COMMUNITY DIET DIVERSITY

The **Community Diet Diversity project** is a multi- approach pilot project with an aim which focuses on involving collaborative and innovative strategies for creating awareness and providing door-step delivery of vitamin and mineral rich leafy vegetables from community based nutri-garden/ micro greens to overcome the urgent need of micronutrients to combat malnutrition and anemia within the community using a WEBGIS platform and online Nutrition Education Programs (e-NEP).

The e-NEP will communicate a behavioural change among ICDS Mukhaya sevikas , Anganwadi workers and through them the ICDS beneficiaries[1] using an e-interactive sessions as well as e-Nutrition and Health informative The E-NEP would interact with audiovisual materials .There will be , e-quizzes, e- games and e-surveys on nutrition knowledge attitudes and <u>dietary intake diet diversity</u> (this concept has been further elaborated in Annexure 1) and cooking practices These e-quizzes and e-surveys will be implemented pre and post e-interactive sessions as well as will help generate a baseline as well as impact assessment of the E-NEP this will give us a good insight on the shift towards a positive behavioural change .

 The Mukhya sevikas and Anganwadi workers participants would be encouraged by Nutri –educators mentors to also carry out self-observation and "peer learning. "One of the major advantages of peer learning in modern school systems is that is has been shown to be effective in allowing minority groups to integrate better, and the shared experience has increased the likelihood of continued positive interaction (Rohrbeck et al. 2003). This implies the sense of inclusion that peer learning creates is useful in not only educational but social manner. Other studies have found similar results, with a general improvement in reading ability of those students seen disadvantaged after the implementation of a PAL system. (Fuchs et al 1997). Further studies confirmed this has meant peer learning is now a widely adopted system in areas seeking to combat poor reading skills in their school population (Simmons et al., 1994)"

The e- NEP concepts for ICDS would include: Each topic has been briefly elaborated in Annexure 1
- Breastfeeding practices (0-6m) and complementary feeding (6m-2y)
- Anthropometric self-assessment for adults
- Importance of Growth monitoring for 0-6y
- Anemia Awareness and overcoming Micronutrient deficiency among anemic women
- Importance of Take Home Rations (THR) consumption and developing and teaching recipes using the THR

- E-cooking Demonstrations for Healthy recipes for infants and toddlers (complementary foods), pregnant, lactating as well as adolescent girls (anemic women)
- Household and Individual Dietary Diversity with focus on importance of nutri kitchens and microgreens in the diet
- Type 1 -Functional and Type 2 - Growth nutrients
- Health and hygiene practices focusing on food safety
- Nutrient dense traditional recipes
- Junk food habits and its impact on health
- Healthy Snack alternatives to Junk foods
- Immunity boosting foods and their importance

The Nutri-educators mentors will be selected from in the field of Nutrition having a basic nutrition and Health background and more over a keen interest and work as motivators and capacity builders for the ICDS centers. These Nutri-educator mentors will ensure and monitor the participation of ICDS and their beneficiaries[1]. They will be conducted interactive sessions using e-Nutrition Education Programs (e-NEP) for the ICDS Mukhyasevikas, Anganwadi workers who will in turn enroll and guide the beneficiaries[1] in the community further. The ICDS cadre (Mukhyasevikas and Anganwadi workers) will be trained in the concepts of nutrition mentioned above. The beneficiaries[1] will have direct and quick access where their queries and feedback will reach the anganwadi workers and Nutri – Educator mentors.

This multi-approach pilot project which involves innovative strategies will also involve one school in each ICDS project area, where the Nutri – educator mentors will use the Online Nutrition Education Program to communicate using an e-interactive sessions as well as e-Nutrition and Health informative The E-NEP would interact with audiovisual materials .There will be , e-quizzes, e- games and e-surveys on nutrition knowledge attitudes and dietary intake These e-quizzes and e-surveys will be implemented pre and post e-interactive sessions as well as will help generate a baseline as well as impact assessment of the E-NEP this will give us a good insight on the shift towards a positive behavioral change in school children.
This will create School children as Nutri- Leaders . The s
chools would be approached to identify and select these children would be trained and appointed as Nutri-Leaders (10-16 years of age) .

