutionalized as a routine state-level monitoring mechanism – conducted at least annually – to evaluate exposure to HFSS foods, menu quality, food safety and hygiene standards, and gaps in the implementation of nutrition-related services within schools. These assessments should be aligned with existing national frameworks and initiatives, including the Swachh Evam Harit Vidyalaya Rating, UDISE+, Eat Right India, Rashtriya Bal Swasthya Karyakram 2.0 and the Ayushman Bharat School Health and Wellness Programme (SHWP), with integration of indicators related to school food environments and nutrition practices to enable benchmarking, accountability and continuous improvement.

9. The Government should mandate the development and annual implementation of a standardized Health and Nutrition Report Card for all students to assess and monitor key indicators related to nutritional status, dietary practices, physical activity,

fitness, growth and overall health. The report card should serve as a systematic mechanism for the early identification of health and nutrition risks, monitoring of student well-being by both school authorities and parents, strengthening of school health services, and promotion of accountability for healthy school environments.

At the school level

10. In alignment with the FIT India Mission and the Ayushman Bharat School Health and Wellness Programme, all schools should ensure a minimum of 60 minutes of daily structured physical activity for students, including those in Grades 11–12, through mandatory integration within the school schedule. Specific measures should be instituted to promote equitable participation of girls, alongside regular fitness assessment, monitoring and certification.

11. In collaboration with SMCs, schools should implement structured parent and family engagement programmes through parent–teacher meetings (PTMs), including at least two family nutrition sessions per year, to strengthen home and school food environments by promoting healthy lunchbox practices, nutritious home diets, adherence to iron and folic acid (IFA) supplementation and deworming, and awareness of the risks associated with HFSS foods and children's exposure to digital food marketing.

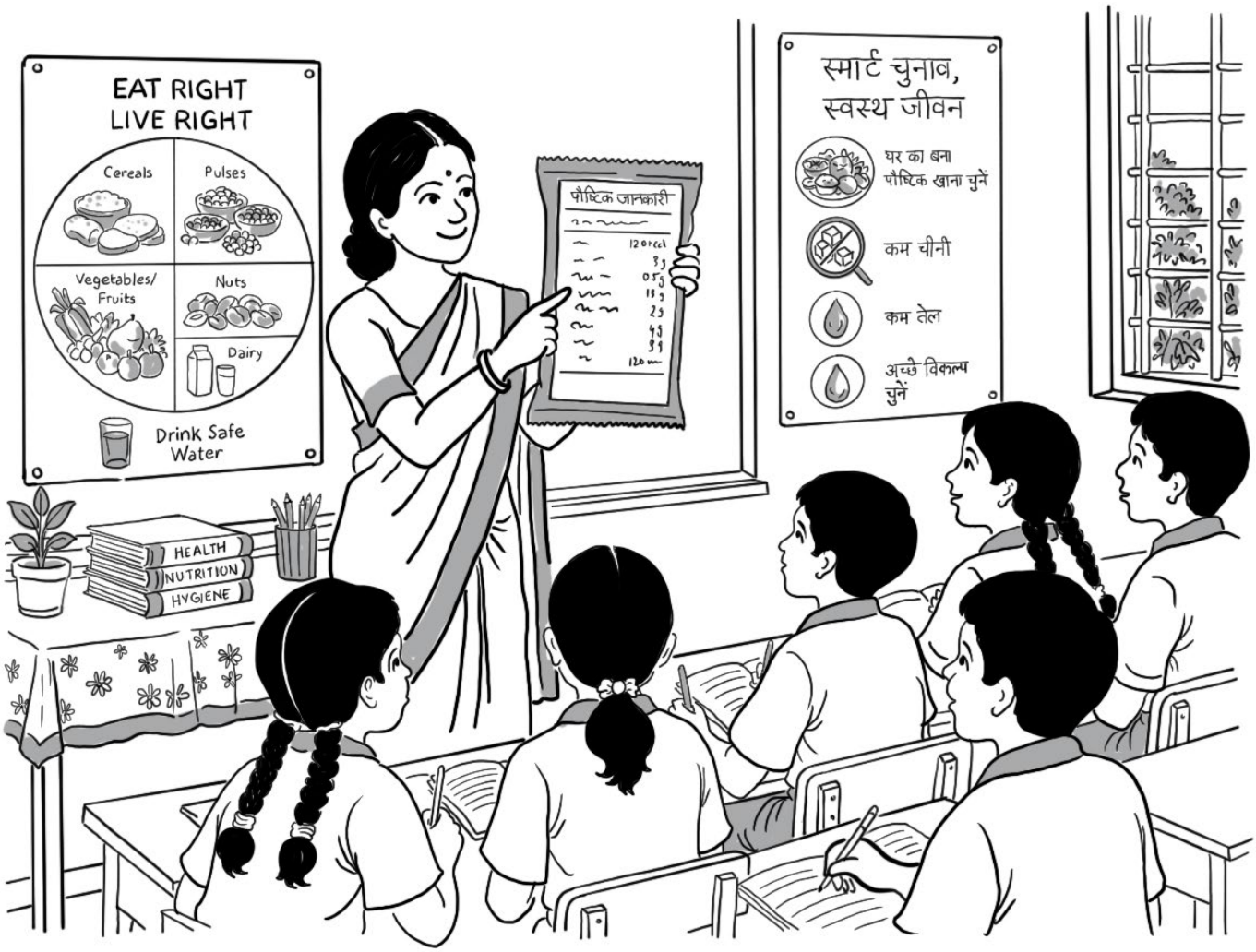
12. School authorities not currently covered under government school supplementation programmes – including those in private and unaided schools – should be encouraged to extend IFA supplementation and deworming services to students through public–private partnerships and collaboration with relevant government departments, health care institutions, civil society organizations and development partners.

13. School canteens should undergo comprehensive reform, replacing fried and packaged food options with alternatives such as fresh fruits, traditional snacks, sprouts, nuts, buttermilk, millets and whole grains. Pricing mechanisms should be structured to ensure that nutritious choices are consistently more affordable than unhealthy ones, encouraging students to opt for healthier options. Schools should further introduce dedicated healthy meal days or a designated healthy snack corner to normalize healthy eating. All canteen service providers should hold a valid FSSAI licence and be required to undergo annual food safety training to uphold hygiene, quality and accountability standards.

The adapted NEAT-S tool demonstrated clear feasibility – it was well understood by respondents, practical to administer and capable of generating comprehensive, multi-domain data on school nutrition environments. Deploying it as a routine

monitoring mechanism at national scale would provide the accountability infrastructure needed to translate policy into practice and track progress over time. Strengthening school nutrition environments is one of the highest-leverage strategies available to address malnutrition among children and adolescents, reduce long-term non-communicable disease (NCD) risk and support India's human capital development.

Introduction



India's nutrition landscape reflects a complex triple burden of malnutrition, in which undernutrition and micronutrient deficiencies coexist with rising overweight and obesity among children and adolescents.[1] National data indicate that the prevalence of the double burden of malnutrition (DBM), DBM+ (DBM + any metabolic alteration) and the triple burden of malnutrition (TBM) stands at 51 per cent, 37 per cent and 14 per cent, respectively, in children and at 53 per cent, 36 per cent and 13 per cent, respectively, in adolescents.[2]

These trends are closely linked to reduced consumption of healthy foods, rapid dietary transitions and declining physical activity.[3] Increased consumption of ultra-processed foods (UPFs) – which are high in fat, sugar and salt – has shifted diets away from traditional, nutrient-dense foods,[4,5] contributing significantly to total energy intake and increasing the risk of obesity and metabolic disorders.[4,6] Physical inactivity compounds these risks and remains widespread.[7] Among girls, average time spent in vigorous exercise declines sharply from 25 minutes (in the 10–14 years age group) to just 10 minutes (in the 15–19 years age group), compared with 40 and 50 minutes respectively among boys.[8] Overall, only about half of children and adolescents meet moderate-to-vigorous physical activity (MVPA) recommendations, with disparities across rural (46 per cent) and urban (50 per cent) settings and a significant gender gap: fewer females (36 per cent) meet the guidelines compared with males (46 per cent).[7]

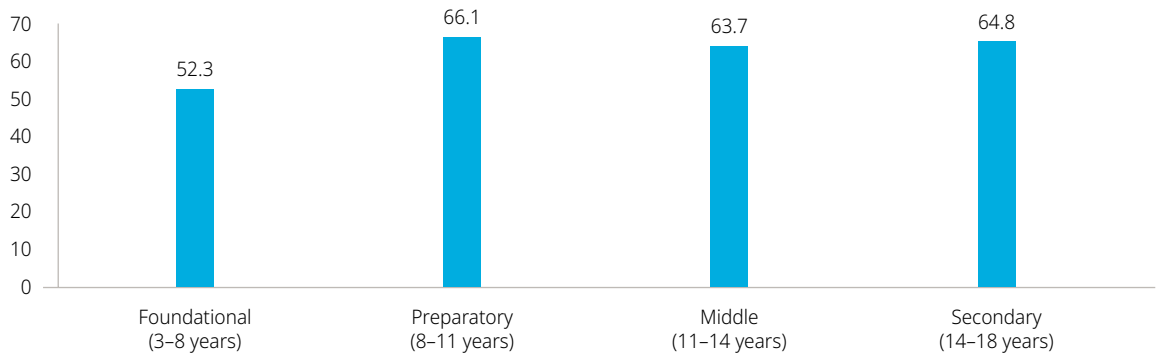
This evolving nutrition landscape is recognized in India's National Education Policy 2020,[9] which underscores that children cannot achieve optimal learning outcomes when undernourished or unwell. The policy prioritizes strengthening nutrition and health, physical activity and mental health through the provision of healthy meals, regular health check-ups and greater integration of trained counsellors, social workers and community engagement within the schooling system. Schools play a critical role in shaping dietary behaviours and health outcomes: children spend more than 12,000 hours in school during their formative years, providing a sustained opportunity to influence nutrition through nutritious food provision, nutrition education and opportunities for physical activity.[3] Poor nutrition adversely affects cognitive development, school attendance and academic performance, while both undernutrition and obesity are linked to long-term health and psychosocial challenges.[10,11] These challenges underscore the urgency of interventions capable of simultaneously addressing multiple forms of malnutrition.

India is uniquely positioned to respond through its vast and structured school system. Under the National Education Policy (NEP) 2020 framework, approximately 246.9 million children are enrolled in schools across the country[12] – a large and well-defined population that can be reached consistently over several years. As Figure 1 illustrates, the majority of these children are in age groups where dietary habits, preferences and health behaviours are formed and reinforced, making school-based interventions a high-leverage opportunity to address the triple burden of malnutrition while improving health, learning outcomes and future human capital development.

India has already demonstrated strong commitment through multiple national initiatives, including PM POSHAN (school noon meals), Poshan Abhiyaan, the Eat Right Schools Programme, the FSSAI Food Safety and Standards (Safe Food and Balanced Diets for Children in School) Regulations, 2020, the National Food Security Act, 2013, Anemia Mukt Bharat, National Deworming Day, Rashtriya Bal Swasthya Karyakram (RBSK) 2.0, Rashtriya Kishore Swasthya Karyakram (RKSK), the Ayushman Bharat School Health and Wellness Programme and the National Education Policy 2020. While these programmes address key components of child nutrition, there is scope to further strengthen them through a more systematic understanding and improvement of the overall school nutrition environment.

In this regard, the Nutrition Environment Assessment Toolkit for Schools (NEAT-S), developed by UNICEF for the East Asia and Pacific region,[1] offers a comprehensive, school-specific and user-friendly framework aligned with UNICEF–WHO conceptual guidance. It captures both internal dimensions (school meals, canteens, nutrition education, physical activity and health services) and external dimensions (food vendors, marketing and surrounding food environments) through a combination of direct observations, surveys and policy reviews across four core domains (*see Table 1*). The toolkit is adaptable to the local contexts while maintaining conceptual robustness and has been

Figure 1: Distribution of students across NEP stages (in millions), April 2026



Source: Unified District Information System for Education+[12]

Table 1: School nutrition environment framework – the four domains

	Domains	A healthy school nutrition environment
1	Nutritious foods in schools	• Free school meals/snacks, based on nutritional standards and guidelines (day school and residential) • Use of local supply chains (including private and public sectors) for school meals/snacks • Food/meals in lunchboxes brought from home
2	Healthy school food and physical activity environments	• No advertising, sponsorship or free-of-cost distribution of unhealthy foods and drinks or branding in and around schools (and other forms of food industry presence and influence) • Access to free and safe drinking water • Only healthy food and drinks available for sale in canteens and by private vendors in and around schools • Access to school gardens • Sufficient facilities and space for physical activity (e.g., dedicated time and space during the school day)
3	Nutrition services in schools	• Iron and micronutrient supplementation • Deworming • Nutrition and health monitoring (testing of haemoglobin, height, weight, etc.)
4	Nutrition education in school curricula	• Nutrition education (e.g., SBCC, communication and education materials and messages) planned and integrated into school curricula • Sufficient physical activity education

Source: Adapted from UNICEF East Asia and the Pacific Regional Office, Nutrition Environment Assessment Toolkit for Schools (NEAT-S) for East Asia and Pacific, UNICEF, Bangkok, 2024.

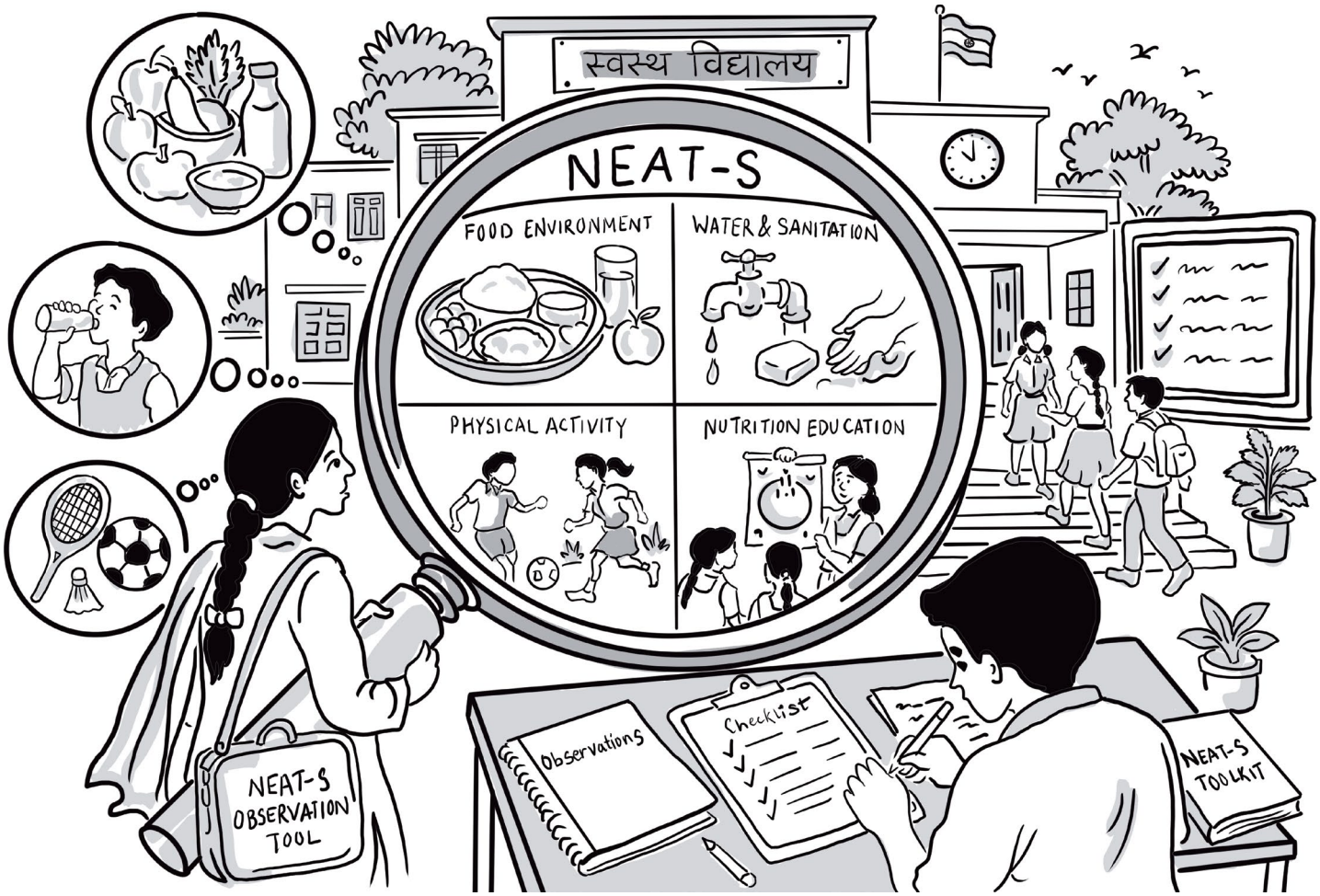
implemented in countries including Mongolia, Fiji, Vietnam[13] Indonesia,[14] and Sri Lanka[15] – and has the potential to strengthen nutrition programmes in India.

Against this backdrop, adapting the NEAT-S for India is both timely and strategic. Strengthening school nutrition environments will not only improve the immediate nutritional status of children but also contribute significantly to human capital development by enabling better educational outcomes, enhanced cognitive development and greater productivity in adulthood.

In this context, the present study aims to:

1. Adapt and pilot-test the UNICEF EAPRO NEAT-S tool for the Indian school context.
2. Implement the adapted NEAT-S tool to assess school nutrition, physical activity and WASH environments in selected schools.
3. Develop evidence-based recommendations for fostering healthy school food environments, with potential for scale up across India.

Methodology



Study design

This study employed a mixed-methods approach, comprising desk reviews, KIIs and quantitative survey data to guide the contextual adaptation and refinement of the NEAT-S. Conducted between March and August 2025 across two districts of Uttar Pradesh – Gautam Budh Nagar (Noida) and Ghaziabad, it unfolded in two sequential phases.

Phase 1: Contextual adaptation of the NEAT-S toolkit based on desk reviews and stakeholder consultations through KIIs

Phase 2: Pilot testing of the adapted tool within selected school settings and development of the final tool.

Phase 1 – Contextual adaptation

Desk Review:

The desk review was conducted to establish the national and local policy context for school nutrition in India and to inform the adaptation of NEAT-S. It covered national guidelines on school meals, nutrition education and physical activity – including the Central Board of Secondary Education (CBSE) school nutrition guidelines and FSSAI initiatives on healthy school meals and snacks, and the Ayushman Bharat Curriculum on Health and Wellness of School-going Adolescents – as well as relevant public health programmes under the Ministry of Health and Family Welfare in the domain of adolescent nutrition interventions and preventive health services. The review also examined published literature on the school food environment, adolescents' dietary behaviours and challenges in implementing school nutrition policies, along with evidence on local practices such as canteen operations, school meal provision, the sale and marketing of HFSS foods and the availability of physical activity infrastructure. It identified implementation gaps, contextual factors influencing school nutrition in India and evidence on effective strategies that could be integrated into the NEAT-S adaptation. Interviewer guides for KIIs were developed on the basis of the desk review findings (*see Annexure I*).

Key informant interviews (KIIs)

KIIs were conducted to capture in-depth, contextual insights from stakeholders with experience of school nutrition practices. A purposive sampling strategy was used to ensure the inclusion of participants with direct knowledge or decision-making authority. Respondents were selected based on the basis of their expertise in school food environments and spanned public health experts from education and health departments, school principals, teachers and parents. Their roles in shaping, implementing or experiencing nutrition-related practices made them well placed to provide insights into the relevance and applicability of the NEAT-S tool in India. KIIs were conducted with

Table 2: Stakeholder engagement for adaptation and review of the NEAT-S toolkit

Stakeholder group	Number (n)	Composition / representation	Purpose of engagement
Subject matter experts	5	Representatives from the education and health departments and public health academics	To review content relevance, technical accuracy, policy alignment and conceptual coverage of the adapted toolkit
School-level stakeholders	10	School principals, teachers and administrative staff responsible for food provision and physical activity policies	To assess contextual applicability, operational feasibility and clarity of questions at the school implementation level
Parents of enrolled students	10	Mothers or fathers of students enrolled in participating schools	To understand parental perspectives on home–school dietary influences, expectations from school food environments and acceptability of questionnaire content

three stakeholder groups: subject matter experts, school-level stakeholders and parents (either the mother or the father) of enrolled students (*see Table 2*).

Interviews were audio-recorded, transcribed verbatim and manually coded. A hybrid codebook was developed, incorporating deductive codes derived from the NEAT-S domains as well as inductive codes emerging from stakeholder responses. Themes and sub-themes were iteratively refined to ensure that both the structured NEAT-S framework and locally relevant contextual factors were accurately represented. The qualitative data from KIIs were analysed using a hybrid approach, combining deductive and inductive methods.

- **Deductive analysis:** The four core NEAT-S domains – (i) nutritious foods in schools, (ii) healthy school food and physical activity environments, (iii) nutrition services and (iv) nutrition education in curricula – served as a predefined framework to guide the coding and organization of data, ensuring that analysis remained aligned with the objectives of the NEAT-S assessment.
- **Inductive analysis:** Emergent themes were identified directly from participants' narratives to capture context-specific insights relevant to Indian schools. These included local dietary practices, parental influences, school-specific policies and unique challenges in implementing nutrition and physical activity programmes.

Phase 2 – Pilot testing

Adapted Toolkit:

The adapted NEAT-S tool, refined based on Phase 1 findings was pilot-tested in 10 selected schools to assess its clarity and feasibility.

An overview of the toolkit modules, domains covered and the number of items by respondent is presented in Table 3.

Table 3: Overview of NEAT-S toolkit modules, respondents and domains

Module (assessment tool – primary respondent)	Domains covered
Module 1: Direct observation of school nutrition environment (data collector)	• School characteristics (type, level, location, medium of instruction) • School meal and snack provision • Types of foods available on campus and in lunchboxes • Food preparation, storage and hygiene practices • Availability and visibility of healthy versus unhealthy foods • Food advertising and promotion (including HFSS foods) • Physical activity infrastructure • WASH facilities
Module 2: School administrator questionnaire (principal / teacher / designated school staff)	• School food and nutrition policies • Alignment with guidelines (e.g., CBSE, FSSAI) • Regulation and monitoring of canteen services and vendors • Measures to promote healthy foods and restrict unhealthy foods • Nutrition supplementation and preventive health services (IFA, deworming, screening and referrals) • Nutrition education (curricular integration, frequency and responsible personnel) • Physical education and physical activity promotion • Implementation challenges and monitoring mechanisms
Module 3: Attitudes and perceptions of students towards school nutrition environments (students)	• Perceptions of the school nutrition environment (availability, affordability of foods) • Lunchbox practices and food purchasing behaviours • Cleanliness, hygiene and sanitation practices • Participation in physical activity and perceived barriers • Mental well-being indicators (peer relationships, loneliness and worry-related sleep disturbance) • Knowledge and attitudes related to climate change, plastic use and sustainability
Module 4 (students)	• Diet quality assessment using a food group-based 24-hour recall (DQQ framework for India)

Sampling and Recruitment:

Ten private schools were purposively selected –five from Gautam Buddha Nagar (Noida) and five from Ghaziabad – on the basis of prior consent and administrative willingness to participate. Schools were chosen to ensure that at least one was implementing a school meal programme. They were approached through official communication channels, and consent was obtained from school administrations for school visits and student participation. A detailed orientation outlining the purpose of the study and the structure of the toolkit was provided to school staff. Only schools that provided written institutional consent were included in the pilot testing.

Survey administration and data collection

The survey was self-administered. Both school administrators and students took approximately 20 to 30 minutes each to complete it. All responses were anonymous. During implementation, emphasis was placed on the clarity of questions, the feasibility of administration and the extent to which items captured the intended constructs. Following the survey, students were invited to provide feedback on the tool's language, flow, ease of understanding and suitability for school settings, which further informed refinements to ensure its appropriateness and practicality.

Data management and analysis

Quantitative data were digitized, coded to maintain respondent confidentiality and cleaned prior to analysis using STATA version 17.0. Observation checklist and administrator questionnaire responses were summarized using frequencies and proportions and grouped by NEAT-S domains (e.g., policy presence, infrastructure availability).

Perceptions of the school food and physical activity environment, as well as attitudes towards school health policies, were measured using Likert-scale items ranging from strongly disagree (1) to strongly agree (5). Knowledge and attitudes towards plastic use (13 items) and climate change (5 items) were similarly coded on a five-point Likert scale, with domain-specific index scores generated. Sanitation and hygiene practices in the last 30 days were captured through questions on handwashing before eating, after using the toilet and with soap, with responses on a frequency scale from never (1) to always (5). Mental health status was assessed through indicators including number of close friends, frequency of loneliness and worry-related sleep disturbance in the past 12 months. Results are presented as frequencies, percentages, means and standard deviations. Composite indices were calculated for each domain, with higher scores reflecting more favourable knowledge, attitudes or practices.

The Diet Quality Questionnaire adapted for India[16] was used; each participant was asked to report on all foods and beverages consumed in the preceding day. Reported food items were classified into 10 recommended food groups: (1) grains, roots and tubers; (2) pulses; (3) nuts and seeds; (4) dairy products; (5) flesh foods; (6) eggs; (7) dark green leafy vegetables; (8) vitamin A-rich fruits and vegetables; (9) other vegetables; and (10) fruits. Additional unhealthy food captured in the tool included sweets, fried/unhealthy foods and beverages. For each participant, consumption from a given food group was recorded as a binary variable (yes = consumed; no = not consumed). The dietary diversity score (DDS) was calculated as the total number of distinct food groups consumed by each adolescent during the recall period, with high dietary diversity defined as consumption from five or more food groups in the preceding 24 hours[16]. Data were summarized as proportions and frequencies for each food group, and

the mean and standard deviation (SD) of DDS were computed along with the percentage of adolescents in each DDS category.

Tool refinement

Feedback from students and administrators during pilot testing identified opportunities to improve the tool's clarity. Refinements included simplifying certain terms, adding examples of commonly consumed local foods, and reordering questions to improve flow. These adjustments enhanced ease of administration without altering the tool's core structure or domains.

The NEAT-S tool was further refined to align with national policies, school systems and local dietary practices, resulting in four versions – two for schools with meal facilities (long and short version and two for those without (long and short version).

Ethical considerations

The study obtained ethical approval from the Institutional Ethics Committee (IEC) of the Public Health Foundation of India (PHFI) (Approval No.: TRC-IEC/520/25/Exp/New). Informed consent was secured from all adult participants, including school staff and parents. For students under 18 years of age, assent was obtained alongside parental or guardian consent prior to survey administration.

Results

The results are presented in two parts. The first provides a thematic qualitative analysis of KIIs, exploring contextual factors, school practices and stakeholder perspectives that informed the adaptation of the NEAT-S tool for the Indian context. The second presents findings from the pilot survey, summarizing school food policies, meal and snack provision, physical activity infrastructure, sanitation and hygiene facilities, student attitudes and dietary quality, and identifying gaps and opportunities to improve the school nutrition environment.

Adaptation of NEAT-S – Key Insights from qualitative analysis

Qualitative findings from interviews with teachers, parents and subject matter experts provided critical, context-specific insights that directly informed the adaptation of the NEAT-S tool for the Indian school setting. Across 25 interviews, seven themes emerged, highlighting how children's dietary behaviours, school environments, parental practices and systemic challenges interact to shape nutrition outcomes –ensuring that the adapted NEAT-S reflects real-world complexities while remaining practical and culturally relevant.

1. Food preferences of students

Across stakeholder groups, a consistent finding was the strong preference among students – particularly older adolescents (Grades 6–12) – for energy-dense, nutrient-poor foods such as chips, burgers, pizza and sugary beverages. These preferences were shaped by age, autonomy, peer interactions and access to pocket money. Younger children (Grades 1–5) were more likely to consume home-prepared meals under parental supervision, whereas older students exercised greater independence and frequently opted for unhealthy foods during school hours or social outings.

"Mostly, children eat unhealthy food like chowmein, burgers, and all that. They prefer such food, but they shouldn't be eating it." (Parent)

Not only the availability of healthy food at home but also students' food choices, purchasing behaviours and autonomy – particularly among older age groups – shape their eating patterns. The NEAT-S tool captures both the foods actually available within the school environment and students' perceptions of healthy food availability, and all relevant questions pertaining to these aspects have been incorporated into the adapted tool.

Eight stakeholders reported that their schools implement structured initiatives such as fruit breaks, healthy eating days and nutrition messaging through assemblies and classroom activities.

"There are two scheduled food breaks... one is fruit time... children bring two tiffin boxes..." (Teacher)

At the household level, parents emphasized home-cooked meals, regulated pocket money and strategies such as limiting junk/ unhealthy food or modifying recipes to improve nutritional quality.

"I always make sure my daughter carries a lunchbox prepared by me... I don't give her pocket money..." (Parent).

These insights informed the inclusion of dual-environment indicators in NEAT-S, capturing both school-level practices (e.g., fruit availability and canteen policies) and home-linked behaviours (e.g., lunchbox quality and parental engagement).

2. School food and physical activity environments

School stakeholders reported significant variation in food quality and regulation. While two schools enforced strict guidelines and promoted healthier alternatives such as buttermilk and fresh foods, others permitted the sale of chips, cold drinks and fried items, and emphasized that planned menu should be given to students.

"The menu should be planned, followed by daily quality checks." (Teacher)

The external food environment – street vendors and nearby shops – emerged as a major challenge, frequently undermining school policies.

"There's no specific ban on ice cream sellers... all sorts of brands are available." (Teacher)

These findings informed the adaptation of NEAT-S to include a comprehensive assessment of both internal food environments (canteen, policies and monitoring) and external ones (proximity to vendors and food availability outside school), along with questions on policy enforcement and supervision mechanisms.

Schools generally demonstrated strong commitment to physical activity through structured timetables, sports facilities and compulsory participation in early grades.

"Swimming is compulsory up to grade 8... physical education periods... are mandatory." (Teacher)

However, parents and teachers identified multiple barriers, including limited infrastructure, academic pressure and extreme weather conditions.

"If we had adequate space... they would be more physically active." (Teacher)

These insights led to the incorporation of detailed physical activity indicators in NEAT-S, covering frequency, infrastructure, inclusivity and time-related barriers – ensuring the assessment goes beyond provision to actual participation and constraints.

3. Strengthening components on nutrition services and health monitoring

The findings highlighted inconsistencies in the provision of nutrition services, including iron supplementation, deworming and regular health check-ups. While some schools conducted screenings and awareness sessions, many lacked systematic approaches. Teachers

emphasized the urgency of addressing anaemia, particularly among adolescent girls, and recognized schools as critical platforms for intervention. These insights led to the inclusion of indicators on nutrition service delivery – covering supplementation programmes, health screenings, growth monitoring and referral mechanisms – to ensure that NEAT-S captures preventive and promotive health services. It is noted that while IFA supplementation and deworming are not mandated for private schools, they are actively promoted by the government.

4. Nutrition and health education in schools

Nutrition education was widely practised but varied in depth and consistency. None of the 10 schools had a dedicated nutrition and health curriculum; instead, schools used assemblies, classroom discussions and interactive activities to promote awareness.

"I take the packet, read out the ingredients, and show students what they're putting into their bodies..." (Teacher)

Teachers emphasized the need for interactive, participatory approaches and sustained engagement beyond the early grades. Parental awareness was identified as equally critical.

"Orientation programmes for parents should also be conducted..." (Teacher)

These findings informed the integration of comprehensive nutrition education indicators within NEAT-S, encompassing teaching methods, frequency, parental engagement and behaviour change strategies, rather than focusing solely on knowledge dissemination.

5. Determinants of healthy eating

Stakeholders identified multiple determinants of unhealthy eating behaviours, including taste preferences, peer influence, media exposure, time constraints and economic limitations.

"Social media plays a big role... they want to try trending food items." (Teacher)

"Due to time constraints... kids just eat unhealthy to fill their stomachs." (Parent)

These insights ensured that NEAT-S captures contextual barriers – including marketing exposure in and around schools – enabling a more realistic assessment of school nutrition environments in India.

6. Integrating environmental sustainability and hygiene practices

Schools demonstrated efforts to reduce plastic use and promote environmental awareness through campaigns and policies. These findings led to the inclusion of sustainability and hygiene indicators in NEAT-S, covering plastic use policies, waste management, sanitation, handwashing and safe drinking water access – ensuring alignment with broader health and environmental goals.

"Sanitation and handwashing are also important components of the overall school health environment and should be reflected within the tool." (Subject matter expert)

7. Direct feedback informing NEAT-S adaptation

Subject matter experts and teachers appreciated the comprehensiveness of the NEAT-S tool but suggested refinements to enhance contextual relevance. Key recommendations included:

- Aligning dietary assessment with SDG-based food group diversity
- Including sanitation, hygiene and food safety components
- Clarifying roles (e.g., dietitian versus meal provider)
- Expanding sections on physical activity, mental health and well-being
- Adapting questions for schools with and without meal and canteen facilities
- Adding student voice components for more authentic insights

Overall, participants viewed NEAT-S as a valuable and practical tool.

On the basis of these insights, the Student Attitudes and Perceptions Questionnaire was simplified and contextualized for Indian schools, with clearer language, local examples and additional sections on WASH, sustainability, climate awareness and basic mental health. The Dietary Quality Questionnaire (DQQ) retained its 24-hour recall format but was reorganized into SDG-aligned food groups, with the inclusion of local foods and simplified categories to improve clarity.

Reflections from KIIs

SCHOOL FOOD ENVIRONMENT

> ***"Yes, I do see ice cream stalls outside. There's no specific ban on ice cream sellers. Inside the school, we have a canteen, and all sorts of brands are available. There's no specific check on that."***
>
> IDI-5, Teacher

> ***"When I see junk food in class, I take the packet, read out the ingredients, and show students what they're putting into their bodies and how it can affect them."***
>
> IDI-18, Teacher

MEDIA & COMMERCIAL INFLUENCES

> ***"Social media plays a big role. If they see a new variety of noodles or a trending food item being promoted, they get curious and want to try it. So yes, advertisements and online content influence them a lot."***
>
> IDI-13, Teacher

PHYSICAL ACTIVITY & SCHOOL INFRASTRUCTURE

> *"If we had adequate space in the school, they would be more physically active. Currently, they usually go outside the school to play sports."*
>
> IDI-16, Teacher

> *"Physical activity assessment should go beyond infrastructure and also capture whether children are regularly engaging in physical activity."*
>
> Subject matter expert 3

HOME FOOD ENVIRONMENT & EATING HABITS

> *"My child leaves home at 7:15 a.m. and returns after 2:45 p.m. It's difficult to fit all the nutritious food into just three meals, and in between, they might snack on biscuits or chips."*
>
> IDI-13, Parent

> *"Due to time constraints, they give children pocket money, and kids without awareness about a balanced diet just eat junk food to fill their stomachs."*
>
> IDI-20, Parent

NUTRITION EDUCATION & AWARENESS

> *"The role of teachers is important not only in nutrition education, but also in reinforcing healthy eating practices such as monitoring children's tiffins."*
>
> Subject matter expert 2

> *"Orientation programmes for parents should also be conducted to make them aware of what kind of meals they should provide, especially during summers, when fried and carbohydrate-rich diets affect children's health."*
>
> IDI-3, Teacher

STUDENT PARTICIPATION & AGENCY

> *"Bringing awareness in children through various means – not just by lecturing them, but also involving them in decision-making, like deciding what should be in the canteen or what they should be eating – would make them more aware."*
>
> IDI-5, Teacher

Key findings from pilot testing of the adapted NEAT-S toolkit

The pilot was conducted across 10 purposively selected private schools (mostly senior secondary) in Noida and Ghaziabad, covering 324 students from Grades 6–12, along with school administrators and teachers (*see Table 4*). Among administrator respondents, teachers constituted the majority. Key findings by domain are presented below.

Nutritious Foods in Schools

School meal provision: limited and mixed in quality

Only 1 of the 10 surveyed schools provided meals or snacks and had the resources to do so (*see Table 5*). Food was prepared in the school kitchen and was not outsourced to any external vendor.

Table 4: Characteristics of schools and students

School characteristics	%	n
Type of school		
Secondary school	20	2
Sr. Secondary school	80	8
Total		**10**
Student Characteristics	%	n
Gender		
Female	58.9	191
Male	41.1	133
Class		
Grade 6	12.4	40
Grade 7	12.4	40
Grade 8	13.3	43
Grade 9	16.9	55
Grade 10	19.8	64
Grade 11	23.8	77
Grade 12	1.5	5
Total		**324**

Table 5: Availability of resources for preparing meals/snacks in schools

Resources	Availability (n=1)
	School 1
Pots, pans and utensils	✓
Ovens/stoves for cooking	✓
Fridges/cold storage	✓
Safe water for cooking	✓
Clean food preparation areas	✓
Areas to separate cooked and raw ingredients	✓
Trained kitchen staff for food preparation	✓
Adequate kitchen space	✓
Hygienic waste disposal mechanisms	✓
Food always properly covered to protect from flies and dust	✓
Food handlers/cooks have trimmed and clean fingernails	✓
Food handlers/cooks wear clean clothing or aprons while preparing/serving food	✓
Food handlers/cooks wash their hands with soap and water before preparing or serving food	✓
No evidence of pests (e.g., cockroaches, rats, ants) in the kitchen	✓
Perishable foods stored at appropriate temperatures (not left out at room temperature)	✓
Utensils and dishes air-dried or dried with clean towels after washing	✓
Drinking water stored in clean, covered containers	✓
Waste bins in the kitchen covered and emptied regularly	✓
Handwashing facilities (with soap and water) available and accessible to kitchen staff	✓

Note: ✓ = available

While meals included diverse food groups – grains, pulses, dairy, fruits and vegetables – unhealthy items such as sugary drinks, fried foods and packaged snacks were also included (*see Table 6*), indicating a coexistence of nutritious and ultra-processed foods.

Table 6: Food items included in the school meal programme on the day of observation

Items	Snacks (n=1)	Meal (n=1)
	School 1	School 1
Fruits	✓	✓
Vegetables	✓	✓
Wholegrains or pulses	✗	✓
Dairy	✗	✓
Meat, meat products and eggs	✗	✓
Sugary drinks	✓	✓
Deep-fried foods	✓	✓
Salty packaged foods	✓	✓
Sweet packaged foods	✓	✓

Note: ✓ = available; ✗ = not available

Unhealthy canteen food environment

Out of the 10 schools assessed, 4 had canteens, which predominantly offered energy-dense, nutrient-poor foods such as sugary beverages, fried items and packaged snacks (*see Table 7*). Notably, healthy options such as fresh fruits were entirely absent, highlighting a significant gap in promoting healthy food choices within school premises.

Table 7: Food items sold via canteens or stalls in four schools on the day of observation

Items	School 1	School 2	School 3	School 4	n
Sugary drinks	✓	✓	✓	✓	4
Drink powders with added sugar	✗	✗	✗	✗	0
Artificially sweetened drinks	✓	✗	✓	✓	3
100% fruit juice	✗	✗	✗	✗	0
Plain milk	✗	✗	✗	✗	0
Plain water	✓	✓	✓	✓	4
Flavoured water	✓	✓	✓	✓	4

Items	School 1	School 2	School 3	School 4	n
Flavoured milk	✓	✓	✓	✓	4
Deep-fried food	✓	✓	✓	✓	4
Salty foods	✓	✓	✓	✓	4
Sweet foods	✓	✓	✓	✓	4
Fresh fruits	✗	✗	✗	✗	0

Note: ✓ = available; ✗ = not available

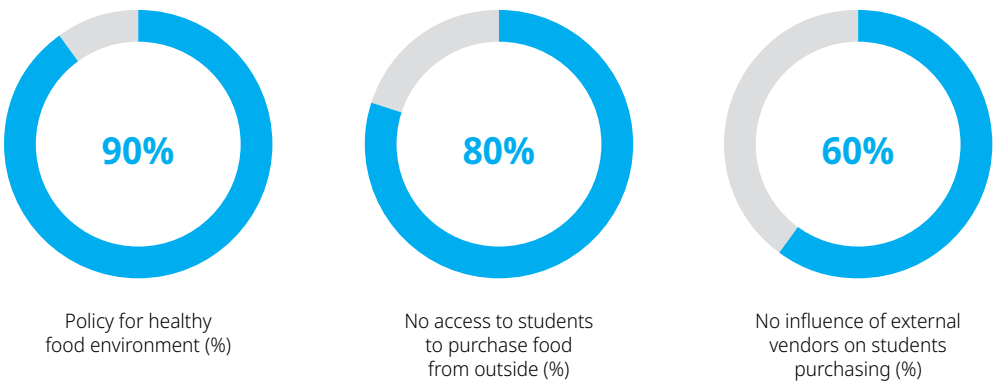
Policy–practice gap in school food environment

About 90 per cent of schools reported having policies to promote healthy eating, including regular nutrition awareness sessions, banning junk/unhealthy food in canteens, serving seasonal and local meals, displaying posters on healthy eating, promoting zero food waste, regulating foods sold or marketed in and around schools, and addressing the presence of street vendors near school premises.

However, implementation of these policies was inconsistent. None of the schools reported having a kitchen garden. In most schools (80 per cent), students were not allowed to purchase food from shops outside school premises (*see Figure 2*), while 20 per cent permitted such purchases.

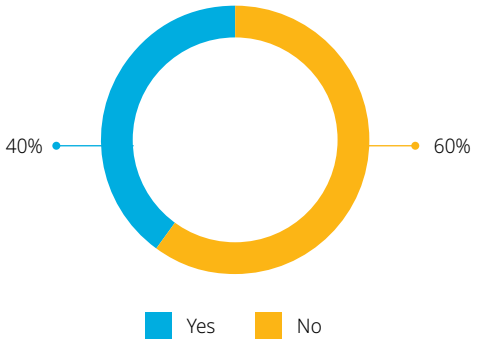
Four schools (40 per cent) reported that external vendors influenced students' food choices, with HFSS foods being sold near schools after school hours. The continued availability of unhealthy foods in canteens and surrounding areas indicates weak enforcement of existing policies (*see Figure 3*).

Figure 2: School policies for healthy food environment



No food or beverage promotion or visible branding by food companies was observed in any of the schools visited, indicating that students' exposure to direct food marketing within school premises was minimal.

Figure 3: Sale of HFSS foods outside schools



Strong role of teachers in nutrition promotion

Across all schools, teachers were actively involved in monitoring lunchboxes, reinforcing healthy eating messages and guiding students – demonstrating their critical role as enablers of behaviour change.

Gaps in nutrition and health services

No school reported providing IFA supplementation. Deworming services were inconsistent and available in only three schools (*see Table 8*). In the assessment, 9 out of 10 schools reported having equipment for measuring students' height and weight. Referral mechanisms for malnutrition were present but irregular and weakly implemented; four schools reported no referral to local health facilities, two reported infrequent referral only, and four always referred students to local health facilities.

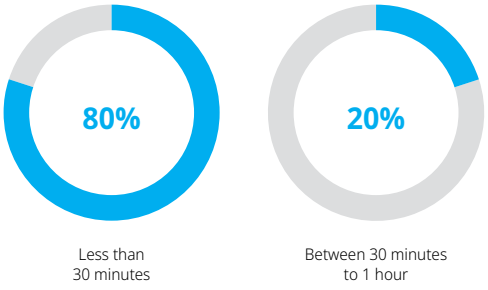
Table 8: IFA supplementation and deworming services in schools

Service provided	(n=10)
IFA supplementation	0
Deworming services	3

Nutrition education: present but limited in intensity

Most schools provided nutrition education on healthy eating, nutrients and food groups through teachers or school staff. However, time allocation was minimal – less than 30 minutes per week in most schools – limiting its potential impact (*see Figure 4*).