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[1] ICDS Beneficiaries: Children with SAM, MAM and anemic women and adolescent girls

These Nutri – Leaders would be educated in concepts which include :

- Nutri-gardening and micro greens cultivation

- Type 1 and Type 2 nutrients

- Anemia Awareness and overcoming Micronutrient deficiency

- Individual Dietary Diversity with focus on importance of nutri kitchens and microgreens in the diet

- Functional and Growth nutrients (6m-6y)

- Health and hygiene practices focusing on personal and food safety

- Nutrient dense traditional recipes

- Junk food habits and its impact on health

- Healthy Snack alternatives to Junk foods

- Immunity boosting foods and their importance

- Importance of Fitness

These Nutri-leaders will,, not only share the nutri- garden produce with selected ICDS Anganwadis workers who in turn will distribute this precious cargo to selected ICDS beneficiaries (children with SAM, MAM and anemic women and adolescent girls),but also share their knowledge with each other in the school as a part of the peer learning process

The pilot project is a macro-strategy with a micro-approach where each and every participant and beneficiary is closely touched with the concepts of diet diversity, health and hygiene. Every stake holder such as school children, ICDS Mukhyasevikas, Anganwadi workers and ICDS beneficiary[1] becomes a change agent and causes a ripple effect to bring about a positive behavioral change in the community.

Since this project involves a number of stake holders their learning, trouble-shooting and coordination of activities, an agile communication system is necessary. Since activities involve growing microgreens in some places and taking them to beneficiaries in several other places, it is necessary to create map based visualization for all stakeholders to manage logistics.

As such a webgis platform, with features like database content management system, Gis and mobile friendly interface will be created. All stakeholders, from school students, intermediaries like Sahayika, Mukhyasevika, Anganwadi workers to ultimate beneficiaries[1] and managers will each have an appropriate login, and interfaces to input information or view reports, all using their mobiles. Language of communication will include English and Marathi language. The open source platform created as public domain software will be available free for modification and adoption by anyone.

AIM

Involve collaborative and innovative strategies for creating awareness and providing door-step delivery of vitamin and mineral rich leafy vegetables from community based nutri-garden/ micro greens to overcome the urgent need of micronutrients to combat malnutrition and anaemia within the community using a WEBGIS platform and online Nutrition Education Programs (e-NEP)

OBJECTIVES

1. To create a model of intervention with a special focus on SAM and MAM child and anemic women in an urban setting.

2. To create an environment for peer-to-peer[2] learning and engage them towards nutritional communication for behavioural change.

3. To increase awareness and translate healthy nutrition knowledge, attitude and practices among the peer groups.

4. To create, implement and evaluate an E-NEP among these peer groups.

5. To introduce and implement the concept of urban/rural/tribal nutri-garden &micro greens among these peer groups WEBGIS platform with access enabled on mobile to engage in peers towards the concepts of nutrition, health and hygiene.

6. Connection between focus groups: From one focus group (ICDS) who receive the necessary micro greens from the second focus group (schools)Two focus groups :

- ICDS center and their beneficiaries
- School children

STRATEGY

We propose to use following techniques and processes to achieve the goals

1. Peer-to-peer learning,

2. Community participation,

3. Online-NEP,

4. Nutri-Monitors and Nutri-Leaders as change agents,

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[2]Peer groups - Groups of women, adolescents, school children, professionals/paraprofessionals working in the community e.g. sahayoginis, AMNs, AWWs, mukhyasevikas, NGO/Govt. officials and field workers, etc.