Figure 4: Duration of nutrition education per week



Physical activity: adequate infrastructure but declining participation with age

Participation in at least 150 minutes of physical activity per week was reported across schools through dedicated sports, dance or physical training periods.

In Grades 1–5, 8 out of 10 schools reported meeting this recommendation; in Grades 6–10, 7 out of 10 did so. In Grades 11–12, only 4 out of 10 schools reported that students achieved the recommended level of physical activity per week. While physical activity infrastructure was generally adequate, two schools reported challenges related to limited space and the quality or accessibility of equipment (*see Table 9*).

Table 9: Availability of sports or physical activity equipment and space in schools

Physical activity facilities	n
Equipment	
Equipment present	7
Equipment present but poor quality or limited access	2
No equipment	1
Space	
Sufficient space (playground and courts)	8
Limited space (no playground or courts)	2
Total	**10**

WASH: basic access with quality gaps

All schools had access to toilets and drinking water. However, 30 per cent reported partially functional toilets and 20 per cent experienced insufficient water supply. Clean handwashing facilities with soap were available in 70 per cent of schools, indicating gaps in the quality and maintenance of WASH infrastructure despite overall availability.

Student attitudes and perceptions

Student perceptions reflect environmental gaps

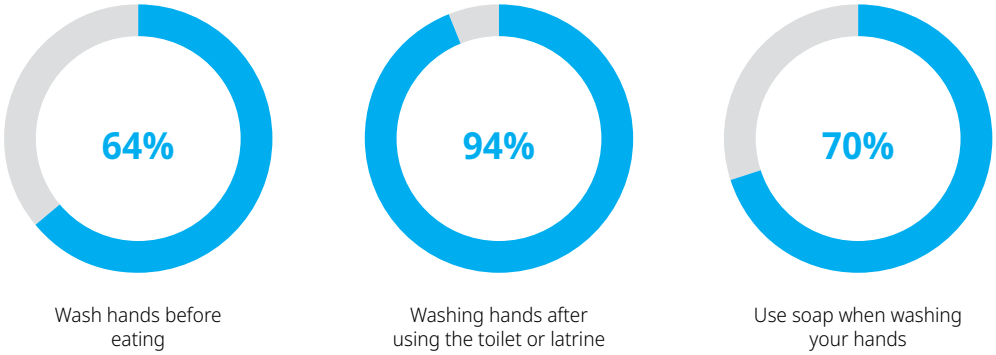
Students reported high access to drinking water (80 per cent) and to opportunities for physical activity. However, availability of healthy food options within schools was perceived to be low (20 per cent). Despite this, students expressed strong support for healthy school policies, including provision of nutritious meals, daily physical activity and restrictions on advertising of unhealthy foods (*see Table 10*).

Table 10: Attitudes and perceptions of students towards school food and physical activity environment

Statements	Strongly agree/ Agree (%) (n=324)
School food and physical activity environment	
My school provides healthy and nutritious food	17 (55)
I can buy healthy foods at my school if I wish to	20 (65)
There are food logos or pictures for food and drink companies around my school	28 (90)
If fewer people sold junk/unhealthy food outside my school, it would be easier for me and my friends to eat healthy	30 (98)
I have access to clean and safe drinking water at school	80 (259)
I use the school garden to grow food	4.5 (16)
My school gives me opportunities to play sport	79 (256)
I have enough space to run and play at my school	81 (265)
When I am at school, I learn about how to eat a healthy diet	65 (212)
Attitudes towards school health policies	
All children should receive free meals at school	47 (153)
Meals given at school should be healthy and good for us	68 (222)
All foods sold to children in school should be healthy and nutritious	62 (202)
Healthy food should be sold at a low price in school	64 (206)
Advertisements for junk/unhealthy food or drinks should not be allowed inside schools (e.g., posters or logos)	65 (212)
Advertisements for junk/unhealthy food or drinks should not be allowed near school gates	55 (178)
Big food companies should not give free branded items to schools (e.g., chips or soda brands on school materials)	52 (169)
All students should do some physical activity every day	87 (282)
Schools should teach us more about healthy eating	84 (271)

Note: *Responses were recorded using a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree).

Figure 5: Sanitation and hygiene practices followed by adolescents in the last 30 days



Sanitation facilities and hygiene practices in schools

All 10 schools reported having toilet facilities. Functional toilets were fully available in seven schools, while three schools had only partially functional toilets.

Water inside or immediately outside toilets was reported in nine schools, and handwashing stations were available in nine schools. Of these, seven had clean handwashing facilities equipped with soap and water.

Handwashing after toilet use was reported by 94 per cent of students. However, only 64 per cent reported always washing hands before meals (*see Figure 5*), indicating scope for improvement in hand hygiene practices.

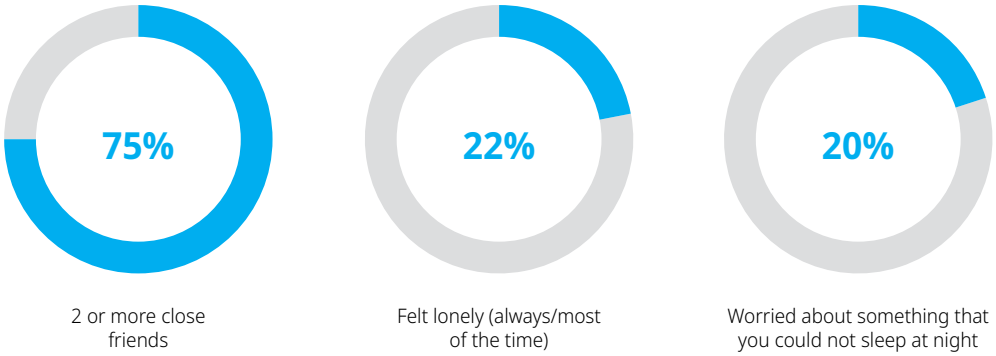
Awareness of plastic use and climate change

Most respondents demonstrated high awareness of the health and environmental hazards associated with plastic use, with 86 per cent agreeing that plastic waste causes health hazards and the same proportion recognizing the risks of storing hot food in plastic containers.

However, gaps in knowledge were observed. A minority (15 per cent) believed that plastics are biodegradable, and fewer than half were aware of recycling options (46 per cent) or fines for violating plastic bans (45 per cent). Despite these gaps, there was strong support for reducing plastic bag use (79 per cent), banning plastic bags (76 per cent) and raising awareness about harmful chemicals (79 per cent).

Most respondents (79 per cent) recognized climate change as a serious threat to both humans and the natural environment, and 75 per cent felt it endangers both. However, perceptions varied: 50 per cent believed that climate change can be controlled, while 30 per cent considered the threat exaggerated and 22 per cent viewed it as beneficial.

Figure 6: Mental health status of adolescents in the past 12 months



Emerging mental health concerns

While most students had strong peer networks, around 20–22 per cent reported experiencing loneliness and sleep disturbances (*see Figure 6*), highlighting the need to integrate mental health into school health frameworks.

Dietary patterns and diversity

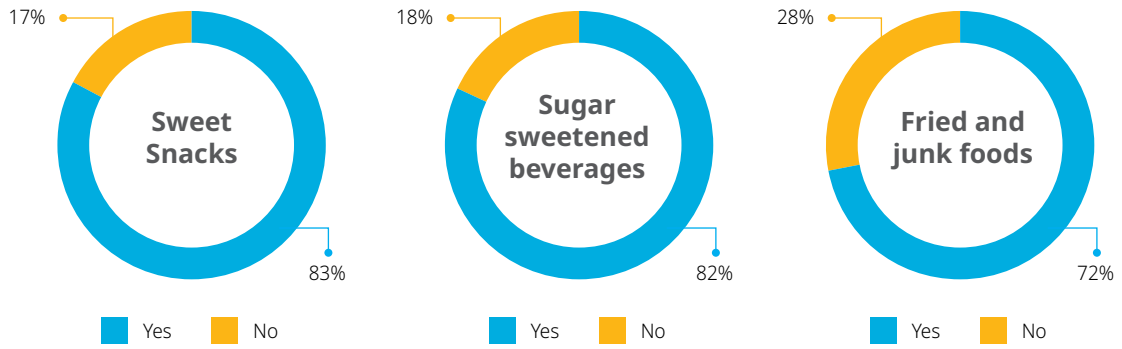
Students reported high consumption of grains, dairy products and vegetables (more than 90 per cent for each) alongside low intake of dark green leafy vegetables and animal-source foods (*see Table 11*). Despite these imbalances,

Table 11: Consumption of food items by adolescents classified by food group as per the Dietary Quality Questionnaire

Food groups	%	n
Grains, roots and tubers	99	322
Pulses	80	260
Nuts and seeds	62	202
Dairy products	98	318
Flesh foods	12	38
Eggs	16	53
Dark green leafy vegetables	35	114
Vitamin A-rich fruits and vegetables	83	269
Other vegetables	92	297
Fruits	72	233

Food groups	%	n
Unhealthy food groups	**%**	**n**
Sweets	83	270
Fried/junk/unhealthy foods	72	234
Beverages	82	265

Figure 7: Unhealthy food consumption in students



dietary diversity was relatively high: the mean dietary diversity score (number of food groups consumed out of 10) was 6.5 (SD: 1.4), and 93 per cent of students consumed five or more food groups. No significant differences were observed by gender.

Unhealthy food consumption captured by the Dietary Quality Questionnaire was high among adolescents (see Figure 7). More than four in five students reported consuming sweets (83 per cent) and beverages (82 per cent), while nearly three in four consumed fried or junk/unhealthy foods (72 per cent). This pattern indicates a widespread preference for HFSS foods.

Discussion

This study focused on the adaptation and field testing of the Nutrition Environment Assessment Toolkit for Schools (NEAT-S) for the Indian context alongside an assessment of school nutrition environments. The adaptation process ensured that the tool was culturally relevant, policy-aligned and operationally feasible. Stakeholder consultations contributed to refining terminology, incorporating locally relevant food examples and aligning domains with national guidelines such as the Dietary Guidelines for Indians and FSSAI school regulations. The inclusion of additional domains – WASH, environmental sustainability and mental health – strengthened the comprehensiveness of the tool in capturing emerging determinants of child health.

Pre-testing demonstrated that the adapted NEAT-S was easy to administer, well-structured and acceptable to school stakeholders. The clarity of language, logical flow of questions and use of contextual examples facilitated smooth data collection with minimal burden on respondents. These findings indicate that the tool is suitable for large-scale use in Indian school settings and can generate actionable insights for policy and programmatic interventions.

Findings from the tool administration highlight important gaps in school nutrition environments. Although many schools reported having policies to promote healthy eating, implementation was inconsistent. HFSS foods continue to be widely available within school premises and surrounding areas, thereby influencing students' dietary behaviours. This is of concern in light of the provisions proposed under the Food Safety and Standards (Safe Food and Balanced Diets for Children in School) Regulations, 2020,[17] which seek to restrict the sale and marketing of HFSS foods in and around schools.

The proposed regulations include specific provisions that place responsibility on school authorities and vendors. Sub-regulation (5) of Regulation 3 states: "The School Authority shall ensure that no person shall sell or offer for sale including free sale, or permit sale, of food products high in saturated fat or trans-fat or added sugar or sodium in school premises or campus." Similarly, sub-regulation (1) of Regulation 5 states: "No person shall advertise or market or sell or offer for sale including free sale, or permit sale of, food products high in saturated fat or trans-fat or added sugar or sodium in school campus or to school children in an area within 50 metres from the school gate in any direction."

However, these provisions have not yet been formally notified and mandated for implementation by the government. The absence of mandatory enforcement mechanisms may explain the continued

unrestricted sale and availability of HFSS foods within school canteens and surrounding areas observed in this study. The proposed regulations should be formally notified and effectively implemented to strengthen accountability among school authorities and food vendors. This should be supported by robust monitoring and enforcement mechanisms to reduce the availability of HFSS foods in and around schools and promote healthier school food environments for children and adolescents.

These observations are consistent with global and national evidence indicating a shift towards unhealthy dietary patterns and increasing consumption of HFSS foods among children and adolescents.[18,19] Similar studies have shown that food environments in and around schools play a critical role in shaping dietary choices.[20,-22] Assessments of school food environments across several countries have identified important gaps that have guided policy improvements. Fiji (13) reported limited availability of nutritious foods in schools, while Mongolia (13) identified gaps in school nutrition standards and nutrition education. Viet Nam (13) highlighted the need for stronger national school nutrition standards and clearer guidance on foods sold within and around schools. Indonesia (14) emphasized the need to improve school food and physical activity environments, and Sri Lanka (15) identified weaknesses in school canteen guidelines and monitoring systems, which subsequently informed government policy reforms. These findings underscore the importance of strengthening enforcement of existing regulations, particularly those related to HFSS food restrictions and school food safety standards.[23-25]

The adapted tool also captured gaps in nutrition education and school-based health services. While nutrition education was present, it was often limited in duration and largely teacher-led, with minimal use of interactive approaches. Evidence suggests that participatory and technology-enabled methods are more effective in improving knowledge and behaviours.[3,26,27] Similarly, essential services such as IFA supplementation, deworming and growth monitoring were inconsistently implemented, particularly in private schools, reflecting broader systemic challenges reported in earlier studies.[28]

The expanded scope of the adapted NEAT-S also enabled assessment of additional determinants such as WASH infrastructure, dietary diversity and marketing influences. While basic WASH facilities were available in most schools, issues related to maintenance and functionality persisted.[29] Dietary findings indicated that although diversity was relatively adequate, consumption of fruits and nutrient-rich foods was low and intake of fried and processed foods was high, consistent with national evidence.[30,31]

Overall, the findings demonstrate that the adapted NEAT-S is effective in capturing the multidimensional nature of school nutrition environments – spanning policy, infrastructure, behaviour and other

emerging factors. The study highlights a clear gap between policy intent and on-the-ground implementation, pointing to the need for stronger monitoring, improved compliance and integrated school health approaches.

The study is limited by its focus on purposively selected private schools in two districts of Uttar Pradesh, which may affect the generalizability of findings. Additionally, reliance on self-reported data may introduce reporting bias.

Conclusion

The adapted NEAT-S provides a comprehensive, context-specific and feasible tool for assessing school nutrition environments in India. Its application can support evidence-based decision-making and guide interventions aimed at improving child nutrition, health behaviours and overall school environments.

Recommendations

At the national level

Policy recommendations

1. A standardized regulatory definition of HFSS foods should be developed and formally adopted by FSSAI to ensure clarity, uniformity and consistency in the implementation, monitoring and enforcement of regulations and advertising restrictions related to unhealthy foods in India.

2. The Government should notify and immediately operationalize the pending provisions and sub-regulations under the FSSAI *Food Safety and Standards (Safe Food and Balanced Diets for Children in School) Regulations, 2020* – particularly Regulation 3(5), which mandates that school authorities ensure no person sells or permits the sale of foods high in saturated fat, trans-fat, added sugar or sodium within school premises or campuses, and Regulation 5(1), which prohibits the advertisement, marketing, sale or offering for sale of such food products within school campuses and within a 50-metre radius of school gates.

3. The Ministry of Education and the Ministry of Health and Family Welfare should issue a joint directive to institutionalize structured, skill-based nutrition education within the school timetable for Grades 1–12, with a minimum allocation of 45–60 minutes per week. The curriculum – across all different type of boards – should be aligned with the *Dietary Guidelines for Indians, 2024,* and the *National Education Policy (NEP) 2020,* and should include age-appropriate skill-based learning on healthy diets, food label interpretation, food systems awareness and informed food choices, complemented by practical school-based initiatives such as Sugar, Oil and Salt Boards and other nutrition literacy activities.

Implementation recommendations

4. Enforcement of the FSSAI *Food Safety and Standards (Safe Food and Balanced Diets for Children in School) Regulations, 2020,* should be strengthened through standardized statewide compliance checklists for mandatory display of HFSS food prohibition signage in and around schools, clearly defined institutional responsibilities, routine monitoring and inspections, and penalties for non-compliance based on the *Ten-Point Charter for Food Supplied to School Children, 2020.* A structured benchmarking system for school food environments, including star ratings across all school canteens, should be established.

5. All direct and indirect marketing of HFSS foods to children under 18 should be prohibited, including the sponsorship of school events, sports activities and digital platforms by such brands, thereby extending the scope

of the existing Regulation 3(5) provisions beyond their current limitations.

6. All relevant notifications, circulars, advisories and regulations issued by FSSAI and other concerned government departments related to school food environments, HFSS food restrictions, food safety and nutrition standards should be mandatorily disseminated to all schools and SMCs, including to parents, to ensure awareness, compliance and uniform implementation across educational institutions.
7. Existing initiatives such as Sugar Boards, Oil Boards and other nutrition literacy activities should be scaled up and mandatorily extended across all types of schools in India to strengthen practical nutrition awareness and promote healthier food choices among students.

Monitoring and evaluation recommendations

8. Periodic assessment of school food environments through NEAT-S should be institutionalized as a routine state-level monitoring mechanism – conducted at least annually – to evaluate exposure to HFSS foods, menu quality, food safety and hygiene standards, and gaps in the implementation of nutrition-related services within schools. These assessments should be aligned with existing national frameworks and initiatives, including the Swachh Evam Harit Vidyalaya Rating, UDISE+, Eat Right India, Rashtriya Bal Swasthya Karyakram 2.0 and the Ayushman Bharat School Health and Wellness Programme (SHWP), with integration of indicators related to school food environments and nutrition practices to enable benchmarking, accountability and continuous improvement.
9. The Government should mandate the development and annual implementation of a standardized Health and Nutrition Report Card for all students to assess and monitor key indicators related to nutritional status, dietary practices, physical activity, fitness, growth and overall health. The report card should serve as a systematic mechanism for the early identification of health and nutrition risks, monitoring of student well-being by both school authorities and parents, strengthening of school health services and promotion of accountability for healthy school environments.

At the school level

10. In alignment with the FIT India Mission and the Ayushman Bharat School Health and Wellness Programme, all schools should ensure a minimum of 60 minutes of daily structured physical activity for students, including those in Grades 11–12, through mandatory integration within the school schedule. Specific measures should be instituted to promote equitable participation of girls, alongside regular fitness assessment, monitoring and certification mechanisms.

11. In collaboration with SMCs, schools should implement structured parent and family engagement programmes through PTMs, including at least two family nutrition sessions per year, to strengthen home and school food environments by promoting healthy lunchbox practices, nutritious home diets, adherence to IFA supplementation and deworming, and awareness of the risks associated with HFSS foods and children's exposure to digital food marketing.
12. School authorities not currently covered under government school supplementation programmes – including those in private and unaided schools – should be encouraged to extend IFA supplementation and deworming services to students through public–private partnerships and collaboration with relevant government departments, health care institutions, civil society organizations and development partners.
13. School canteens should undergo comprehensive reform, replacing fried and packaged food options with alternatives such as fresh fruits, traditional snacks, sprouts, nuts, buttermilk, millets and whole grains. Pricing mechanisms should be structured to ensure that nutritious choices are consistently more affordable than unhealthy ones, encouraging students to opt for healthier options. Schools should introduce dedicated healthy meal days or a designated healthy snack corner to normalize healthy eating. Additionally, all canteen service providers should hold a valid FSSAI licence and be required to undergo annual food safety training to uphold hygiene, quality and accountability standards.

Table 12: Priority action summary

S. No.	Recommendation summary	Lead department/agency responsible
1	Develop and formally adopt a standardized regulatory definition of HFSS foods for uniform implementation and enforcement	FSSAI, Ministry of Health and Family Welfare (MoHFW)
2	Notify and operationalize pending provisions under the FSSAI Safe Food and Balanced Diets for Children in School Regulations, 2020, including HFSS restrictions within and around schools	FSSAI, state food safety departments, Ministry of Education (MoE)
3	Institutionalize structured nutrition education (45–60 minutes per week) across Grades 1–12, aligned with the Dietary Guidelines for Indians and NEP 2020	MoE, MoHFW, SCERTs/NCERT, other school boards
4	Strengthen enforcement of school food regulations through compliance checklists, inspections, penalties and school food environment benchmarking/star ratings	FSSAI, state food safety authorities, school education departments
5	Prohibit all direct and indirect HFSS food marketing to children under 18, including sponsorships and digital marketing	Ministry of Information and Broadcasting, FSSAI, Ministry of Consumer Affairs, Food and Public Distribution
6	Mandatorily disseminate all food safety, nutrition and HFSS-related advisories and regulations to schools and SMCs	FSSAI, state education departments, SMCs
7	Scale up Sugar Boards, Oil Boards and nutrition literacy activities across all schools	MoE, FSSAI, state education departments
8	Institutionalize annual NEAT-S-based monitoring of school food environments integrated with national school health frameworks	MoHFW, MoE, FSSAI, state governments
9	Develop and implement annual standardized Health and Nutrition Report Cards for all students	MoHFW, MoE, school health programme authorities
10	Ensure a minimum of 60 minutes of daily structured physical activity for all students, including those in Grades 11–12	MoE, school authorities, FIT India Mission
11	Conduct structured parent and family engagement programmes through PTMs and family nutrition sessions	School authorities, SMCs, parent associations
12	Extend IFA supplementation and deworming services to private and unaided schools through partnerships	MoHFW, state health departments, school authorities
13	Reform school canteens by promoting healthier food choices, affordable nutritious options, healthy snack corners and mandatory food safety licensing and training	School authorities, FSSAI, state food safety departments

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Annexures

Annexure 1: Interview guide for subject matter experts (academicians, experts, nutritionists)

1. What are your views on the current state of the school nutrition environment in India?
2. How effective do you think current school nutrition policies are in improving students' nutritional health in India?
3. In your opinion, what are the major factors influencing the school food environment in India?
4. How do you assess the role of physical activity within the school nutrition environment, and what measures should be taken to promote physical health in schools?
5. What role do you believe parents and caregivers play in shaping the school nutrition environment?
6. How do you perceive the impact of food marketing (for example, advertising of unhealthy food) around schools on student eating behaviours?
7. What kind of support or resources do you think the government and educational bodies need to provide to improve the school nutrition environment?
8. In your opinion, what would be the ideal way to monitor and evaluate the success of school nutrition interventions over time?
9. What changes or additions would you suggest to adapt the NEAT-S toolkit to better suit the Indian school context?
10. How can the NEAT-S toolkit be culturally and contextually adapted to effectively assess and improve the school nutrition environment in India?

Annexure 2: Interview guide for school-level stakeholders (principals, teachers and administrative staff)

1. What is your perspective on nutritious food and the significance of policies aimed at providing healthy meals for children? How do you ensure that these policies are consistently implemented and monitored in your school?
2. How does the food provided in your school align with established nutritional standards and guidelines (e.g., national, local, or international)? Can you describe any systems in place to ensure compliance?
3. In your experience, how does the school food environment influence students' decisions to consume unhealthy foods? Have you noticed any trends or behaviours among students in this regard?
4. What strategies are in place to prevent exposure to unhealthy food marketing within and around the school? How effective do you think these measures are?
5. What challenges do you face in maintaining a healthy school food environment? How do these challenges affect students' health, and what steps are taken to address them?
6. What are the key nutrition services provided to students in the school (e.g., supplementation, deworming)? How are these services implemented and monitored?
7. What measures are in place to ensure that students receive adequate and engaging physical activity? Are there any challenges in promoting daily physical exercise?
8. What measures are in place at your school to reduce plastic usage and promote environmental sustainability, and how do these initiatives contribute to the students' awareness of climate change?
9. Do you have any suggestions or comments regarding the components covered under the NEAT-S toolkit?
10. How well does the NEAT-S toolkit align with Indian school settings, and what adaptations would make it more practical for your school?

Annexure 3: Interview guide for parents

1. Are you aware of any food services or supplementary nutrition programmes provided by the school, such as meals, snacks, iron supplementation, or deworming initiatives? How do you think these services impact your child's health and academic performance?
2. How do you think the availability of unhealthy food (if any) around the school premises impacts your child's choices? Are there any changes you would suggest to the school's food environment?
3. What is your opinion about your child purchasing unhealthy food (e.g., chips, sweets) from nearby vendors or the school canteen? Do you voluntarily give your child pocket money to buy food available at or around the school, or do they ask for it?
4. What are the ways you ensure your child is not consuming unhealthy food when at school, and how do you feel about the role of the school in ensuring children avoid unhealthy foods?
5. How do you ensure that your child makes healthy food choices at school and outside?
6. Does your child engage in school-organized physical activities or sports? How do you ensure your child remains physically active outside of school hours?
7. What are the ways a school can effectively educate children about nutrition, and how do you think these activities impact children's understanding and attitudes towards healthy eating?
8. What steps can the school take to promote environmental sustainability, such as reducing plastic use or addressing climate change?

Annexure 4: NEAT-S toolkit – short version for schools with meal programmes

A. Direct observation questionnaire – administered by data collector

Data collector name:	
School name:	
School location:	
Date and time:	dd/mm/yyyy
	mm/hh

Institutional information

1.	**School type**	
	Primary school (Grades 1–5)	☐
	Middle school (Grades 6–8)	☐
	Secondary school (Grades 9–10)	☐
	Senior secondary school (Grades 11–12)	☐
2.	**School management**	
	Government	☐
	Private	☐
	Boarding/residential	☐
	Other (specify):	☐
3.	**School location**	
	Urban/city area	☐
	Rural area	☐
	Tribal	☐
	Other (specify):	

4.	**Is the school for boys, girls or both?**	☐
	Boys only	☐
	Girls only	☐
	Both boys and girls (co-educational)	☐

Domain 1: Nutritious foods in schools

Note for the data collector:

Nutritious foods in schools includes school meal programmes provided by the school (not sold through canteens, etc.), the standards for these (including fortification) and the use of local supply chains (including private and public sectors) for school meal provision.

1.	**Does the school have a menu chart for meals and/or snacks?**	
	a. Yes	☐
	b. No	☐
	If yes, please describe:	

2.	**Did the meal and/or snack programme today include the following? (check all that apply)**		
		Meals	**Snacks**
	a. Fruits	☐	☐
	b. Vegetables	☐	☐
	c. Green leafy vegetables	☐	☐
	d. Wholegrains	☐	☐
	e. Pulses	☐	☐
	f. Milk and milk products	☐	☐
	g. Eggs	☐	☐
	h. Meat and meat products (animal source)	☐	☐
	i. Sugary drinks (fruit drinks with less than 100% juice, flavoured milk, etc).	☐	☐
	j. Deep-fried foods (e.g., chips, pakoras, samosas, etc.)	☐	☐
	k. Salty packaged foods (e.g., instant noodles, wafers, crisps, etc.)	☐	☐
	l. Sweet packaged foods (e.g., candy, cake, ice cream, etc.)	☐	☐

If the meals are prepared on the school premises, complete Question 3. If the meals are obtained from an external vendor, skip to Question 4.

3.	Please indicate whether the following are available and adequate for preparing meals/snacks in school:	Yes	No	Not sure
	a. Pots, pans and utensils	☐	☐	☐
	b. Ovens/stoves for cooking	☐	☐	☐
	c. Fridges/cold storage	☐	☐	☐
	d. Safe water for cooking	☐	☐	☐
	e. Clean food preparation areas	☐	☐	☐
	f. Areas to separate cooked and raw ingredients	☐	☐	☐
	g. Trained kitchen staff for food preparation	☐	☐	☐
	h. Adequate kitchen space	☐	☐	☐
	i. Hygienic waste disposal mechanisms	☐	☐	☐
	j. Food is always properly covered to protect from flies and dust	☐	☐	☐
	k. Food handlers/cooks have trimmed and clean fingernails	☐	☐	☐
	l. Food handlers/cook wear clean clothing or aprons and head cover while preparing/serving food	☐	☐	☐
	m. Food handlers/cook wash their hands with soap and water before preparing or serving food	☐	☐	☐
	n. There is no evidence of pests (e.g., cockroaches, rats, ants) in the kitchen	☐	☐	☐
	o. Perishable foods are stored at appropriate temperatures (e.g., not left out at room temperature)	☐	☐	☐
	p. Utensils and dishes are air-dried or dried with clean towels after washing	☐	☐	☐
	q. Drinking water is stored in clean, covered containers	☐	☐	☐
	r. Waste bins in the kitchen are covered and emptied regularly	☐	☐	☐

4.	How are school meals (breakfast, lunch, snacks) handled from preparation to consumption?	
	Not applicable ☐	
	a. Transport	☐ Meals are freshly cooked and delivered just before serving ☐ Meals are delivered daily in the morning, stored, reheated, then served ☐ Meals are delivered once a day in insulated utensils and served directly without reheating
	b. Storage	☐ No storage; food is used immediately ☐ Stored in the kitchen and reheated before serving ☐ Stored in insulated utensils and served directly

	c. Serving location	☐ Dining hall, with students eating in batches ☐ Large hall, with all students eating together ☐ Students carry meals from the kitchen to classrooms ☐ Served directly in classrooms ☐ Students eat in open areas (no dedicated eating facility)
	d. Utensils	☐ Separate utensils for each meal ☐ Limited utensils reused after cleaning for the next meal ☐ No serving utensils (meals provided in insulated units, ready to eat)
	e. Washing of utensils	☐ Washed after every use and reused ☐ Rinsed with water only and returned to the provider ☐ Washed with soap and water in the kitchen and returned to provider
	f. Leftover food	☐ Cooked fresh daily; no leftovers ☐ Leftovers taken home by kitchen staff ☐ Leftovers distributed in the community

Domain 2: Healthy school food and physical activity environments

Note for the data collector:

Marketing is defined as any form of commercial communication of messages that are designed to, or have the effect of, increasing the recognition, appeal and/or consumption of particular products, brands or services. Marketing includes, but is not limited to, advertising, sponsorship, direct marketing (e.g., giveaways), product placement and the visible placement of brand logos.

Branding is defined as the visible presence of food or beverage company logos (whole or partial) within school grounds, on school infrastructure or on school materials.

5.	**Are there any visible food or beverage company logos or branding displayed within the school grounds?**	
	a. Educational materials	☐
	b. Academic awards	☐
	c. Sports awards	☐
	d. Sports or school uniforms or equipment	☐
	e. School infrastructure (e.g., vending machines, fridges/freezers)	☐
	f. Other (add detail)	☐
	g. There is no visible food or drink sponsorship or gifts in the school	☐
	Please add detail on what, where and how brand/s are visible:	

6.	**Do food and drink companies promote their brands and foods in this school through any of the following? (check all that apply)**	
	a. Free giveaways	☐
	b. Use of cartoon characters	☐
	c. Celebrity endorsements	☐
	d. Advertising (posters, banners)	☐
	e. Price discounts	☐
	f. School meals/snacks programmes	☐
	g. Visible logos	☐
	h. There is no food or drink promotion in the school	☐
	Please provide details on what brands are promoted and how:	
7.	**When walking the perimeter of the school (where possible), is the sale of foods high in fats, salt and sugar (HFSS) visible outside the school gate within 50 metres?**	
	a. Yes	☐
	b. No	☐
	c. There are no foods or drinks available for sale around the perimeter of the school	☐
8.	**Is there a signboard at the school gate(s) warning against the sale, advertisement or marketing of HFSS foods in or around the school premises?**	
	a. Yes, clearly visible	☐
	b. No	☐
	c. Installed but not prominent	☐
9.	**Is a kitchen garden available in the school?**	
	a. Yes (add detail below)	☐
	b. No	☐
	Please provide details on how school garden produce is used (e.g., for student consumption at school, use in school meals):	

Note for the data collector:

Safe drinking water is water regularly assessed against the WHO 'Guidelines for Drinking Water Quality' to ensure it is safe for drinking. Drinking water should be free from harmful germs and dangerous levels of chemicals, as set by WHO guidelines, and should be regularly checked to ensure it remains safe for drinking.[1]

[1] World Health Organization. Guidelines for drinking-water quality: fourth edition incorporating the first and second addenda [Internet]. Geneva: World Health Organization; 2022 [cited 2025 May 13]. Available from: https://www.who.int/publications/i/item/9789240045064

10.	**Do students have access to free and safe drinking water today (on the day of the assessment)?**	
	a. No	☐
	b. Yes, safe drinking water is available, but there is not enough to meet the needs of students and staff.	☐
	c. Yes, safe drinking water is available, but it is not regularly assessed for quality and safety.	☐
	d. Yes, safe drinking water is available, it meets the needs of students and staff and is regularly assessed for quality and safety.	☐

Note for the data collector:

Physical activity facilities: Sports, fitness or play equipment with an intended use for physical activity (e.g., skipping ropes, balls) and sporting grounds (e.g., football fields, basketball courts).

Physical activity space: Open-air, cleared space where students can participate in physical activity, including running and playing.

11.	**Does this school have access to a range of sports or physical activity equipment (balls, rackets, athletic equipment, nets etc.) and facilities accessible to all students?**	
	a. Yes	☐
	b. Yes, but poor quality or limited access	☐
	c. Unavailable	☐
12.	**Does this school have sufficient physical activity space accessible to all students?**	
	a. Yes, sufficient physical activity space is accessible to all students	☐
	b. Yes, but space is limited for students to run around	☐
	c. Unavailable	☐

B) Questionnaire for school administrators

Data collector name:	
School name:	
School location:	
Date and time:	dd/mm/yyyy
	mm/hh
Participant's name:	

1.	**Who is answering the questions today? (position at school; select all that apply)**	
	a. School principal or director	☐
	b. Health counsellor or other staff responsible for the daily preparation of school meals	☐
	c. Teacher or other staff responsible for nutrition education	☐
	d. Headmaster/headmistress	☐
	e. Other (add detail)	☐

Domain 1: Nutritious foods in schools

Nutritious foods in schools include school meals or snack programmes provided by the school (not sold through tuck shops, canteens etc.), the standards for these (including fortification), and the use of local supply chains (including private and public sectors) for school meal or snack programme provision.

2.	**Does your school refer to ICMR-NIN (National Institute of Nutrition) guidelines when planning the menu for school meals? (For example: including a mix of cereals, pulses, vegetables, fruits and milk; limiting fried or processed foods; ensuring portion sizes are age-appropriate)**	
	a. Yes	☐
	b. No	☐
	c. Don't know	☐
3.	**Does your school conduct regular inspections to monitor food hygiene and quality in kitchens?**	
	a. Yes	☐
	b. No	☐
	If yes, please mention frequency:	
	Weekly ☐ Fortnightly ☐ Monthly ☐ Quarterly ☐ Any other ☐	

4.	**Has your school appointed a Health and Wellness Ambassador or team to oversee food safety and health promotion?**	
	a. Yes	☐
	b. No	☐
	c. In process	

Domain 2: Healthy school food and physical activity environments

Healthy school food and physical activity environments refers to the spaces, infrastructure and conditions inside and around the school premises where food is available, obtained, purchased and/or consumed, and which influence students' physical activity.

5.	**Does your school participate in any policy related to healthy food environments or physical activity?** (e.g., regular nutrition awareness sessions, banning unhealthy food in the canteen, serving seasonal/local meals, displaying posters on healthy eating, promoting zero food waste, setting rules on foods that can be sold or marketed in and around the school, and addressing the presence of street vendors near the school)	
	a. Yes	☐
	b. No	☐
	If yes, please provide details on policy name/s and scope:	
6.	**Are students allowed to purchase meals or snacks from food stores outside school grounds during school hours?**	
	a. Yes	☐
	b. No	☐

7	**Please indicate the average time spent in school-organized physical activity per week and the approximate percentage of students participating in scheduled physical activity sessions.**	
	Grade group	**Approximate % of Students Participating** **60 minutes/day**
	a. Grades 1–5	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%
	b. Grades 6–8	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%
	c. Grades 9–10	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%
	d. Grades 11–12	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%
	e. Organized physical activity is not offered	☐

Domain 3: Nutrition services in school

Definitions of key terms:

- **Stunting:** Height-for-age Z-score (HAZ) of less than minus two standard deviations (-2 SD) from the median value of the WHO Reference standard (low height-for-age)[2]
- **Wasting/thinness:** Body mass index (BMI) less than two standard deviations below the median, according to the WHO Reference standards (low weight-for-age and height)[3]
- **Overweight and obesity:** Overweight is BMI-for-age greater than one standard deviation above the WHO Growth Reference median; and obesity is greater than two standard deviations above the WHO Growth Reference median (high weight-for-height)[4]

8.	**Does your school have a policy or participate in a programme related to growth monitoring, micronutrient supplementation and/or deworming? If yes, please provide details on programme name/s and scope below.**		
		Yes	**No**
	a. IFA supplementation	☐	☐
	b. Deworming	☐	☐
	c. Height monitoring	☐	☐
	d. Weight monitoring	☐	☐
	e. Any other	☐	☐
	If yes, please provide details including the name of the programme, the target population to whom it is administered, and the administering agency/authority:		
9.	**If a child is identified with an issue related to malnutrition (in all its forms, including wasting, stunting, thinness, overweight or obesity), is the child referred to a local health service?**		
	a. Never	☐	
	b. Rarely	☐	
`	c. Sometimes	☐	
	d. Often	☐	
	e. Always	☐	

[2] Tamrat A, Yeshaw Y, Dadi AF. Stunting and Its Associated Factors among Early Adolescent School Girls of Gondar Town, Northwest Ethiopia: A School-Based Cross-Sectional Study. Biomed Res Int. 2020 Oct 23;2020:8850074.

[3] World Health Organization. Indicator Metadata Registry: Prevalence of thinness among children and adolescents, BMI < -2 standard deviations below the median [Internet]. Geneva: World Health Organization; [cited 2025 May 13]. Available from: https://www.who.int/data/gho/indicator-metadata-registry/imr-details/4805

[4] World Health Organization. Obesity and overweight [Internet]. Geneva: World Health Organization; 2024 [cited 2025 May 13]. Available from: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

Domain 4: Nutrition education in school curriculum

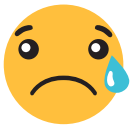
10.	**Who provides nutrition education to students in this school? (check all that apply)**	
	a. A health or nutrition teacher or school nurse trained in nutrition education	☐
	b. Physical training/games/sports teacher	☐
	c. School teacher not trained in nutrition (main subject is not nutrition)	☐
	d. Other (add detail)	☐
	e. Nutrition education is not delivered in this school	☐
11.	**How much time is spent on nutrition education per week?**	
	a. Less than 30 minutes	☐
	b. Between 30 minutes and one hour	☐
	c. Between one hour and 1.5 hours	☐
	d. More than 1.5 hours	☐
12.	**Is nutrition education for parents/community offered at the school?**	
	a. Yes	☐
	b. No	☐
	If yes, indicate frequency • Monthly • Quarterly (every three months) • Biannually (twice a year) • Annually (once a year) • As needed/irregular	 ☐ ☐ ☐ ☐ ☐

C) Attitudes and perceptions of students towards school nutrition environments

School name:	
School location:	
Date and time:	dd/mm/yyyy
	mm/hh
Student name:	
Class and section:	
Gender:	

Please tick your preferred option. (Select only one.)

1. Please tell us whether you agree or disagree with the following statements:

1	2	3	4	5
Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
				

My school provides healthy and nutritious food.	1 2 3 4 5
I can buy healthy foods at my school if I wish to.	1 2 3 4 5
There are food logos or pictures for food and drink companies in and around my school.	1 2 3 4 5
If there were fewer people selling unhealthy food outside my school, it would be easier for me and my friends to eat healthily.	1 2 3 4 5
I have access to clean and safe drinking water, always, when at school.	1 2 3 4 5
I have access to clean and safe toilets at school.	1 2 3 4 5
I can wash my hands with soap and water whenever needed at school.	1 2 3 4 5
I use a kitchen garden at school.	1 2 3 4 5
My school gives me opportunities to play sport.	1 2 3 4 5
I have enough space to run and play at my school.	1 2 3 4 5
When I am at school, I learn about how to eat a healthy diet.	1 2 3 4 5

2. Would you agree or disagree with the following actions?

1	2	3	4	5	6
Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know

All children should receive free meals at school.	1 2 3 4 5 6
Meals if provided at school should be healthy and nutritious.	1 2 3 4 5 6
Advertisement for junk food or drinks should not be allowed inside schools (e.g., posters or logos).	1 2 3 4 5 6
Advertisements for junk food or drinks should not be allowed near school entry and exit gates (e.g., posters, logos or banners).	1 2 3 4 5 6
Big food companies should not give free branded items to schools (e.g., items branded with chips or soda brands).	1 2 3 4 5 6
All students should participate in daily physical activity.	1 2 3 4 5 6
Schools should teach us more about healthy eating.	1 2 3 4 5 6
3. How often do you receive pocket money to buy food at or near school?	☐ Every day ☐ More than once a week ☐ Once a week ☐ Occasionally ☐ Never
4. How much pocket money do you receive? (in ₹)	☐ ₹0–20 ☐ ₹21–50 ☐ ₹51–100 ☐ More than ₹100
5. Where do you usually buy food from?	☐ School canteen ☐ Shops near school ☐ I do not buy food

Annexure 5: NEAT-S toolkit – short version for schools without meal programmes

A. Direct observation questionnaire – administered by data collector

Data collector name:	
School name:	
School location:	
Date and time:	dd/mm/yyyy
	mm/hh

Institutional information

1.	**School type**	
	Primary school (Grades 1–5)	☐
	Middle school (Grades 6–8)	☐
	Secondary school (Grades 9–10)	☐
	Senior secondary school (Grades 11–12)	☐
2.	**School management**	
	Government	☐
	Private	☐
	Boarding/residential	☐
	Other (specify):	☐
3.	**School location**	
	a. Urban/city area	☐
	b. Rural area	☐
	c. Tribal	☐
	d. Other (specify):	

4.	**Is the school for boys, girls or both?**	☐
	a. Boys only	☐
	b. Girls only	☐
	c. Both boys and girls (co-educational)	☐

Domain 1: Nutritious foods in schools

1.	**Does the school have a menu chart for lunchboxes and/or snack boxes?**	
	a. Yes	☐
	b. No	☐
	If yes, please describe:	

2. Observe the lunchboxes of 20 students per school (at least five students per grade) and report the following (select all that apply):

		Lunch box	Snack box
	a. Fruits	☐	☐
	b. Vegetables	☐	☐
	c. Green leafy vegetables	☐	☐
	d. Wholegrains	☐	☐
	e. Pulses	☐	☐
	f. Milk and milk products	☐	☐
	g. Eggs	☐	☐
	h. Meat and meat products (animal source)	☐	☐
	i. Sugary drinks (fruit drinks with less than 100% juice, flavoured milk, etc.)	☐	☐
	j. Deep-fried foods (e.g., chips, pakoras, samosas, etc.)	☐	☐
	k. Salty packaged foods (e.g., instant noodles, wafers, crisps, etc.)	☐	☐
	l. Sweet packaged foods (e.g., candy, cake, ice cream, etc.)	☐	☐

Domain 2: Healthy school food and physical activity environments

Note for the data collector:

If the school does not have a canteen, skip to Question 11.
Healthy school food and physical activity environments refers to the spaces, infrastructure and conditions inside and around the school premises where food is available, obtained, purchased and/or consumed, and which influence students' physical activity.