5. Nutri-gardens and Microgreens,

6. WEBGIS platform,

7. Mobile communications,

8. Use of apps in hands of beneficiaries to self-assess and selectively communicate with privacy protection

FLOW OF THE PROJECT
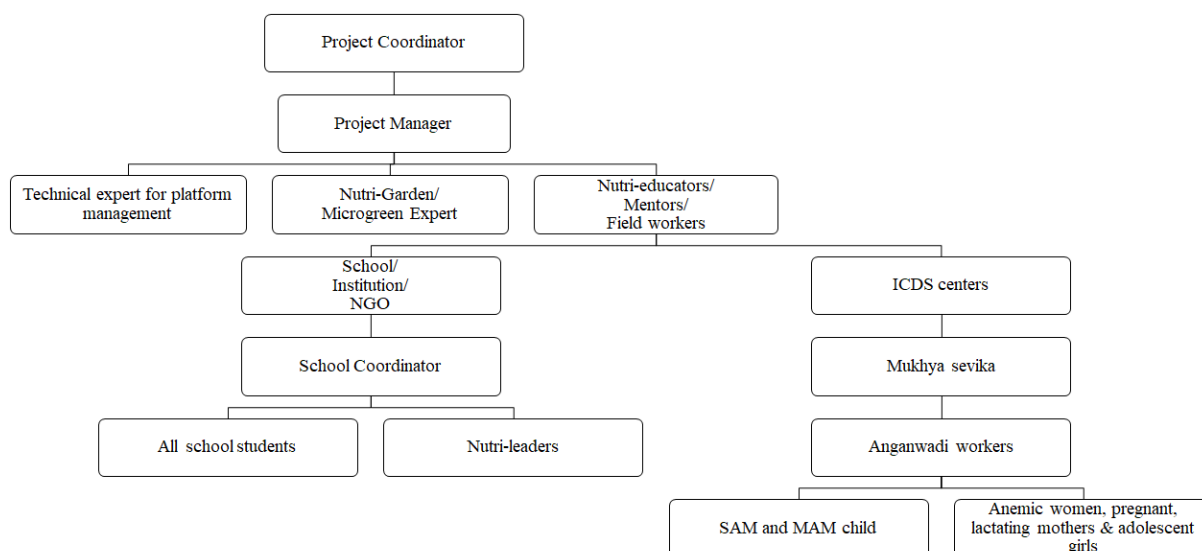
METHODOLOGY

Beneficiaries of the Project: This project proposes to focus on two groups

1. ICDS:

a. Mukhyasevika& Anganwadi workers (Nutri-Monitors)

b. ICDS Beneficiaries
   - Infants, Toddlers and pre-school children (0-6 years)
   - Mothers of the children
   - Pregnant, Lactating mothers & Adolescent girls (anemic)

2. School-going children (10 to 16 years)

a. We use mentors as organizers and communication agency

b. We build a conversation among students

c. We create activity schemes for children with interaction within community

d. Children help developing and maintaining nutrigardens and generate microgreens
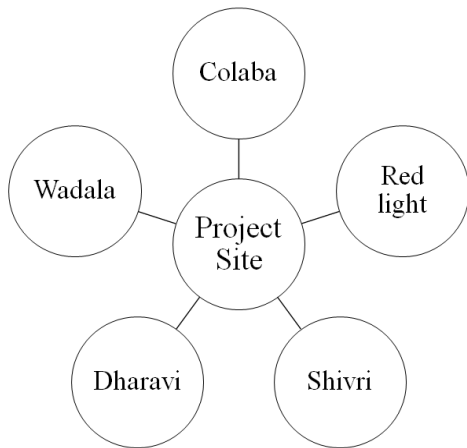
ICDS centre and **1 school** from the given areas will be selected. Inclusion criteria is proposed to be that we choose BMC schools with a secured available space for developing the nutri-garden/microgreens and a willing team of teachers to undertake the project.