3.	**Are food and/or drinks sold in this school (e.g., via a canteen or stall)?**	
	Not applicable ☐	
	a. Yes	☐
	b. No	☐

Note for the data collector:

Sugary drinks include all drinks with added sugar (providing ≤10% of energy), including sugar-sweetened carbonated drinks, less than 100% fruit juice and flavoured milk.[5]

Drink powders are drink mixes produced by mixing with a liquid (e.g., 2-in-1 mixes).

Artificially sweetened drinks include those containing artificial sweeteners or non-caloric sweeteners.

100% fruit juice is made entirely from fruit, with no added sugar.

Flavoured water is water sold and marketed with added ingredients including natural or artificial flavours, sugars, sweeteners, vitamins, minerals or other enhancements.

Deep-fried foods are those cooked by deep frying in oil (e.g., chips, pakoras, samosas).

Salty packaged foods are foods containing high amounts of salt (daily intake of salt should be less than 5 g) provided to the school in packaged form (e.g., instant noodles, wafers, crisps).[6]

Sweet packaged foods are foods containing high amounts of added sugar provided to the school in packaged form (e.g., candy, muffins, cakes, ice cream).

[5] National Institute of Nutrition. Dietary Guidelines for Indians – A Manual [Internet]. Hyderabad: National Institute of Nutrition, Indian Council of Medical Research; 2024 [cited 2025 May 13]. Available from: https://www.nin.res.in/dietaryguidelines/pdfjs/locale/DGI07052024P.pdf

[6] National Institute of Nutrition. Tasty Bites [Internet]. Hyderabad: National Institute of Nutrition, Indian Council of Medical Research; [cited 2025 May 13]. Available from: https://www.nin.res.in/ebooks/Tasty_Bites.pdf

4.	**Which of the following drinks and foods are available for purchase at this school today (on the day of the assessment)? (check all that apply)**	
	Not applicable ☐	
	a. Sugary drinks	☐
	b. Drink powders with added sugar	☐
	c. Artificially sweetened drinks	☐
	d. 100% fruit juice	☐
	e. Plain milk	☐
	f. Plain water	☐
	g. Flavoured water	☐
	h. Flavoured milk	☐
	i. Deep-fried foods	☐
	j. Salty foods	☐
	k. Sweet foods	☐
	l. Other (provide details)	☐
5.	**Is fresh fruit available for sale to students today (on the day of the assessment)?**	
	Not applicable ☐	
	a. No	☐
	b. Yes, fresh fruit is available, but the quality is poor or the price is too high.	☐
	c. Yes, fresh fruit is available and the quality is good, but the price is too high.	☐
	d. Yes, fresh fruit is available, the quality is good and it is appropriately priced.	☐

Note for the data collector:

Marketing is defined as any form of commercial communication of messages that are designed to, or have the effect of, increasing the recognition, appeal and/or consumption of particular products, brands or services. Marketing includes, but is not limited to, advertising, sponsorship, direct marketing (e.g., giveaways), product placement and the visible placement of brand logos.

Branding is defined as the visible presence of food or beverage company logos (whole or partial) within school grounds, on school infrastructure or on school materials.

6.	**Are there any visible food or beverage company logos or branding displayed within the school grounds?**	
	a. Educational materials	☐
	b. Academic awards	☐
	c. Sports awards	☐
	d. Sports or school uniforms or equipment	☐
	e. School infrastructure (e.g., vending machines, fridges/freezers)	☐
	f. Other (add detail)	☐
	g. There is no visible food or drink sponsorship or gifts in the school	☐
	Please add detail on what, where and how brand/s are visible:	
7.	**Do food and drink companies promote their brands and foods in this school through any of the following? (check all that apply)**	
	a. Free giveaways	☐
	b. Use of cartoon characters	☐
	c. Celebrity endorsements	☐
	d. Advertising (posters, banners)	☐
	e. Price discounts	☐
	f. School meals/snacks programmes	☐
	g. Visible logos	☐
	h. There is no food or drink promotion in the school	☐
	Please provide details on which brands are promoted and how:	
8.	**When walking the perimeter of the school (where possible), is the sale of foods high in fats, salt and sugar (HFSS) visible outside school grounds within 50 metres?**	
	a. Yes	☐
	b. No	☐
9.	**Is there a signboard at your school gate(s) warning against the sale, advertisement or marketing of HFSS foods in or around the school premises?**	
	a. Yes, clearly visible	☐
	b. No	☐
	c. Installed but not prominent	☐

10.	Is a kitchen garden available in the school?	
	a. Yes (add detail below)	☐
	b. No	☐
	Please provide detail on how school-garden food is used (e.g., for student consumption at school, use in school meals):	

Note for the data collector:

Safe drinking water is water regularly assessed against the WHO 'Guidelines for Drinking Water Quality' to ensure it is safe for drinking. Drinking water should be free from harmful germs and dangerous levels of chemicals, as set by WHO guidelines, and should be regularly checked to ensure it remains safe for drinking.[7]

11.	Do students have access to free and safe drinking water today (on the day of the assessment)?	
	a. No	☐
	b. Yes, safe drinking water is available, but there is not enough to meet the needs of students and staff.	☐
	c. Yes, safe drinking water is available, but it is not regularly assessed for quality and safety.	☐
	d. Yes, safe drinking water is available, it meets the needs of students and staff and is regularly assessed for quality and safety.	☐

Note for the data collector:

Physical activity facilities: Sports, fitness or play equipment with an intended use for physical activity (e.g., skipping ropes, balls) and sporting grounds (e.g., football fields, basketball courts).

Physical activity space: Open-air, cleared space where students can participate in physical activity, including running and playing.

[7] World Health Organization. Guidelines for drinking-water quality: fourth edition incorporating the first and second addenda [Internet]. Geneva: World Health Organization; 2022 [cited 2025 May 13]. Available from: https://www.who.int/publications/i/item/9789240045064

12.	**Does this school have access to a range of sports or physical activity equipment (balls, rackets, athletic equipment, nets, etc.) and facilities accessible to all students?**	
	a. Yes	☐
	b. Yes, but poor quality or limited access	☐
	c. Unavailable	☐
13.	**Does this school have sufficient physical activity space accessible to all students?**	
	a. Yes, sufficient physical activity space is accessible to all students	☐
	b. Yes, but space is limited for students to run around	☐
	c. Unavailable	☐

B) Questionnaire for school administrators

Data collector name:	
School name:	
School location:	
Date and time:	dd/mm/yyyy
	mm/hh
Participant's name:	

1.	**Who is answering the questions today? (position at school; select all that apply)**	
	a. School principal or director	☐
	b. Health counsellor or other staff responsible for the daily preparation of school meals	☐
	c. Teacher or other staff responsible for nutrition education	☐
	d. Headmaster/headmistress	☐
	e. Other (add detail)	☐

Domain 1: Nutritious foods in schools

Nutritious foods in schools include school meals or snack programmes provided by the school (not sold through tuck shops, canteens etc.), the standards for these (including fortification), and the use of local supply chains (including private and public sectors) for school meal or snack programme provision.

2.	**Are teachers encouraged or assigned to regularly observe and discuss the contents of students' lunchboxes, and to share positive messages about healthy eating with students and parents?**	
	a. Yes	☐
	b. No	☐
	If yes, please provide detail:	
3.	**Has your school appointed a Health and Wellness Ambassador or team to oversee food safety and health promotion?**	
	a. Yes	☐
	b. No	☐

Domain 2: Healthy school food and physical activity environments

Healthy school food and physical activity environments refers to the spaces, infrastructure and conditions inside and around the school premises where food is available, obtained, purchased and/or consumed, and which influence students' physical activity.

4.	**Does your school have a policy or participate in a policy related to healthy food or physical activity environments?** (e.g., regular nutrition awareness sessions, banning unhealthy food in the canteen, serving seasonal/local meals, displaying posters on healthy eating, promoting zero food waste, setting rules on foods that can be sold or marketed in and around the school, and addressing the presence of street vendors near the school.)	
	a. Yes	☐
	b. No	☐
	If yes, please provide details on policy name/s and scope:	
5.	**Is information shared with parents about the nutritional quality of foods (snacks or meals) that students bring from home?**	
	a. Yes	☐
	b. No	☐
6.	**Are students allowed to purchase meals or snacks from food stores outside school grounds during school hours?**	
	a. Yes	☐
	b. No	☐
7.	**Please indicate the average time spent in school-organized physical activity per week and the approximate percentage of students participating in scheduled physical activity sessions.**	
	Grade group	**Approximate % of Students Participating** **60 minutes/day**
	a. Grades 1–5	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%
	b. Grades 6–8	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%
	c. Grades 9–10	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%
	d. Grades 11–12	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%
	e. Organized physical activity is not offered	☐

Domain 3: Nutrition services in school

Definitions of key terms:

- **Stunting:** Height-for-age Z-score (HAZ) of less than minus two standard deviations (-2 SD) from the median value of the WHO Reference standard (low height-for-age)[8]
- **Wasting/thinness:** Body mass index (BMI) less than two standard deviations below the median, according to the WHO Reference standards (low weight- for-age and height)[9]
- **Overweight and obesity:** Overweight is BMI-for-age greater than one standard deviation above the WHO Growth Reference median; and obesity is greater than two standard deviations above the WHO Growth Reference median (high weight-for-height)[10]

8.	**Does your school have a policy or participate in a programme related to growth monitoring, micronutrient supplementation and/or deworming? If yes, please provide details on programme name/s and scope below.**		
		Yes	**No**
	a. IFA supplementation	☐	☐
	b. Deworming	☐	☐
	c. Height	☐	☐
	d. Weight	☐	☐
	e. Any other	☐	☐
	If yes, please provide details including the name of the programme, the target population to whom it is administered, and the administering agency/authority		
9.	**If a child is identified with an issue related to malnutrition (in all its forms, including wasting, stunting, thinness, overweight or obesity), is the child referred to a local health service?**		
	a. Never	☐	
	b. Rarely	☐	
`	c. Sometimes	☐	
	d. Often	☐	
	e. Always	☐	

[8] Tamrat A, Yeshaw Y, Dadi AF. Stunting and Its Associated Factors among Early Adolescent School Girls of Gondar Town, Northwest Ethiopia: A School-Based Cross-Sectional Study. Biomed Res Int. 2020 Oct 23;2020:8850074.

[9] World Health Organization. Indicator Metadata Registry: Prevalence of thinness among children and adolescents, BMI < -2 standard deviations below the median [Internet]. Geneva: World Health Organization; [cited 2025 May 13]. Available from: https://www.who.int/data/gho/indicator-metadata-registry/imr-details/4805

[10] World Health Organization. Obesity and overweight [Internet]. Geneva: World Health Organization; 2024 [cited 2025 May 13]. Available from: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

Domain 4: Nutrition education in school curriculum

10.	**Who provides students nutrition education in this school? (check all that apply)**	
	a. A health or nutrition teacher or school nurse trained in nutrition education	☐
	b. Physical training/games/sports teacher	☐
	c. School teacher not trained in nutrition (main subject is not nutrition)	☐
	d. Other (add detail)	☐
	e. Nutrition education is not delivered in this school	☐
11.	**How much time is spent on nutrition education per week?**	
	a. Less than 30 minutes	☐
	b. Between 30 minutes and one hour	☐
	c. Between one hour and 1.5 hours	☐
	d. More than 1.5 hours	☐
12.	**Is nutrition education for parents/community offered at the school?**	
	a. Yes	☐
	b. No	☐
	If yes, indicate frequency • Monthly • Quarterly (every three months) • Biannually (twice a year) • Annually (once a year) • As needed/irregular	 ☐ ☐ ☐ ☐ ☐

C) Attitudes and perceptions of students towards school nutrition environments

School name:	
School location:	
Date and time:	dd/mm/yyyy
	mm/hh
Student name:	
Class and section:	
Gender:	

Please tick your preferred option. (Select only one.)

1. Please tell us whether you agree or disagree with the following statements:

I can buy healthy foods at my school if I wish to.	1 2 3 4 5
There are food logos or pictures for food and drink companies in and around my school.	1 2 3 4 5
If there were fewer people selling unhealthy food outside my school, it would be easier for me and my friends to eat healthily.	1 2 3 4 5
I have access to clean and safe drinking water, always, when at school.	1 2 3 4 5
I have access to clean and safe toilets at school.	1 2 3 4 5
I can wash my hands with soap and water whenever needed at school.	1 2 3 4 5
I use a kitchen garden at school.	1 2 3 4 5
My school gives me opportunities to play sport.	1 2 3 4 5
I have enough space to run and play at my school.	1 2 3 4 5
When I am at school, I learn about how to eat a healthy diet.	1 2 3 4 5

2. Would you agree or disagree with the following actions?

1	2	3	4	5	6
					Don't know
Strongly disagree	Disagree	Neutral	Agree	Strongly agree	

All foods sold to children in school should be healthy and nutritious.	1 2 3 4 5 6
Healthy food should be sold at a low price in schools.	1 2 3 4 5 6
Advertisements for junk food or drinks should not be allowed inside schools (e.g., posters or logos).	1 2 3 4 5 6
Advertisements for junk food or drinks should not be allowed near school entry and exit gates (e.g., posters, logos or banners).	1 2 3 4 5 6
Big food companies should not give free branded items to schools (e.g., items branded with chips or soda brands).	1 2 3 4 5 6
All students should participate in daily physical activity.	1 2 3 4 5 6
Schools should teach us more about healthy eating.	1 2 3 4 5 6

POCKET MONEY

3. How often do you receive pocket money to buy food at or near school?	☐ Every day ☐ More than once a week ☐ Once a week ☐ Occasionally ☐ Never
4. How much pocket money do you receive? (in ₹)	☐ ₹0–20 ☐ ₹21–50 ☐ ₹51–100 ☐ More than ₹100
5. Where do you usually buy food from?	☐ School canteen ☐ Shops near school ☐ I do not buy food

Annexure 6: NEAT-S toolkit – full version for schools with school meal programmes

A. Direct observation questionnaire – administered by data collector

Data collector name:	
School name:	
School location:	
Date and time:	dd/mm/yyyy
	mm/hh

Institutional information

1.	**School type**	
	Primary school (Grades 1–5)	☐
	Middle school (Grades 6–8)	☐
	Secondary school (Grades 9–10)	☐
	Senior secondary school (Grades 11–12)	☐
2.	**School management**	
	Government	☐
	Private	☐
	Boarding/residential	☐
	Other (specify):	☐
3.	**School location**	
	a. Urban/city area	☐
	b. Rural area	☐
	c. Tribal	☐
	d. Other (specify):	

4.	**Is the school for boys, girls or both?**	☐
	Boys only	☐
	Girls only	☐
	Both boys and girls (co-educational)	☐

Domain 1: Nutritious foods in schools

Note for the data collector:

Nutritious foods in schools includes school meal programmes provided by the school (not sold through canteens, etc.), the standards for these (including fortification) and the use of local supply chains (including private and public sectors) for school meal provision.

1.	**Does the school have a menu chart for meals and/or snacks?**		
	a. Yes	☐	
	b. No	☐	
	If yes, please describe:		
2.	**Did the meal and/or snack programme today include the following? (check all that apply)**		
		Meals	**Snacks**
	a. Fruits	☐	☐
	b. Vegetables	☐	☐
	c. Green leafy vegetables	☐	☐
	d. Wholegrains	☐	☐
	e. Pulses	☐	☐
	f. Milk and milk products	☐	☐
	g. Eggs	☐	☐
	h. Meat and meat products (animal source)	☐	☐
	i. Sugary drinks (fruit drinks with less than100% juice/flavoured milk, etc).	☐	☐
	j. Deep-fried foods (e.g., chips, pakoras, samosas, etc.)	☐	☐
	k. Salty packaged foods (e.g., instant noodles, wafers, crisps, etc.)	☐	☐
	l. Sweet packaged foods (e.g., candy, cake, ice cream, etc.)	☐	☐

3.	Who is responsible for cooking meals in the school?	Yes	No
	a. Cook-cum-helpers	☐	☐
	b. Local women's/mothers' self-help group	☐	☐
	c. Local youth club affiliated to the Nehru Yuvak Kendras	☐	☐
	d. A voluntary organization (as specified in guidelines for engagement of CSOs/NGOs)	☐	☐
	e. Any other (please specify):	☐	☐

If meals are prepared on the school premises, complete Question 4. If the meals are obtained from an external vendor, skip to Question 5.

4.	Please indicate whether the following are available and adequate for preparing meals/snacks in school:	Yes	No	Not sure
	a. Pots, pans and utensils	☐	☐	☐
	b. Ovens/stoves for cooking	☐	☐	☐
	c. Fridges/cold storage	☐	☐	☐
	d. Safe water for cooking	☐	☐	☐
	e. Clean food preparation areas	☐	☐	☐
	f. Areas to separate cooked and raw ingredients	☐	☐	☐
	g. Trained kitchen staff for food preparation	☐	☐	☐
	h. Adequate kitchen space	☐	☐	☐
	i. Hygienic waste disposal mechanisms	☐	☐	☐
	j. Food is always properly covered to protect from flies and dust	☐	☐	☐
	k. Food handlers/cooks have trimmed and clean fingernails	☐	☐	☐
	l. Food handlers/cook wear clean clothing or aprons and head cover while preparing/serving food	☐	☐	☐
	m. Food handlers/cooks wash their hands with soap and water before preparing or serving food	☐	☐	☐
	n. There is no evidence of pests (e.g., cockroaches, rats, ants) in the kitchen	☐	☐	☐
	o. Perishable foods are stored at appropriate temperatures (e.g., not left out at room temperature)	☐	☐	☐
	p. Utensils and dishes are air-dried or dried with clean towels after washing	☐	☐	☐
	q. Drinking water is stored in clean, covered containers	☐	☐	☐
	r. Waste bins in the kitchen are covered and emptied regularly	☐	☐	☐
	s. Handwashing facilities (with soap and water) are available and accessible to kitchen staff	☐	☐	☐

5.	**How are school meals (breakfast, lunch, snacks) handled from preparation to consumption?**	
	Not applicable ☐	
	a. Transport	☐ Meals are freshly cooked and delivered just before serving ☐ Meals are delivered daily in the morning, stored, reheated, then served ☐ Meals are delivered once a day in insulated utensils and served directly without reheating
	b. Storage	☐ No storage; food is used immediately ☐ Stored in the kitchen and reheated before serving ☐ Stored in insulated utensils and served directly
	c. Serving location	☐ Dining hall, with students eating in batches ☐ Large hall, with all students eating together ☐ Students carry meals from the kitchen to classrooms ☐ Served directly in classrooms ☐ Students eat in open areas (no dedicated eating facility)
	d. Utensils	☐ Separate utensils for each meal ☐ Limited utensils reused after cleaning for the next meal ☐ No serving utensils (meals provided in insulated units ready to eat)
	e. Washing of utensils	☐ Washed after every use and reused ☐ Rinsed with water only and returned to the provider ☐ Washed with soap and water in the kitchen and returned to provider
	f. Leftover food	☐ Cooked fresh daily; no leftovers ☐ Leftovers taken home by kitchen staff ☐ Leftovers distributed in the community

Domain 2: Healthy school food and physical activity environments

Note for the data collector:

Marketing is defined as any form of commercial communication of messages that are designed to, or have the effect of, increasing the recognition, appeal and/or consumption of particular products, brands or services. Marketing includes, but is not limited to, advertising, sponsorship, direct marketing (e.g., giveaways), product placement and the visible placement of brand logos.

Branding is defined as the visible presence of food or beverage company logos (whole or partial) within school grounds, on school infrastructure or on school materials.

6.	**Are there any visible food or beverage company logos or branding displayed within the school grounds?**	
	a. Educational materials	☐
	b. Academic awards	☐
	c. Sports awards	☐
	d. Sports or school uniforms or equipment	☐
	e. School infrastructure (e.g., vending machines, fridges/freezers)	☐
	f. Other (add detail)	☐
	g. There is no visible food or drink sponsorship or gifts in the school	☐
	Please add detail on what, where and how brand/s are visible:	
7.	**Do food and drink companies promote their brands and foods in this school through any of the following? (check all that apply)**	
	a. Free giveaways	☐
	b. Use of cartoon characters	☐
	c. Celebrity endorsements	☐
	d. Advertising (posters, banners)	☐
	e. Price discounts	☐
	f. School meals/snacks programmes	☐
	g. Visible logos	☐
	h. There is no food or drink promotion in the school	☐
	Please provide detail on which brands are promoted and how:	
8.	**When walking the perimeter of the school (where possible), is the sale of foods high in fats, salt or sugar (HFSS) visible outside school grounds within 50 metres?**	
	a. Yes	☐
	b. No	☐
	c. There are no foods or drinks available for sale around the perimeter of the school	☐
9.	**Is there a signboard at the school gate(s) warning against the sale, advertisement or marketing of HFSS foods in or around the school premises?**	
	a. Yes, clearly visible	☐
	b. No	☐
	c. Installed but not prominent	☐

10.	Is a kitchen garden available in the school?	
	a. Yes (add detail below)	☐
	b. No	☐
	Please provide detail on how school-garden food is used (e.g., for student consumption at school, use in school meals):	

Note for the data collector:

Safe drinking water is water regularly assessed against the WHO 'Guidelines for Drinking Water Quality' to ensure it is safe for drinking. Drinking water should be free from harmful germs and dangerous levels of chemicals, as set by WHO guidelines, and should be regularly checked to ensure it remains safe for drinking.[11]

11.	Do students have access to free and safe drinking water today (on the day of the assessment)?	
	a. No	☐
	b. Yes, safe drinking water is available, but there is not enough to meet the needs of students and staff.	☐
	c. Yes, safe drinking water is available, but it is not regularly assessed for quality and safety.	☐
	d. Yes, safe drinking water is available, it meets the needs of students and staff and is regularly assessed for quality and safety.	☐

Note for the data collector:

Physical activity facilities: Sports, fitness or play equipment with an intended use for physical activity (e.g., skipping ropes, balls) and sporting grounds (e.g., football fields, basketball courts).