Following are the proposed beneficiaries of the project:
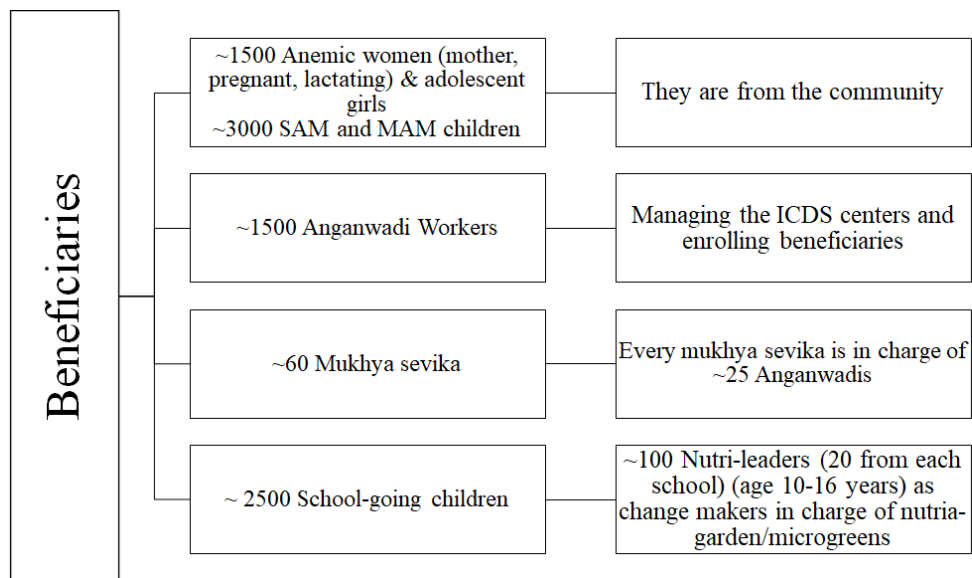
COMMENCEMENT & DURATION

It is proposed that this project will be in phases and the proposed phase will begin in November beginning and end in July 2021 (8 months). Next phase will be subject to approval and will be starting from Aug 2021.

PROCEDURE

1. Identification of the following:

a. SAM and MAM child within the area

b. Anemic women & adolescent girls within the area

c. Lactating and pregnant women

d. School in the given area

e. ~20 Nutri-leaders from each school

2. Developing a communication channel with the beneficiaries: anganwadi workers to encourage the beneficiaries to download and use apps and win points/rewards by communicating to the system.

3. Development of specific interface for each role like the school coordinator, mentors, anganwadi workers, school students, project managers, parents, field workers

4. Implementation of the Nutrition app

a. SAM and MAM children

b. Anemic women & Adolescent girls

c. Anganwadi workers & Mukhyasevikas

d. All the school-going children

5. Primary data collection through field workers for SAM, MAM, school-going children, Anemic women, adolescent girls

a. Identify the trained people **or** Training the field workers in collection of primary data

RESPONSIBILITIES IN BRIEF

The activities of the project will be guided by

1. The ICDS focus will be governed by ICDS practices and based on consultation with CDPOs of the areas selected

2. School student focusas per roles below

Following is a list of proposed roles and responsibilities. Proposed interactions and activities in the field are described. Based on the same, necessary interfaces on the webGIS platform are also listed for each role.

Role Name	No.	Responsibility	Data Input from the role
Mukhyasevika	60	Becomes the liaison between the mentor and the anganwadi workers. Training for how to use the application and she will undergo nutrition education herself. She has to share the application and enroll the anganwadi workers who have smartphones.	1> enroll anganwadi workers and Beneficiaries on mobile app 2> report daily on a> anganwadi workers contacted, b> report on carrying of

			microgreens 3> Report field issues d>etc
Anganwadi worker	1500	Training for how to use the application and she will undergo nutrition education herself. She has to share the application and enroll the beneficiaries who have smartphones and monitor the progress of the beneficiaries on the application.	1>enrol beneficiary children, mothers, adolescent women, anemic women 2> measure weight , height and other parameters and report using mobile app 3> report visits
School Coordinator	5	Training for how to use the application and undergo nutrition education themselves. They will enroll the students on the application and monitor their progress. They will select motivated students and monitor the nutri-leaders as well. They are incharge of the distribution of the produce from the nutri-garden/microgreens grown.	1>Enroll students 2> arrange meetings with mentors, 3> report on meetings 4> report on nutri-gardens including photographs
Nutri-leaders	100	They would be incharge of the nutri-garden/microgreens. They would be growing the nutri-garden/microgreens in the school premises. They will in turn get certification, training and they become game changers for communication for behavioral change for the rest of the school students.	Report on nutri-gardens
School/Institution/NGO	5	Provide a secured space for growing the nutri-garden/microgreens. They should provide safe storage for equipment and produce. They should schedule the nutri-educators/mentors for the live-sessions every week (1 hour)	
ICDS centers	5	They will share the details about the SAM and MAM child and the anemic women. They should schedule live sessions with the nutri-educator/mentor with the beneficiaries.	

Nutri-educator/Mentor	50	In charge of the schools/institution/NGO/ICDS centers and their beneficiaries. Training the people in using the application. They will coordinate and monitor the use of the application.	
Project Manager	3	Overlooking the work done by the nutri-educator/mentor. Data management and analysis. Responsible for the infotainment section. Training the nutri-educators and mentors in using the application.	
Project Coordinator	2	Project Coordinator (no. 2) - Oversee the entire project. Create and plan the infotainment and interactive sections.	
Visiting Nutri-garden expert	1		
Principal Investigator	1	Guide a project	
Technical Consultant	1	Guide on Nutrition domain	
WebGIS Expert	1	Design the webGIS platform and develop the software	
Student interns	2	1: To study malnutrition in urban children 2> study nutri-garden usage	
Ground Staff	2	Work on the ground with the Anganwadi for collection of appropriate data	
M&E	1	Monitor the program closely based on program plan and highlight issues/challenges and documentation of program	

The produce from the nutri-garden/microgreens would be shared with the ICDS centers.

Proposed Percent distribution of nutri-garden/microgreen produce	
SAM child	15%
MAM child	30%
Anemic women & adolescent girls	25%
Anganwadi worker	5%
School	25%

WEBGIS PLATFORM

Bulk/Individual Registration of all the people involved with the project e.g. mentors, teachers, students, etc.

The nutrition applications will have 2 sections:

1. Infotainment section - nutrition and health topics across ages, videos, pictures, articles
2. Interactive section - nutrition education, recipes sharing, anthropometry assessment, nutritive assessment of diet/recipes, diet diversity score. Assignments for beneficiaries on nutrition and health related topics

Infotainment section can be open to anyone accessing the platform.

Interactive section would be accessible to the peer group and their coordinator and mentor

Monitoring of anthropometry, diet, knowledge, attitude and practices of the beneficiaries and live interaction between the beneficiaries and nutrition-educators. Undertake survey on health and nutrition.

Live training programs from coordinators, mentors and experts with the beneficiaries.

Current Status:

A website is under construction as in dietdiversity.communitygis.net

References

Rohrbeck, Cynthia A.; GinsburgBlock, Marika D.; Fantuzzo, John W.; Miller, Traci R. (2003)

Fuchs D., Fuchs L.S., Mathes P.G., Simmons D.C. (1997) PeerAssisted Learning Strategies: Making Classrooms More Responsive to Diversity. *American Educational Research Journal,* 34: 174206, doi:10.3102/00028312034001174

Simmons, D. C., Fuchs, D., Fuchs, L. S., Hodge, J. P., & Mathes, P. G. (1994). Importance of instructional complexity and role reciprocity to classwide peer tutoring. *Learning Disabilities Research and Practice*, 9, 203–212.

Annexure 1 A brief explanation of the e topics in the eNEP

Topics

1. Breastfeeding practices (0-6m) and complementary feeding (6m-2y)

2. Importance of Growth monitoring for 0-6y

3. Importance of Take Home Rations (THR) consumption and developing and teaching recipes using the THR

4. E-cooking Demonstrations for Healthy recipes for infants and toddlers (complementary foods), pregnant, lactating as well as adolescent girls (anemic women)

5. Functional and Growth nutrients (6m-6y)

6. Nutrient dense traditional recipes

7. Health and hygiene practices focusing on food safety

The above mentioned topics (1-7) focus on the importance of 1st 1000 days, Essential Nutrition Action during Pregnancy and Lactation – An Overview of M IYCF - A good part of the total growth faltering in India has already taken place at birth and much of the growth faltering in early life can be attributed to faltering in HAZ(Height for Age) scores or stunting. This confirms the importance of the first two years of life as a critical window within which linear growth is most sensitive to environmentally modifiable factors. We will be focusing on prenatal and early life interventions (in the -9 to +36 months window of opportunity) to avert the growth failure that occurs during this sensitive period. We will promote maternal health and nutrition as a means to preventing intrauterine growth retardation. Also, once born, nutrition-dependent growth in the baby's first 3 years hinges upon three pillars; nutrition of lactating mothers, breastfeeding and complementary feeding. We will stress on exclusive breastfeeding during the first 6 months and thereafter guide mothers on principles of complementary feedings through the e-interactive sessions and e-audio visual material