Physical activity space: Open-air, cleared space where students can participate in physical activity, including running and playing.

12.	Does this school have access to a range of sports or physical activity equipment (balls, rackets, athletic equipment, nets etc.) and facilities accessible to all students?	
	a. Yes	☐
	b. Yes, but poor quality or limited access	☐
	c. Unavailable	☐

[11] World Health Organization. Guidelines for drinking-water quality: fourth edition incorporating the first and second addenda [Internet]. Geneva: World Health Organization; 2022 [cited 2025 May 13]. Available from: https://www.who.int/publications/i/item/9789240045064

13.	**Does this school have sufficient physical activity space accessible to all students?**	
	a. Yes, sufficient physical activity space is accessible to all students	☐
	b. Yes, but space is limited for students to run around	☐
	c. Unavailable	☐

Sanitation and hygiene

14.	**Are toilets/latrines present on the school premises?**	
	a. Yes	☐
	b. No	☐
15.	**Are toilets/latrines clean and functional?**	
	a. All functional	☐
	b. Some functional	☐
	c. None functional	☐
16.	**Is water available inside or immediately outside the toilets/latrines**	
	d. Yes	☐
	e. No	☐
17.	**Are handwashing stations present near the toilets/latrines?**	
	f. Yes	☐
	g. No	☐
18.	**Are the handwashing facilities clean and equipped with both water and soap?**	
	h. Yes	☐
	i. No	☐

B) Questionnaire for school administrators

Data collector name:	
School name:	
School location:	
Date and time:	dd/mm/yyyy
	mm/hh
Participant's name:	

1.	**Who is answering the questions today? (position at school; select all that apply)**	
	a. School principal or director	☐
	b. Health counsellor or other staff responsible for the daily preparation of school meals	☐
	c. Teacher or other staff responsible for nutrition education	☐
	d. Headmaster/headmistress	☐
	e. Other (add detail)	☐

Domain 1: Nutritious foods in schools

Nutritious foods in schools include school meals or snack programmes provided by the school (not sold through tuck shops, canteens etc.), the standards for these (including fortification), and the use of local supply chains (including private and public sectors) for school meal or snack programme provision.

1.	**Does your school have a policy or participate in a policy related to a school meal programme?**	
	a. Yes	☐
	b. No	☐
	If yes, please provide details of the scheme and grade coverage	
2.	**Which of the following does your school provide regularly? (check all that apply)**	
	a. Meal programme for all children	☐
	b. Meal programme for children in need	☐
	c. Snack programme	
	d. Milk programme	

	e. Other (add detail)	
	f. The school does not provide a regular meal or snack programme	
	Please provide details of the scheme and grade coverage	
3.	**Does your school refer to ICMR-NIN (National Institute of Nutrition) guidelines when planning the menu for school meals? (For example: including a mix of cereals, pulses, vegetables, fruits and milk; limiting fried or processed foods; ensuring portion sizes are age-appropriate)**	
	a. Yes	☐
	b. No	☐
	c. Don't know	☐
4.	**Does your school engage nutritionists or dietitians to assist in menu preparation for students, at least periodically?**	
	a. Yes	☐
	b. No	☐
	c. Don't know	☐
5.	**Does your school take steps to source local ingredients (e.g., growing its own or purchasing directly from a local plantation, grower or market)?**	
	a. Never	☐
	b. Sometimes	☐
	c. Often	☐
	d. Always	
6.	**Does your school or any food service provider/caterer hired by your school hold a valid FSSAI license or registration to sell or serve meals?**	
	a. Yes	☐
	b. No	☐
	c. Not applicable	☐
7.	**Is your school meal or snack programme subsidized by national or transnational food and beverage companies? (This does not relate to small, local independent food vendors.)**	
	a. Yes	☐
	b. No	☐
	If yes, please provide details:	

8.	**Are the raw materials used for school meals fortified?**	
	a. Yes	☐
	b. No	☐
	c. Don't know	☐
9.	**Does your school conduct regular inspections to monitor food hygiene and quality in kitchens?**	
	a. Yes	☐
	b. No	☐
	If yes, indicate frequency	
	Weekly ☐ Fortnightly ☐ Monthly ☐ Quarterly ☐ Any other ☐	
10.	**What components are monitored? (check all that apply)**	
	a. Tasting of cooked food daily	☐
	b. Quality and quantity of cooked food	☐
	c. Quality of raw ingredients	☐
	d. Stock levels of raw ingredients	☐
	e. Infrastructure support	☐
	f. None	☐
	g. Other (please specify):	☐
11.	**Has your school appointed a Health and Wellness Ambassador or team to oversee food safety and health promotion?**	
	a. Yes	☐
	b. No	☐
	c. In process	☐

Domain 2: Healthy school food and physical activity environments

Healthy school food and physical activity environments refers to the spaces, infrastructure and conditions inside and around the school premises where food is available, obtained, purchased and/or consumed, and which influence students' physical activity.

12.	**Does your school participate in any policy related to healthy food environments or physical activity?** (e.g., regular nutrition awareness sessions, banning unhealthy food in the canteen, serving seasonal/local meals, displaying posters on healthy eating, promoting zero food waste, setting rules on foods that can be sold or marketed in and around schools, and addressing the presence of street vendors near the school)	
	a. Yes	☐
	b. No	☐
	If yes, please provide details on policy name/s and scope:	
13.	**Are students allowed to purchase meals or snacks from food stores outside school grounds during school hours?**	
	a. Yes	☐
	b. No	☐
14.	**Do external vendors selling food outside school grounds influence students' purchasing behaviour?**	
	a. Yes	☐
	b. No	☐
15.	**When students purchase foods at or around school grounds, are steps taken to ensure that healthier foods are more affordable than unhealthy ones? If yes, please add detail below.**	
	a. Yes	☐
	b. No	☐
	c. Not applicable (students cannot purchase foods or drinks from school)	
	Detail:	
16.	**What is the main source of drinking water in the school?**	
	a. Piped water supply	☐
	b. Protected well/spring	☐
	c. Rainwater	☐
	d. Filtered water	☐

Domain 3: Nutrition services in school

Definitions of key terms:

- **Stunting:** Height-for-age Z-score (HAZ) of less than minus two standard deviations (-2 SD) from the median value of the WHO Reference standard (low height-for-age)[12]
- **Wasting/thinness:** Body mass index (BMI) less than two standard deviations below the median, according to the WHO Reference standards (low weight-for-age and height)[13]
- **Overweight and obesity:** Overweight is BMI-for-age greater than one standard deviation above the WHO Growth Reference median; and obesity is greater than two standard deviations above the WHO Growth Reference median (high weight-for-height)[14]

17.	**Does your school have a policy or participate in a programme related to micronutrient supplementation and/or deworming? If yes, please provide details on programme name/s and scope below.**		
	a. Yes, IFA supplementation	☐	☐
	b. Yes, deworming	☐	☐
	c. Yes, both IFA supplementation and deworming	☐	☐
	d. No	☐	☐
	If yes, please provide details including the name of the programme, the target population to whom it is administered, and the administering agency/authority		
18.	**Which group of students does your school provide these services for:**		
		Deworming	**Iron and folic acid supplementation**
	a. Girls, Grades 1–5	☐	☐
	b. Girls, Grades 6–10	☐	☐
	c. Girls, Grades 11–12	☐	☐
	d. Boys, Grades 1–5	☐	☐
	e. Boys, Grades 6–10	☐	☐
	f. Boys, Grades 11–12	☐	☐
	g. g. No one receives this service	☐	☐

[12] Tamrat A, Yeshaw Y, Dadi AF. Stunting and Its Associated Factors among Early Adolescent School Girls of Gondar Town, Northwest Ethiopia: A School-Based Cross-Sectional Study. Biomed Res Int. 2020 Oct 23;2020:8850074.

[13] World Health Organization. Indicator Metadata Registry: Prevalence of thinness among children and adolescents, BMI < -2 standard deviations below the median [Internet]. Geneva: World Health Organization; [cited 2025 May 13]. Available from: https://www.who.int/data/gho/indicator-metadata-registry/imr-details/4805

[14] World Health Organization. Obesity and overweight [Internet]. Geneva: World Health Organization; 2024 [cited 2025 May 13]. Available from: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

19.	**Does your school conduct screening and monitoring of children's height and weight?**	
	a. Yes	☐
	b. No	☐
	If yes, indicate frequency: • Monthly • Quarterly (every three months) • Biannually (twice a year) • Annually (once a year) • As needed/irregular	 ☐ ☐ ☐ ☐ ☐
20.	**If a child is identified with an issue related to malnutrition (in all its forms, including wasting, stunting, thinness, overweight or obesity), is the child referred to a local health service?**	
	a. Never	☐
	b. Rarely	☐
`	c. Sometimes	☐
	d. Often	☐
	e. Always	☐

Domain 4: Nutrition education in school curriculum

21.	**Who provides students nutrition education in this school? (check all that apply)**	
	a. A health or nutrition teacher or school nurse trained in nutrition education	☐
	b. Physical training/games/sports teacher	☐
	c. School teacher not trained in nutrition (main subject is not nutrition)	☐
	d. Other (add detail)	☐
	e. Nutrition education is not delivered within the school	☐
22.	**How much time is spent on nutrition education per week?**	
	a. Less than 30 minutes	☐
	b. Between 30 minutes and one hour	☐
	c. Between one hour and 1.5 hours	☐
	d. More than 1.5 hours	☐

23.	**Is there any specific day or occasion marked for health and nutrition education in this school?**		
	a. Yes (please specify the day/occasion)		☐
	b. No		☐
	If yes, please specify:		
24	**What key nutrition messages are shared with students? (select all that apply)**		
		Yes	**No**
	c. Eat a variety of fruits and vegetables daily	☐	☐
	a. Drink clean water and avoid sugary drinks	☐	☐
	b. Wash hands before eating	☐	☐
	c. Limit unhealthy food and sweets	☐	☐
	d. Include foods from all food groups in meals	☐	☐
	e. Don't know/not sure	☐	☐
	Other (please specify):		
25.	**Is nutrition education for parents/community offered at the school?**		
	a. Yes		☐
	b. No		☐
	If yes, indicate frequency • Monthly • Quarterly (every three months) • Biannually (twice a year) • Annually (once a year) • As needed/irregular		☐ ☐ ☐ ☐ ☐
26.	**Please indicate the approximate percentage of students participating in school-organized physical activity for at least 150 minutes per week (≥30 minutes per day), by grade group.**		
	Grade group	**Approximate % of students participating** **60 minutes/day**	
	a. Grades 1–5	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%	
	b. Grades 6–8	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%	
	c. Grades 9–10	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%	
	d. Grades 11–12	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%	
	e. Organized physical activity is not offered	☐	

C) Attitudes and perceptions of students towards school nutrition environments

School name:	
School location:	
Date and time:	dd/mm/yyyy
	mm/hh
Student name:	
Class and section:	
Gender:	

Please tick your preferred option. (Select only one.)

Students' attitudes and perceptions.

1	**Please tell us whether you agree or disagree with the following statements:**	
A	My school provides healthy and nutritious food.	1 2 3 4 5
B	I can buy healthy foods at my school if I wish to.	1 2 3 4 5
C	There are food logos or pictures for food and drink companies in and around my school.	1 2 3 4 5
D	If there weren't so many people selling junk food near my school, it would be easier for me and my friends to eat healthily.	1 2 3 4 5
E	I have access to clean and safe drinking water, always, when at school.	1 2 3 4 5
F	I have access to clean and safe toilets at school.	1 2 3 4 5
G	I can wash my hands with soap and water whenever needed at school.	1 2 3 4 5
H	I use the school garden to grow food.	1 2 3 4 5
I	My school gives me opportunities to play sport.	1 2 3 4 5
J	I have enough space to run and play at my school.	1 2 3 4 5
K	When I am at school, I learn about how to eat a healthy diet.	1 2 3 4 5

2 Would you agree or disagree with the following actions?

	1	2	3	4	5	6
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
A	All children should get free meals at school.	1	2	3	4	5	6
B	Meals provdied at school should be healthy and nutritious.	1	2	3	4	5	6
C	All foods sold to children in school should be healthy and nutritious.	1	2	3	4	5	6
D	Healthy food should be sold at a low price in schools.	1	2	3	4	5	6
E	Advertisements for junk food or drinks should not be allowed inside schools (e.g., posters or logos).	1	2	3	4	5	6
F	Advertisements for junk food or drinks should not be allowed near school entry and exit gates (e.g., posters, logos, banners).	1	2	3	4	5	6
G	Big food companies should not give free branded items to schools (e.g., items branded with chips or soda brands).	1	2	3	4	5	6
H	All students should participate in daily physical activity.	1	2	3	4	5	6
I	Schools should teach us more about healthy eating.	1	2	3	4	5	6

3 Knowledge and attitudes on plastic use

A	Plastic waste causes health problems.	1	2	3	4	5	6
B	Storing and using hot food items in plastic containers is harmful to health.	1	2	3	4	5	6
C	Plastics are environmentally friendly.	1	2	3	4	5	6
D	Plastics are recyclable.	1	2	3	4	5	6
E	The use of plastic should be banned.	1	2	3	4	5	6
F	Plastic used for packaging medicines, milk and handling of solid waste should excluded from the ban.	1	2	3	4	5	6
G	People who don't follow the plastic ban should be fined.	1	2	3	4	5	6
H	The use of plastic bags can be reduced.	1	2	3	4	5	6
I	Reusing plastic products helps to reduce their harmful effects.	1	2	3	4	5	6
J	Recycling plastic products helps to reduce their harmful effects.	1	2	3	4	5	6

K	Biodegradable plastic bags can be alternatives to conventional plastic bags.	1 2 3 4 5 6
L	I am in favour of a ban on plastic bag use.	1 2 3 4 5 6
M	I will make people aware of the harmful chemicals in plastic to help reduce its use.	1 2 3 4 5 6
N	I am able to manage daily activities at school without using plastic items such as carry bags or food packets.	1 2 3 4 5 6
4	**Attitudes towards climate change**	
A	Climate change threatens both humans and nature.	1 2 3 4 5 6
B	Climate change is a real threat that should be taken seriously.	1 2 3 4 5 6
C	Some people think the threat of climate change is made to seem worse than it actually is.	1 2 3 4 5 6
D	Climate change can be stopped.	1 2 3 4 5 6
E	Climate change is having a positive effect on the earth.	1 2 3 4 5 6
5	**Sanitation and hygiene**	
A	During the past 30 days, how often did you wash your hands before eating?	☐ Never ☐ Rarely ☐ Sometimes ☐ Most of the time ☐ Always
B	During the past 30 days, how often did you wash your hands after using the toilet or latrine?	☐ Never ☐ Rarely ☐ Sometimes ☐ Most of the time ☐ Always
C	During the past 30 days, how often did you use soap when washing your hands?	☐ Never ☐ Rarely ☐ Sometimes ☐ Most of the time ☐ Always
6.	**Mental health**	
A	How many close friends do you have?	☐ 0 friends ☐ 1 friend ☐ 2 friends ☐ 3 or more friends

B	During the past 12 months, how often did you feel lonely?	☐ Never ☐ Rarely ☐ Sometimes ☐ Most of the time ☐ Always
C	During the past 12 months, how often did a problem keep you awake at night?	☐ Never ☐ Rarely ☐ Sometimes ☐ Most of the time ☐ Always
7.	**Pocket money**	
A	How often do you receive pocket money to buy food at or near school?	☐ Every day ☐ More than once a week ☐ Once a week ☐ Occasionally ☐ Never
B	How much pocket money do you receive? (in ₹)	☐ ₹0–20 ☐ ₹21–50 ☐ ₹51–100 ☐ More than ₹100
C	Where do you usually buy food from?	☐ School canteen ☐ Shops near school ☐ I do not buy food

Annexure 7: NEAT-S toolkit – full version for schools without school meal programmes

A. Direct observation questionnaire – administered by data collector

Data collector name:	
School name:	
School location:	
Date and time:	dd/mm/yyyy
	mm/hh

Institutional information

1.	**School type**	
	Primary school (Grades 1–5)	☐
	Middle school (Grades 6–8)	☐
	Secondary school (Grades 9–10)	☐
	Senior secondary school (Grades 11–12)	☐
2.	**School management**	
	Government	☐
	Private	☐
	Boarding/residential	☐
	Other (specify):	☐
3.	**School location**	
	a. Urban/city area	☐
	b. Rural area	☐
	c. Tribal	☐
	d. Other (specify):	

4.	**Is the school for boys, girls or both?**	☐
	a. Boys only	☐
	b. Girls only	☐
	c. Both boys and girls (co-educational)	☐

Domain 1: Nutritious foods in schools

1.	**Does the school have a menu chart for lunchboxes and/or snack boxes?**	
	a. Yes	☐
	b. No	☐
	If yes, please describe:	

2. Observe the lunch boxes of 20 students per school (at least of 5 children of different standards) and report the following (select all that applies)

		Lunch box	Snack box
	a. Fruits	☐	☐
	b. Vegetables	☐	☐
	c. Green leafy vegetables	☐	☐
	d. Wholegrains	☐	☐
	e. Pulses	☐	☐
	f. Milk and milk products	☐	☐
	g. Eggs	☐	☐
	h. Meat and meat products (animal source)	☐	☐
	i. Sugary drinks (fruit drinks with less than 100% juice/flavoured milk, etc.)	☐	☐
	j. Deep-fried foods (e.g., chips, pakoras, samosas, etc.)	☐	☐
	k. Salty packaged foods (e.g., instant noodles, wafers, crisps, etc.)	☐	☐
	l. Sweet packaged foods (e.g., candy, cake, biscuits, etc.)	☐	☐

Domain 2: Healthy school food and physical activity environments

Note for the data collector:

Healthy school food and physical activity environments refers to the spaces, infrastructure and conditions inside and around the school premises where food is available, obtained, purchased and/or consumed, and which influence students' physical activity,

3	**Are food and/or drinks sold in this school (e.g., via a canteen or stall)?**	
	Not applicable ☐	
	a. Yes	☐
	b. No	☐

Note for the data collector:

Sugary drinks include all drinks with added sugar (providing ≤10% of energy), including sugar-sweetened carbonated drinks, less than 100% fruit juice and flavoured milk.[15]

Drink powders are drink mixes produced by mixing with a liquid (e.g.,2-in-1 mixes).

Artificially sweetened drinks include those containing artificial sweeteners or non-caloric sweeteners.

100% fruit juice is made entirely from fruit, with no added sugar.

Flavoured water is water sold and marketed with added ingredients including natural or artificial flavours, sugars, sweeteners, vitamins, minerals or other enhancements.

4	**Which of the following drinks are available for purchase at this school today (on the day of the assessment)? (check all that apply)**	
	Not applicable ☐	
	a. Sugary drinks	☐
	b. Drink powders with added sugar	☐
	c. Artificially sweetened drinks	☐
	d. 100% fruit juice	☐

[15] National Institute of Nutrition. Dietary Guidelines for Indians – A Manual [Internet]. Hyderabad: National Institute of Nutrition, Indian Council of Medical Research; 2024 [cited 2025 May 13]. Available from: https://www.nin.res.in/dietaryguidelines/pdfjs/locale/DGI07052024P.pdf

	e. Plain milk	☐
	f. Plain water	☐
	g. Flavoured water	☐
	h. Flavoured milk	☐
	i. Other (provide details)	☐

Note for the data collector:

Deep-fried foods are those cooked by deep frying in oil (e.g., chips, pakoras, samosas).

Salty packaged foods are foods containing high amounts of salt (daily intake of salt should be less than 5 g) provided to the school in packaged form (e.g., instant noodles, wafers, crisps).[16]

Sweet packaged foods are foods containing high amounts of added sugar provided to the school in packaged form (e.g., candy, muffins, cakes, ice cream).

5	**Which of the following foods are available for sale in this school today (on the day of the assessment)? (check all that apply)**		
	Not applicable ☐		
		Yes	**No**
	Deep-fried foods	☐	☐
	Salty foods	☐	☐
	Sweet foods	☐	☐
6.	**Is fresh fruit available for sale to students today (on the day of the assessment)?**		
	Not applicable ☐		
	a. No	☐	
	b. Yes, fresh fruit is available, but the quality is poor or the price is too high.	☐	
	c. Yes, fresh fruit is available and the quality is good, but the price is too high.	☐	
	d. Yes, fresh fruit is available, the quality is good and it is appropriately priced.	☐	

[16] National Institute of Nutrition. Tasty Bites [Internet]. Hyderabad: National Institute of Nutrition, Indian Council of Medical Research; [cited 2025 May 13]. Available from: https://www.nin.res.in/ebooks/Tasty_Bites.pdf

Note for the data collector:

Marketing is defined as any form of commercial communication of messages that are designed to, or have the effect of, increasing the recognition, appeal and/or consumption of particular products, brands or services. Marketing includes, but is not limited to, advertising, sponsorship, direct marketing (e.g., giveaways), product placement and the visible placement of brand logos.

Branding is defined as the visible presence of food or beverage company logos (whole or partial) within school grounds, on school infrastructure or on school materials.

7	**Are there any visible food or beverage company logos or branding displayed within the school grounds?**	
	a. Educational materials	☐
	b. Academic awards	☐
	c. Sports awards	☐
	d. Sports or school uniforms or equipment	☐
	e. School infrastructure (e.g., vending machines, fridges/freezers)	☐
	f. Other (add detail)	☐
	g. There is no visible food or drink sponsorship or gifts in the school	☐
	Please add detail on what, where and how brand/s are visible:	
8	**Do food and drink companies promote their brands and products in this school through any of the following? (check all that apply)**	
	a. Free giveaways	☐
	b. Use of cartoon characters	☐
	c. Celebrity endorsements	☐
	d. Advertising (posters, banners)	☐
	e. Price discounts	☐
	f. School meals/snacks programmes	☐
	g. Visible logos	☐
	h. There is no food or drink promotion in the school	☐
	Please provide details on which brands are promoted and how:	
9	**When walking the perimeter of the school (where possible), is the sale of foods high in fats, salt or sugar (HFSS) visible outside school grounds within 50 metres?**	
	a. Yes	☐
	b. No	☐
	c. There are no foods or drinks available for sale around the perimeter of the school	☐

10	**Is there a signboard at the school gate(s) warning against the sale, advertisement or marketing of HFSS foods in or around the school premises?**	
	a. Yes, clearly visible	☐
	b. No	☐
	c. Installed but not prominent	☐
11	**Is a kitchen garden available in the school?**	
	a. Yes (add detail below)	☐
	b. No	☐
	Please provide detail on how school-garden produces is used (e.g., for student consumption at school, use in school meals):	

Note for the data collector:

Safe drinking water is water regularly assessed against the WHO 'Guidelines for Drinking Water Quality' to ensure it is safe for drinking. Drinking water should be free from harmful germs and dangerous levels of chemicals, as set by WHO guidelines, and should be regularly checked to ensure it remains safe for drinking.[17]

12	**Do students have access to free and safe drinking water today (on the day of the assessment)?**	
	a. No	☐
	b. Yes, safe drinking water is available, but there is not enough to meet the needs of students and staff.	☐
	c. Yes, safe drinking water is available, but it is not regularly assessed for quality and safety.	☐
	d. Yes, safe drinking water is available, it meets the needs of students and staff and is regularly assessed for quality and safety.	☐

Note for the data collector:

Physical activity facilities: Sports, fitness or play equipment with an intended use for physical activity (e.g., skipping ropes, balls) and sporting grounds (e.g., football fields, basketball courts).

Physical activity space: Open-air, cleared space where students can participate in physical activity, including running and playing.

[17] World Health Organization. Guidelines for drinking-water quality: fourth edition incorporating the first and second addenda [Internet]. Geneva: World Health Organization; 2022 [cited 2025 May 13]. Available from: https://www.who.int/publications/i/item/9789240045064

14.	**Does this school have access to a range of sports or physical activity equipment (balls, rackets, athletic equipment, nets etc.) and facilities accessible to all students?**	
	a. Yes	☐
	b. Yes, but poor quality or limited access	☐
	c. Unavailable	☐
15.	**Does this school have sufficient physical activity space accessible to all students?**	
	a. Yes, sufficient physical activity space is accessible to all students	☐
	b. Yes, but space is limited for students to run around	☐
	c. Unavailable	☐

Sanitation and hygiene

16.	**Are toilets/latrines present on the school premises?**	
	a. Yes	☐
	b. No	☐
17.	**Are toilets/latrines clean and functional?**	
	a. All functional	☐
	b. Some functional	☐
	c. None functional	☐
18.	**Is water available inside or immediately outside toilets/latrines?**	
	d. Yes	☐
	e. No	☐
19.	**Are handwashing stations present near toilets/latrines?**	
	a. Yes	☐
	b. No	☐
20.	**Are the handwashing facilities clean and equipped with both water and soap?**	
	a. Yes	☐
	b. No	☐

B) Questionnaire for school administrators

Data collector name:	
School name:	
School location:	
Date and time:	dd/mm/yyyy
	mm/hh
Participant's name:	

1.	**Who is answering the questions today? (position at school; select all that apply)**	
	a. School principal or director	☐
	b. Health counsellor or other staff responsible for the daily preparation of school lunches	☐
	c. Teacher or other staff responsible for nutrition education	☐
	d. Headmaster/headmistress	☐
	e. Other (add detail)	☐

Domain 1: Nutritious foods in schools

Nutritious foods in schools include school meals or snack programmes provided by the school (not sold through tuck shops, canteens etc.), the standards for these (including fortification), and the use of local supply chains (including private and public sectors) for school meal or snack programme provision.

1.	**Are teachers encouraged or assigned to regularly observe and discuss the contents of students' lunchboxes, and to share positive messages about healthy eating with students and parents?**	
	a. Yes	☐
	b. No	☐
	If yes, please provide detail:	
2.	**Has your school appointed a Health and Wellness Ambassador or team to oversee food safety and health promotion?**	
	a. Yes	☐
	b. No	☐
	c. In process	☐

Domain 2: Healthy school food and physical activity environments

Healthy school food and physical activity environments refers to the spaces, infrastructure and conditions inside and around the school premises where food is available, obtained, purchased and/or consumed, and which influence students' physical activity.

3.	**Does your school participate in any policy related to healthy food environments or physical activity?** (e.g., regular nutrition awareness sessions, banning unhealthy food in the canteen, serving seasonal/local meals, displaying posters on healthy eating, promoting zero food waste, setting rules on foods that can be sold or marketed in and around the school, and addressing the presence of street vendors near the school)	
	a. Yes	☐
	b. No	☐
	If yes, please provide details on policy name/s and scope:	
4.	**Is information shared with parents about the nutritional quality of foods (snacks or meals) that students bring from home?**	
	a. Yes	☐
	b. No	☐
5.	**Are students allowed to purchase meals or snacks from food stores outside school grounds during school hours?**	
	a. Yes	☐
	b. No	☐
6.	**Do external vendors selling food outside school grounds influence students' purchasing behaviour?**	
	a. Yes	☐
	b. No	☐
7.	**When students purchase food at or around school grounds, are steps taken to ensure that healthier foods are more affordable than unhealthy ones? If yes, please add detail below.**	
	a. Yes	☐
	b. No	☐
	c. Not applicable (students cannot purchase foods or drinks from school)	
	Detail:	
8.	**What is the main source of drinking water in the school?**	
	a. Piped water supply	☐
	b. Protected well/spring	☐
	c. Rainwater	☐
	d. Filtered water	☐

Domain 3: Nutrition services in school

Definitions of key terms:

- **Stunting:** Height-for-age Z-score (HAZ) of less than minus two standard deviations (-2 SD) from the median value of the WHO Reference standard (low height-for-age)[18]
- **Wasting/thinness:** Body mass index (BMI) less than two standard deviations below the median, according to the WHO Reference standards (low weight-for-age and height)[19]
- **Overweight and obesity:** Overweight is BMI-for-age greater than one standard deviation above the WHO Growth Reference median; and obesity is greater than two standard deviations above the WHO Growth Reference median (high weight-for-height)[20]

9.	**Does your school have a policy or participate in a programme related to micronutrient supplementation and/or deworming? If yes, please provide details on programme name/s and scope below.**		
	a. Yes, IFA supplementation	☐	☐
	b. Yes, deworming	☐	☐
	c. Yes, both IFA supplementation and deworming	☐	☐
	d. No	☐	☐
	If yes, please provide details including the name of the programme, the target population to whom it is administered, and the administering agency/authority		
10.	**Which group of students does your school provide these services for:**		
		Deworming	**Iron and folic acid supplementation**
	a. Girls, Grades 1–5	☐	☐
	b. Girls, Grades 6–10	☐	☐
	c. Girls, Grades 11–12	☐	☐
	d. Boys, Grades 1–5	☐	☐
	e. Boys, Grades 6–10	☐	☐
	f. Boys, Grades 11–12	☐	☐
	g. g. No one receives this service	☐	☐

[18] Tamrat A, Yeshaw Y, Dadi AF. Stunting and Its Associated Factors among Early Adolescent School Girls of Gondar Town, Northwest Ethiopia: A School-Based Cross-Sectional Study. Biomed Res Int. 2020 Oct 23;2020:8850074.

[19] World Health Organization. Indicator Metadata Registry: Prevalence of thinness among children and adolescents, BMI < -2 standard deviations below the median [Internet]. Geneva: World Health Organization; [cited 2025 May 13]. Available from: https://www.who.int/data/gho/indicator-metadata-registry/imr-details/4805

[20] World Health Organization. Obesity and overweight [Internet]. Geneva: World Health Organization; 2024 [cited 2025 May 13]. Available from: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

11.	**Does your school conduct screening and monitoring of children's height and weight?**	
	a. Yes	☐
	b. No	☐
	If yes, frequency • Monthly • Quarterly (every three months) • Biannually (twice a year) • Annually (once a year) • As needed/irregular	 ☐ ☐ ☐ ☐ ☐
12.	**If a child is identified with an issue related to malnutrition (in all its forms, including wasting, stunting, thinness, overweight or obesity), is the child referred to a local health service?**	
	a. Never	☐
	b. Rarely	☐
`	c. Sometimes	☐
	d. Often	☐
	e. Always	☐

Domain 4: Nutrition education in school curriculum

13.	**Who provides students nutrition education in this school? (check all that apply)**	
	a. A health or nutrition teacher or school nurse trained in nutrition education	☐
	b. Physical training/games/sports teacher	☐
	c. School teacher not trained in nutrition (main subject is not nutrition)	☐
	d. Other (add detail)	☐
	e. Nutrition education is not delivered within the school	☐
14.	**How much time is spent on nutrition education per week?**	
	a. Less than 30 minutes	☐
	b. Between 30 minutes and one hour	☐
	c. Between one hour and 1.5 hours	☐
	d. More than 1.5 hours	☐

15.	**Is there any specific day or occasion marked for health and nutrition education in this school?**		
	a. Yes (please specify the day/occasion)		☐
	b. No		☐
	If yes, please specify:		
16.	**What key nutrition messages are shared with students? (select all that apply)**		
		Yes	**No**
	a. Eat a variety of fruits and vegetables daily	☐	☐
	b. Drink clean water and avoid sugary drinks	☐	☐
	c. Include foods from all food groups in meals	☐	☐
	d. Limit unhealthy food and sweets	☐	☐
	e. Wash hands before eating	☐	☐
	f. Don't know/not sure	☐	☐
	Other (please specify):		
17.	**Is nutrition education for parents/community offered at the school?**		
	a. Yes (at least annually)		☐
	b. No		☐
	If yes, indicate frequency • Monthly • Quarterly (every three months) • Biannually (twice a year) • Annually (once a year) • As needed/irregular		☐ ☐ ☐ ☐ ☐
18.	**Please indicate the approximate percentage of students participating in school-organized physical activity for at least 150 minutes per week (≥30 minutes per day), by grade group.**		
	Grade group	**Approximate % of students participating 60 minutes/day**	
	a. Grades 1–5	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%	
	b. Grades 6–8	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%	
	c. Grades 9–10	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%	
	d. Grades 11–12	☐ <25% ☐ 25–50% ☐ 51–75% ☐ >75%	
	e. Organized physical activity is not offered	☐	

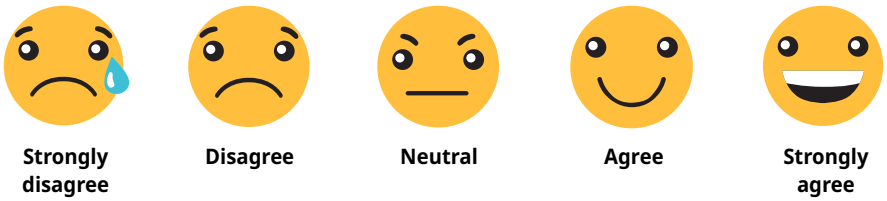
To be filled by students

C) Attitudes and perceptions of students towards school nutrition environments

School name:	
School location:	
Date and time:	dd/mm/yyyy
	mm/hh
Student name:	
Class and section:	
Gender:	

Please tick your preferred option. (Select only one.)

Students' attitudes and perceptions.



1.	**Please tell us whether you agree or disagree with the following statements:**	
A	I can buy healthy foods at my school if I wish to.	1 2 3 4 5
B	There are food logos or pictures for food and drink companies in and around my school.	1 2 3 4 5
C	If there weren't so many people selling junk food near my school, it would be easier for me and my friends to eat healthily.	1 2 3 4 5
D	I have access to clean and safe drinking water, always, when at school.	1 2 3 4 5
E	I have access to clean and safe toilets at school.	1 2 3 4 5
F	I can wash my hands with soap and water whenever needed at school.	1 2 3 4 5
G	I use the school garden to grow food.	1 2 3 4 5
H	My school gives me opportunities to play sport.	1 2 3 4 5
I	I have enough space to run and play at my school.	1 2 3 4 5
J	When I am at school, I learn about how to eat a healthy diet.	1 2 3 4 5

2	**Would you agree or disagree with the following actions?**						
		1	**2**	**3**	**4**	**5**	**6**
							**Don't know**
		Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**	
A	All children should receive free meals at school.	1	2	3	4	5	6
B	Meals provided at school should be healthy and nutritious.	1	2	3	4	5	6
C	All foods sold to children in school should be healthy and nutritious.	1	2	3	4	5	6
D	Healthy food should be sold at a low price in schools.	1	2	3	4	5	6
E	Advertisements for junk food or drinks should not be allowed inside schools (e.g., posters or logos).	1	2	3	4	5	6
F	Advertisements for junk food or drinks should not be allowed near school entry and exit gates (e.g., posters, logos or banners).	1	2	3	4	5	6
G	Big food companies should not give free branded items to schools (e.g., items branded with chips or soda brands).	1	2	3	4	5	6
H	All students should participate in daily physical activity.	1	2	3	4	5	6
I	Schools should teach us more about healthy eating.	1	2	3	4	5	6
3	**Knowledge and attitudes on plastic use**						
A	Plastic waste causes health problems.	1	2	3	4	5	6
B	Storing and using hot food items in plastic containers is harmful to health.	1	2	3	4	5	6
C	Plastics are environmentally friendly.	1	2	3	4	5	6
D	Plastics are recyclable.	1	2	3	4	5	6
E	The use of plastic should be banned.	1	2	3	4	5	6
F	Plastic used for packaging medicines, milk and handling of solid waste should excluded from the ban.	1	2	3	4	5	6
G	People who don't follow the plastic ban should be fined.	1	2	3	4	5	6
H	The use of plastic bags can be reduced.	1	2	3	4	5	6
I	Reusing plastic products helps to reduce their harmful effects.	1	2	3	4	5	6
J	Recycling plastic products helps to reduce their harmful effects.	1	2	3	4	5	6
K	Biodegradable plastic bags can be the alternatives to conventional plastic bags.	1	2	3	4	5	6

L	I am in favour of a ban on plastic bag use.	1 2 3 4 5 6
M	I will make people aware of the harmful chemicals in plastic to help reduce its use.	1 2 3 4 5 6
N	I am able to manage daily activities at school without using plastic items such as carry bags or food packets.	1 2 3 4 5 6
4	**Attitudes towards climate change**	
A	Climate change threatens both humans and nature.	1 2 3 4 5 6
B	Climate change is a real threat that should be taken seriously.	1 2 3 4 5 6
C	Some people think the threat of climate change is made to seem worse than it actually is.	1 2 3 4 5 6
D	Climate change can be stopped.	1 2 3 4 5 6
E	Climate change is having a positive effect on the earth.	1 2 3 4 5 6
5	**Sanitation and hygiene**	
A	During the past 30 days, how often did you wash your hands before eating?	☐ Never ☐ Rarely ☐ Sometimes ☐ Most of the time ☐ Always
B	During the past 30 days, how often did you wash your hands after using the toilet or latrine?	☐ Never ☐ Rarely ☐ Sometimes ☐ Most of the time ☐ Always
C	During the past 30 days, how often did you use soap when washing your hands?	☐ Never ☐ Rarely ☐ Sometimes ☐ Most of the time ☐ Always
6.	**Mental health**	
A	How many close friends do you have?	☐ 0 friends ☐ 1 friend ☐ 2 friends ☐ 3 or more friends

B	During the past 12 months, how often did you feel lonely?	☐ Never ☐ Rarely ☐ Sometimes ☐ Most of the time ☐ Always
C	During the past 12 months, how often did a problem keep you awake at night?	☐ Never ☐ Rarely ☐ Sometimes ☐ Most of the time ☐ Always
7.	**Pocket money**	
A	How often do you receive pocket money to buy food at or near school?	☐ Every day ☐ More than once a week ☐ Once a week ☐ Occasionally ☐ Never
B	How much pocket money do you receive? (in ₹)	☐ ₹0–20 ☐ ₹21–50 ☐ ₹51–100 ☐ More than ₹100
C	Where do you usually buy food from?	☐ School canteen ☐ Shops near school ☐ I do not buy food

Annexure 8: Diet quality questionnaire (DQQ)

This questionnaire is common to both the toolkit versions.

School name:	
School location:	
Date and time:	dd/mm/yyyy
	mm/hh
Student name:	
Class and section:	
Gender:	

Read: Now I'd like to ask you some yes-or-no questions about foods and drinks that you consumed yesterday during the day or night, whether you had it at home or somewhere else.

First, I would like you to think about yesterday, from the time you woke up through the night. Think to yourself about the first thing you ate or drank after you woke up in the morning … Think about where you were when you had any food or drink in the middle of the day … Think about where you were when you had any evening meal … and any food or drink you may have had in the evening or late at night … and any other snacks or drinks you may have had between meals throughout the day or night.

I am interested in whether you had the food items I will mention even if they were combined with other foods. Please listen to the list of foods and drinks, and if you ate or drank ANY ONE OF THEM, say yes.

	Yesterday, did you eat any of the following foods?	**(Circle your answer)**
1	Rice, idli, dosa, poha, naan, kulcha, paratha or upma?	YES or NO
2.1	Chapati, roti, dalia or roasted maize?	YES or NO
2.2	Pearl millet or finger millet?	YES or NO
3	Potato, sweet potato, turnip, arum root, tapioca or raw banana?	YES or NO
4	Daal, sambar, chickpeas, kidney beans, soya or khichdi?	YES or NO

	Yesterday, did you eat any of the following vegetables?	
5	Carrots, or pumpkin that is orange inside?	YES or NO
6.1	Mustard leaves, spinach, radish leaves, cassava leaves, taro leaves, drumstick leaves, amaranth leaves or wild greens/other greens?	YES or NO
7.1	Tomatoes, eggplant, okra/lady finger, French beans, cauliflower, cabbage or beetroot?	YES or NO
7.2	Bitter gourd, bottle gourd, pointed gourd, ivy gourd, apple gourd, ridged gourd or snake gourd?	YES or NO
7.3	Cucumber, radish, capsicum, German turnip or drumstick?	YES or NO
	Yesterday, did you eat any of the following fruits?	
8	Papaya, mango, orange musk melon or apricots?	YES or NO
9	Orange, tangerine or grapefruit?	YES or NO
10.1	Ripe banana, apple, pear, watermelon, guava, custard apple, pomegranate or pineapple?	YES or NO
10.2	Grapes, kiwi, peaches, jackfruit, chickoo, jamun, palmyra palm fruit or other wild fruits?	YES or NO
	Yesterday, did you eat any of the following sweets:	
11	Cakes, cream biscuits, biscuits, suji halwa / kesari bath, jalebi, or ladoo?	YES or NO
12	Other mithai, rice pudding, kulfi, ice cream, milkshake, toffees, or chocolates?	YES or NO
	Yesterday, did you eat any of the following foods of animal origin?	
13	Eggs?	YES or NO
14	Paneer or cheese?	YES or NO
15	Curd, lassi, buttermilk or raita?	YES or NO
16	Sausages or salami?	YES or NO
17	Mutton, beef, lamb or liver?	YES or NO
18	Pork or wild meat?	YES or NO
19	Chicken, duck or turkey?	YES or NO
20	Fish, prawn, crab or seafood?	YES or NO
	Yesterday, did you eat any of the following other foods?	
21	Peanuts, cashews, almonds, pistachios, walnuts, pumpkin seeds or sunflower seeds?	YES or NO
22	Potato chips, namkeen or mixture?	YES or NO
23	Instant noodles such as Maggi noodles or Wai Wai?	YES or NO

24	Samosa, pakora, puri, vada, mathri, kachori, murukku or bonda?	YES or NO
	Yesterday, did you have any of the following beverages?	
25	Milk, flavoured milk, chai with milk or coffee with milk?	YES or NO
26	Tea with sugar, coffee with sugar, milk with sugar, flavoured milk, Bournvita, Horlicks or Boost?	YES or NO
27	Fruit juice, packet juice such as Rasna or Frooti, sugarcane juice or nannari sarbath?	YES or NO
28	Soft drinks such as Sprite, Pepsi, Mirinda or energy drinks?	YES or NO
	Yesterday, did you get food from any place like ...	
29	McDonald's, KFC, Pizza Hut, Domino's, Burger King or other places that serve pizza or burgers?	YES or NO

Instructions for enumerators:

1) Read the DQQ exactly as written. Do not include additional dialogue or probing. Exception for India: You may wish to include skip patterns for meats (Questions 16–20) based on religion (Hindu, Muslim, Jain).

2) Do not change the questions in any way. Do not add or remove foods. Changing the questions will invalidate the DQQ. The Creative Commons license (ND) does not allow modification.

3) If you wish to collect information on additional food items, additional food groups or additional diet-related topics, these must be new questions and must be analysed independently of the DQQ.

Annexure 9: Time and cost assessment questionnaire

This questionnaire is common for both the versions.

To be filled by: Field investigator

School name: _____

Investigator name: _____

Date of visit: _____

A. Time spent to complete the NEAT-S survey

1. Time spent on telephonic/email coordination with school (minutes):
2. Time spent printing and preparing materials (minutes):
3. Time spent on direct observation (infrastructure, kitchen, sanitation, perimeter walk) (minutes):
4. Time spent interviewing the school administrator (minutes):
5. Time spent administering student questionnaires (minutes):

Total investigator time spent for this school (in hours):

B. Cost of conducting the NEAT-S survey

1. Investigator honorarium (per day): ₹
2. Total travel cost to and from school: ₹
3. Total materials cost (printing, stationary and other materials): ₹
4. Tablet/device rental, internet and/or software (if any): ₹
5. Refreshments, field expenses and other expenses: ₹

Total cost incurred for this school visit: ₹

Annexure 10: Reporting form to send back to schools

Thank you for allowing us to assess the nutrition environment at your school. Below is a summary of the findings that relate to your school and recommendations for improving your school nutrition environment.