8. Anthropometric self-assessment for adults

Anthropometry is the measurement of body height, weight & proportions. It is an essential component of clinical examination of infants, children & pregnant women. It is used to evaluate both under & over nutrition. The measured values reflects the current nutritional status.

9. Type 1 and Type 2 nutrients

What is Hunger? What is Hidden Hunger? Classification of Nutrients - Type 1 Nutrients - Functional Nutrients. Type 2 Nutrients – Growth Nutrients . Their food sources. Malnutrition - Undernutrition and Over nutrition

. 10. Anemia Awareness and overcoming Micronutrient deficiency among anemic women . The causes of nutritional anemia , Micronutrient rich food sources, food combinations which promote nutrient bioavailability

10. Household and Individual Dietary Diversity and Diet intake with focus on importance of nutri kitchens and microgreens in the diet.

Dietary evaluation methods include 24-hour dietary recalls, food frequency questionnaire (FFQ). This will informs us about the dietary intake of an individual which is then used to calculate the macro and micro nutrient intake. Dietary intake is characterized as an individual's normal eating patterns, including specific foods and their consumption of calories.

Dietary Diversity is the number of various food groups which are consumed over a period of time. It is an index of food-variety intake that has been developed to assess the entire diet consumed. Based on dietary guidelines, dietary variety is a characteristic of healthy diets.It's of 2 types: Individual Dietary Diversity and Household Dietary Diversity.Individual Dietary Diversity: It is described as the number of different food groups consumed by an individual over a period of time. Household Dietary Diversity: It is described as the number of different food groups consumed by household members over a period of time. This data is then used to calculate the Individual Dietary Diversity Score and Household Dietary Diversity Score. Household Dietary diversity and Individual Dietary Diversity depends on food availability and nutrient intake of various food groups. It is an important component of nutritional outcome.

11. Junk food habits and its impact on health

12. Healthy Snack alternatives to Junk foods

Topic 11-12 will deal with the easy availability and increasing trend of consumption of fast foods and sugar sweetened beverages (fruit juices and drinks, carbonated drinks, energy drinks) in Indian children, and their association with increasing obesity and related non-communicable diseases, there is a need to increase awareness about the guidelines related to consumption of foods and drinks that have the potential to increase this problem in children and adolescents.

The Term 'JUNCS' foods, cover a wide variety of concepts related to unhealthy foods

J- Junk food (foods high in fats, especially saturated and trans-fats, sugars and salts, and foods

lacking in micronutrients/minerals)

U-Ultra processed foods (as defined in the fourth category of NOVA classification)

N- Nutritionally inappropriate foods. Home-made foods can also qualify to be nutritionally inappropriate if prepared in recycled oil, or contain high amount of sugar, fat or salt.

C- Caffeinated/colored/carbonated beverages

S- Sugar sweetened beverages

13 Immunity boosting foods and their importance

A few examples are

- Lemon
- Ginger
- Tulsi
- Mint
- Sauf (fennel seed)
- Ajwain
- Turmeric
- Amla

14. Nutri-gardening and micro greens cultivation

Learning a novel skill on how to grow healthy, nutritious greens It will helps students to get educated about all aspects of growing their own food, about sustainable food and the health benefits, it teaches you that you don't need a lot of space to grow your own food.

15. Importance of Fitness

The need for physical fitness , simple suggestions how to keep fit indoors as well as indulge in an active recreation, the ability to perform in sports as well as daily activities. Physical fitness is now considered a measure of the body's ability to function efficiently and effectively in work and leisure activities, to be healthy,

T