Editable form – please type findings and recommendations in the fields below.

National policy context

Nutritious foods in school

School meals and snacks

Global recommendations (sourced from UNICEF and WHO guidance document)

School outcome

Recommendations

Food environment

Food marketing

Global recommendations (sourced from UNICEF and WHO guidance document)

School outcome	Recommendations

Food environment

Food available for sale

Global recommendations (sourced from UNICEF and WHO guidance document)

School outcome	Recommendations

Global recommendations (sourced from UNICEF and WHO guidance document)

School outcome	Recommendations

Food environment

Physical activity environment

Global recommendations (sourced from UNICEF and WHO guidance document)

School outcome	Recommendations

Micronutrient supplementation and deworming

Global recommendations (sourced from UNICEF and WHO guidance document)

School outcome	Recommendations

Micronutrient supplementation and deworming

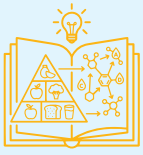
Global recommendations (sourced from UNICEF and WHO guidance document)

School outcome	Recommendations

Global recommendations (sourced from UNICEF and WHO guidance document)

School outcome	Recommendations

Nutrition education



Global recommendations (sourced from UNICEF and WHO guidance document)

School outcome	Recommendations

Annexure 11: Standard operating procedure for implementation of NEAT-S

1. Purpose

This SOP provides practical guidance for planning and implementing school nutrition environment assessments (NEAT-S) in schools across states. It outlines key operational steps, approvals, partnerships, sampling procedures, ethical considerations and field implementation guidance to support standardized and scalable assessments.

2. Scope

This SOP applies to:

- Government departments
- Technical institutions
- Academic institutions
- Civil society organizations (CSOs)
- Research agencies
- Field implementation teams conducting NEAT-S assessments in government/government aided and/or private schools.

3. Objectives

i. **Standardize implementation processes:** Ensure uniform procedures for planning, sampling, data collection, monitoring and reporting across all implementation sites.

ii. **Ensure ethical and administrative compliance:** Support adherence to ethical guidelines and required approvals from institutional and government authorities.

iii. **Maintain data quality and consistency:** Establish standardized tools, training and quality assurance systems to ensure reliable and comparable data.

iv. **Facilitate large-scale implementation:** Enable coordinated and operationally feasible implementation across multiple districts and school systems.

v. **Support evidence generation for advocacy and policy engagement:** Generate actionable evidence to inform policy, programme strengthening and advocacy for healthier school nutrition environments.

4. Institutional and technical partnerships

4.1 Academic and technical institutional partners

Collaboration with academic or technical institutions is recommended to support:

- **Ethics submission and review processes:** Assist in the preparation and submission of study protocols, consent forms and ethical documentation to Institutional Ethics Committees/ Institutional Review Boards (IEC/IRB).
- **Technical guidance:** Provide subject matter expertise on school nutrition environments, public health methodologies and implementation strategies.
- **Tool adaptation and validation:** Support contextual adaptation, technical review, pilot testing and validation of NEAT-S tools for state-specific implementation.
- **Field training:** Support in the development of training materials and the conduct of orientation and capacity-building sessions for field investigators and supervisors.
- **Data quality monitoring:** Support the establishment of quality assurance systems, field supervision protocols and data validation procedures to ensure data reliability and consistency.
- **Statistical analysis:** Provide technical support for data cleaning, management, statistical analysis, and interpretation of findings.
- **Report writing and dissemination:** Support the development of technical reports, policy briefs, presentations and publications, and the dissemination of findings to key stakeholders.

Potential partners may include:

- Public health institutes
- Medical colleges
- Nutrition and research institutions
- Universities
- Technical agencies
- Any other relevant organizations

5. Sampling and sample selection

5.1 Sampling approach

A multistage stratified sampling approach is recommended to ensure representation across diverse school settings while maintaining operational feasibility. Schools may be stratified based on school management type (government/private), geographic location, school level and other

context-specific administrative or demographic characteristics relevant to the assessment objectives.

5.2 District and school selection:

Depending on assessment objectives and operational feasibility, either all districts or selected representative districts may be included. School selection should follow a multistage process involving district selection, block or cluster selection, and school selection using random or systematic sampling methods where feasible.

6. Ethical approval

6.1 Institutional ethics approval

Obtain approval from the Institutional Ethics Committee (IEC)/Institutional Review Board (IRB) prior to implementation. Required documents may include the study protocol, assessment tools, consent and assent forms, participant information sheets and a data protection plan. All participant-facing documents should be translated into relevant local languages as required.

6.2 Consent procedures

Obtain informed consent from school administrators and parents/guardians, and assent from students participating in the assessment. Ensure all consent and assent procedures are conducted in appropriate local languages, and that participation remains voluntary throughout the assessment process.

7. Tool adaptation

i. **State-specific programmes:** Adapt the tool to align with existing state nutrition, health and school-based initiatives and implementation mechanisms.

ii. **School systems:** Customize the framework to capture variations across government, private, residential, tribal, welfare and other school systems.

iii. **PM POSHAN implementation:** Incorporate context-specific indicators related to PM POSHAN implementation, meal provision systems and school food practices.

iv. **Local language requirements:** Translate and adapt tools into local languages to ensure comprehension and smooth field implementation.

v. **Operational realities:** Modify tools and procedures based on field feasibility, school schedules, digital access and local administrative processes. Contextualization may be particularly important in settings such as residential schools, tribal schools, welfare hostels and private schools with cafeteria or canteen-based meal systems where food provision structures differ substantially from PM POSHAN implementation models.

vi. **Contextualization and pilot testing:** If state-level contextualization or adaptation of the NEAT-S framework is undertaken, pilot testing of the adapted tools and procedures should be conducted prior to implementation to assess feasibility, clarity, comprehension, operational challenges and contextual relevance. Feedback may be obtained through consultations, field pre-testing, focus group discussions (FGDs) or in-depth interviews (IDIs) with relevant stakeholders.

vii. **Maintaining comparability across states:** While contextual adaptation may be required to reflect state-specific programmes, food systems, school structures or administrative processes, core indicators and standardized components of the NEAT-S framework should be retained to ensure comparability of findings across states and over time. Modifications should therefore be limited to areas where contextual relevance is essential.

8. Building partnerships for scale

8.1 Government engagement

Engage early with Education, Samagra Shiksha and other relevant departments for administrative approvals, coordination, school access, and alignment with ongoing education programmes.

Government permissions and administrative approvals

i. **State-level approvals:** Obtain necessary permissions and administrative approvals from relevant state authorities, including the Department of Education, Directorate of School Education, Samagra Shiksha, Department of Pre-University Welfare Departments and other relevant departments based on school systems covered under the assessment.

ii. **District and block-level approvals:** Obtain additional approvals and coordination support from district and block-level authorities such as District Education Officers (DEOs), Block/ Mandal Education Officers (BEOs/MEOs) and District Collectors where applicable.

iii. **School-level permission:** Prior to data collection, contact school principals/headmasters to share approval letters, explain the assessment objectives and timelines, and finalize school visit schedules in coordination with school authorities. Private schools may be approached through the school management authority or the school principal.

8.2 Partnerships with CSOs and local organizations

Local partners may be engaged to support district coordination, field mobilization, supervision, local troubleshooting and language or contextual support during implementation.

8.3 Internal approvals

UNICEF teams should obtain required internal approvals, such as PRIME, before undertaking research, studies or similar activities, and should also follow UNICEF Publication SOPs prior to any planned publication or dissemination of outputs.

9. Planning and preparatory phase

9.1 Define assessment objectives

i. **Purpose of assessment:** Clearly define the primary objective of the assessment, such as evaluating school nutrition environments or identifying implementation gaps.

ii. **Geographic coverage:** Specify whether the assessment will be conducted statewide, in selected districts or within specific regions.

iii. **Target school categories:** Identify the types of schools to be included, such as government, private, residential, tribal, secondary or higher secondary schools.

iv. **Intended outputs:** Define expected outputs such as state reports, district briefs, policy recommendations, dashboards or advocacy materials.

v. **Use of findings:** Clarify how findings will be used, including programme improvement, policy engagement, advocacy, curriculum strengthening or routine monitoring of school nutrition environments.

vi. **Examples of assessment objectives:** These may include statewide mapping of school food environments, programme assessment, monitoring implementation of nutrition-related initiatives, or generating evidence for child nutrition advocacy and policy action.

9.2 Identify target school categories

Decide whether the assessment will include:

- Government schools only
- Both government and private schools
- Secondary/higher secondary schools
- Residential/tribal schools, etc.

9.3 Timeline and resource planning

i. **Implementation timeline:** Develop a detailed timeline covering preparatory activities, approvals, training, data collection, monitoring, analysis and reporting phases.

ii. **Indicative implementation timelines:** States may allocate indicative timelines for key implementation processes such as government approvals, tool adaptation and pilot testing, field team recruitment and training, school coordination, data collection, quality checks, analysis and reporting to support operational planning and resource allocation.

iii. **Staffing plan:** Identify required personnel, including coordinators, field investigators, supervisors, data managers and technical experts, along with defined roles and responsibilities.

iv. **Budget:** Prepare a budget covering personnel, travel, training, digital data collection, field logistics, data management, reporting and dissemination activities.

v. **Training schedule:** Develop a structured training plan for field teams covering tool orientation, ethical procedures, data collection methods, digital platforms and quality assurance protocols.

vi. **Travel and logistics plan:** Prepare operational plans for district visits, transportation, accommodation, field movement, communication, permissions and contingency arrangements for smooth implementation.

Avoid data collection during the following periods:

- Examinations
- School holidays
- Admission periods
- Election periods

10. Recruitment and training of field teams

10.1 Selection of field staff

Field investigators should preferably have backgrounds in public health, nutrition, social sciences, or related disciplines, along with prior experience in school-based surveys and proficiency in local languages.

10.2 Training

Comprehensive training should be conducted covering NEAT-S objectives, ethical conduct, school engagement protocols, observation and interview techniques, digital data collection procedures, troubleshooting and quality assurance mechanisms. Mock exercises and pilot testing should be conducted prior to field implementation to ensure standardization, contextual appropriateness, operational feasibility and readiness of field teams.

11. Data collection procedures

11.1 Data collection methods

Data collection may include interviews, structured observations, school policy reviews, canteen or food environment assessments, and qualitative discussions with relevant stakeholders such as students, teachers and school administrators.

11.2 Digital data collection

Digital data collection platforms (e.g., KoBo Toolbox or similar systems) should be used to facilitate standardized data capture through built-in validation checks, skip patterns, offline functionality, secure cloud-based storage systems and automated synchronization mechanisms for use in low-connectivity settings. Centralized dashboards and monitoring systems may also be used to support large-scale implementation, real-time monitoring of field progress, data quality checks and timely troubleshooting by coordinating teams.

11.3 Daily monitoring and quality checks

Field supervisors should conduct daily monitoring of data submissions to review completeness, identify inconsistencies, conduct spot checks and provide timely feedback and troubleshooting support to field teams to ensure data quality and adherence to protocols.

12. Dos and don'ts

Dos

Field teams should carry approval letters, identification cards, hard copies of consent and assent forms, and copies of relevant state-specific guidelines related to school meal programmes and other relevant school health or nutrition initiatives for easy reference during school visits.

If parents or guardians are unable to read or fully comprehend the consent form, the field team should read the form aloud, explain its contents clearly in the local language, address any questions, and ensure adequate understanding before obtaining consent or a signature/thumb impression.

Respect school schedules and administrative processes, maintain confidentiality of all collected information, use respectful and neutral language while interacting with participants, verify data prior to submission and coordinate closely with designated school focal persons throughout the assessment process.

Don'ts

Field teams should not disrupt classroom activities, force participation from any respondent, photograph children or school premises without prior permission, publicly share identifiable information, or modify approved tools and procedures without authorization from the coordinating team.

13. Data management and security

All digital systems and datasets should be secured through password-protected platforms, restricted access mechanisms, and regular data backups. Consent forms, participant information sheets, and assessment datasets should be stored securely to maintain confidentiality and prevent unauthorized access.

14. Reporting and dissemination

Assessment findings should be compiled into state briefs, technical reports, presentations, and advocacy materials to support evidence-based action. Findings should be disseminated with relevant stakeholders including government departments, technical institutions, school systems, and implementation partners to facilitate policy engagement, programme strengthening, and future planning.

15. Other important considerations

Maintain continuous engagement and regular communication with government stakeholders throughout implementation to facilitate coordination and timely approvals. Replacement schools should be identified in advance to address refusals or non-response situations. Sampling and implementation plans should ensure adequate geographic and school-type representation.

Additional time should be allocated for administrative approvals, coordination, and field-level scheduling. Periodic review meetings should be conducted during implementation to monitor progress, address operational challenges, and ensure adherence to protocols. Where major contextual adaptations are introduced, additional time should be allocated for pilot testing, refinement of tools, and retraining of field teams prior to scale-up.

16. Annexures

1. Permission format for government departments
2. Permission format for District Education Officer (DEO)
3. Participant Information Sheet and Participant Informed Consent Form for school administrator
4. Parent/Guardian Information Sheet and Consent Form
5. Student Assent Form

Annexure 1: Permission format for government departments

Date

To,

The _____

Department of _____

Government of _____

Subject: Request for Support – Assessment of School Food Environments and Adolescent Dietary Behaviours in [State Name]

Respected Madam/Sir

Greetings from [Organization name].

Under the School Health and Nutrition initiative, [Organization name] is planning to undertake a statewide assessment of school food environments and adolescent dietary behaviours in [State Name].

Adolescence (10–19 years) is a critical period of growth and development and presents an important opportunity to improve nutrition, health, and lifelong well-being. However, emerging evidence indicates significant nutritional and dietary challenges among adolescents, including undernutrition, anaemia, micronutrient deficiencies, unhealthy dietary practices, and increasing risks of overweight, obesity, and other non-communicable diseases.

To generate context-specific evidence and strengthen policy and programme action, the School Food Environment Assessment has been designed to assess food environments in and around schools, adolescent dietary behaviours and food choices, and key enablers and barriers influencing healthy nutrition practices.

The assessment will broadly cover the following thematic areas:

1. School meal programmes – meal provision systems, food quality, food handling, and student perceptions.
2. School health programmes – micronutrient supplementation, deworming, growth monitoring, and related health services.

3. Adolescent dietary behaviours – dietary practices, food choices, nutrition awareness, and related behaviours.
4. Nutrition education and physical activity environment – school-based nutrition education, awareness activities, and infrastructure supporting physical activity.
5. School food environments – availability, accessibility, promotion, and marketing of healthy and unhealthy foods within and around schools.
6. WASH and hygiene – water, sanitation and hygiene facilities.

The assessment tools have been developed and adapted for the state context, and data collection is proposed to be undertaken in selected schools across identified districts of the state.

In this regard, we request your support for:

- Sharing district-wise school data/listings for the identified districts to support sampling and planning processes.
- Facilitating necessary permissions for implementation of the assessment in selected schools.

The assessment findings will contribute to strengthening evidence-based advocacy, programme planning, and policy engagement for improving adolescent nutrition and healthier school food environments.

The assessment tools and list of proposed districts are enclosed for your reference. We look forward to your support and collaboration in this important initiative.
Best regards,

[Name]
[Designation]
[Organization]

Annexure 2: Permission format for District Education Officer (DEO)

To be printed on implementing agency letterhead

Date

To,

DEO (Name) _____

District Name _____

Subject – Approval to initiate data collection in (District name) for the school food environment assessment

Respected Madam/Sir,

We are submitting this letter to the department for approval to initiate data collection for the school food environment assessment in [District name] in the selected government and private schools as per the list communicated to the DEO office by the school education department, Government of [State name].

We are hereby sharing the details of the data collection team with you, who will visit the schools for data collection:

1. Name of the data collector
2. Name of the data collector
3. Name of the data collector

The above data collectors represent [Implementing agency name]. We request you to kindly allow them to visit the schools and collect the necessary data for the assessment.

We also request you to kindly communicate the information with the concerned district level teams and schools.

Yours respectfully,
Name
Designation
Address

Annexure 3: Participant Information Sheet and Participant Informed Consent Form for school administrator

Participant Information Sheet (PIS)

School Food Environment Assessment

Introduction

UNICEF, in collaboration with [Government Department/Institution/NGO Name], is conducting a Nutrition Environment Assessment through the Nutrition Environment Assessment Toolkit for Schools (NEAT-S) in selected schools across [State Name]. The assessment aims to understand various aspects of school food and nutrition environments and support the strengthening of school health and nutrition initiatives.

The assessment may include:

- School meal programmes and food practices
- Water, sanitation, and hygiene (WASH) facilities
- Food availability and food environments within and around schools
- School health and nutrition activities
- Nutrition education and physical activity environment
- Adolescent dietary behaviours and related practices

As part of the assessment, the assessment team may visit your school to conduct observations, interviews, and discussions with relevant stakeholders, including school administrators, teachers, students, and staff.

What participation involves

Participation may include:

- Interviews or discussions
- School observations
- Review of school-level practices or facilities
- Participation in assessment activities related to school nutrition environments

The assessment activities may require approximately 30–45 minutes depending on the respondent category and assessment component.

Risks and benefits

There are no anticipated major risks associated with participation in this assessment. The findings from the assessment may help strengthen school nutrition, health, and food environment programmes and policies.

Confidentiality

All information collected during the assessment will be kept strictly confidential. Names of schools, participants, students, teachers, and staff will not be disclosed in reports or publications. Data will be anonymized, securely stored, and used only for programme, research, and academic purposes in accordance with applicable ethical and data protection guidelines.

Voluntary participation

Participation in this assessment is completely voluntary. Participants may choose not to answer any question or may withdraw from the assessment at any time without any penalty or consequences. Refusal to participate will not affect the school or participants in any manner.

Contact information

For any questions regarding the assessment, participants may contact:

- [Name of Principal Investigator/Coordinator]
- [Designation]
- [Organization]
- [Email address]
- [Phone number]

Participant Informed Consent Form (PICF)

School Food Environment Assessment

Consent statement

I have read and understood the information provided in the Participant Information Sheet regarding the School Food Environment Assessment (NEAT-S). I have had the opportunity to ask questions and receive clarification. I voluntarily agree to participate in this assessment.

☐ Yes

☐ No

Name of participant

Designation/role
School/institution
Signature
Date

Name of researcher/field investigator

Signature
Date

Annexure 4: Parent/Guardian Information Sheet and Consent Form

Parent/Guardian Information Sheet

School Food Environment Assessment

Introduction

UNICEF, in collaboration with [Government Department/Institution/NGO Name], is conducting a Nutrition Environment Assessment in selected schools across [State Name]. The assessment aims to understand school food and nutrition environments and adolescent dietary behaviours to support the strengthening of school health and nutrition programmes.

As part of the assessment, some students may be invited to participate in interviews, discussions, or activities related to food habits, nutrition, school food environments, and health practices.

What participation involves

If you agree, your child may participate in:

- Simple questionnaires
- Discussions related to food, nutrition, physical activity and school environments

Participation may require approximately 20–30 minutes.

Risks and benefits

There are no anticipated major risks associated with participation. The information collected may help improve school nutrition, health programmes, and food environments for children and adolescents.

Confidentiality

All information collected will be kept strictly confidential. Your child's name and personal details will not appear in any report or publication. Data will be anonymized, securely stored, and used only for programme, research, and academic purposes.

Voluntary participation

Participation is completely voluntary. You may choose not to allow your child to participate or may withdraw your permission at any time without any consequences for your child or the school.

Contact information

For any questions regarding the assessment, participants may contact:

- [Name of Principal Investigator/Coordinator]
- [Designation]
- [Organization]
- [Email address]
- [Phone number]

Parent/Guardian Informed Consent Form

School Food Environment Assessment

Consent statement

I have read and understood the information provided in the Parent/Guardian Information Sheet regarding the School Food Environment Assessment (NEAT-S). I have had the opportunity to ask questions and receive clarification. I voluntarily agree to allow my child to participate in this assessment.

☐ Yes

☐ No

Name of parent/guardian
Name of child
Class/section
School name
Signature/thumb impression
Date

Name of researcher/field investigator
Signature
Date

Annexure 5: Student Assent Form

School Food Environment Assessment

Introduction

Hello!

UNICEF, together with [Institution Name], is conducting a Nutrition Environment Assessment in your school. Your parent/guardian has provided permission for you to be invited to participate in this activity.

We would like to understand students' food habits, nutrition awareness, school food environments, physical activity, and health-related practices. Your views and experiences are important and will help improve school health and nutrition programmes.

What you will be asked to do

If you agree to participate, you may be asked to:

- Answer some questions
- Share your opinions about food, nutrition, physical activity, and your school environment

The activity may take approximately 20–30 minutes.

Your choice

Taking part in this activity is your choice. You do not have to participate if you do not want to.

- You may skip any question you do not wish to answer.
- You may stop participating at any time.
- There are no right or wrong answers.
- Your participation or refusal will not affect you in any way at school.

Privacy and confidentiality

Your answers will be kept private and confidential. Your name will not be included in any report or publication. The information collected will only be used for programme, research, and educational purposes.

Questions or concerns

If you have any questions about this activity, you may ask the researcher present during the assessment.

You may also contact:

- [Name of Principal Investigator/Coordinator]
- [Designation/organization]
- [Phone number/email]

Assent statement

I have understood the information explained to me about this activity. I know that participation is my choice, and I agree to participate in the School Food Environment Assessment (NEAT-S).

☐ Yes

☐ No

Name of student

Age
Class/section
School name
Signature/thumb impression
Date

Name of researcher/field investigator

Signature
Date

Strengthening Evidence on School Nutrition Environments in India: Insights from Feasibility Assessment of the Adapted NEAT-S Tool

unicef

for every child

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