

Apni Kyari Apni Thali: An Innovative Model for Nutritional Security of Rural Woman and Children

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Majority of children in Bihar have underprivileged childhoods starting from birth. The infant mortality rate of children is 34 and 25% of newborn children are underweight among other nutritional and immunization deficiencies of children in India. Integrated Child Development Services (ICDS) is a government programme, which provides food, primary healthcare, immunization, health check-up and referral services to children under 6 years of age and their mothers. ICDS has also been linked to Anganwadi centres established mainly in rural areas and staffed with frontline workers. Bihar Agricultural University, Sabour, Bhagalpur has taken an initiative to cope-up malnutrition through agricultural intervention “Apni Kyari Apni Thali (AKAT)” in collaboration with ICDS (Deptt. of Social Welfare, Govt. of Bihar) and UNICEF. Figure 1 indicates the different linkage towards adaptation of this innovative model. This initiative aims to bring together KVKs and Anganwadi centres and overcome nutritional deficiency of protein and micronutrients to the unprivileged infants and their mothers. The scheme of implementation of the project is represented in Figure 2. To achieve the ultimate goal of alleviating malnutrition, three objectives have been formulated: (I) Impact of nutrition education package on

malnutrition among rural women and children through Community Radio Station (CRS); (II) Diversification of food intake among rural women and children through establishment of nutri-garden under AWCs; (III) Ensuring quality nutrition among malnourished children and mothers through mushroom enriched food in their diets.

Implementation of the model

The programme has been implemented under four districts viz., Patna, Nalanda, Purnea and Khagaria through the existing Krishi Vigyan Kendras. A systematic approach was followed to bring the perceptible improvement in the nutritional security through multipronged approach with special focus on one specific approach at each district. Creation of awareness through nutrition education through CRS, Barh under KVK, Patna, incorporation of Mushroom to daily diet at in Nalanda and enhancing diet diversity through establishment of nutri-gardens at AWCs at Purnea and Khagaria was the core strategy. Five villages were selected at each districts and a strong linkage was established between respective KVK and AWC with the help of ICDS, Govt. of Bihar. Nutritional garden were established at AWC to include green leafy vegetables/fruits in the diets of

pregnant/lactating women and children. Community Radio Services was employed to boost up the nutritional and health awareness programme. Awareness through Community Radio Services is one of the fascinating way the KVK has opted to reach rural mass. Our initiatives also encouraged the cultivation and inclusion of mushroom in diets to combat the malnutrition in children. Mushroom cultivation was promoted at each selected AWCs and same was served as a supplement in meal at selected AWCs. An extensive campaign was conducted to remove the stigmas and taboos related

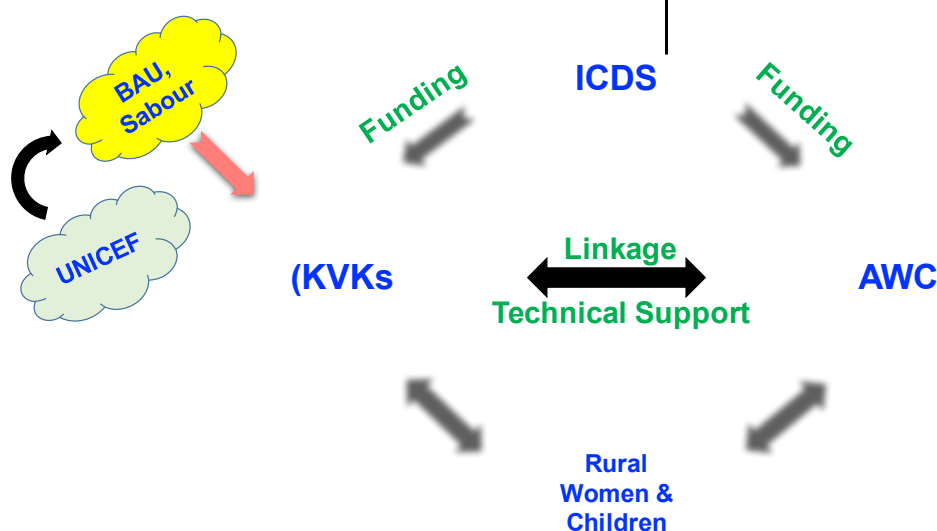
Approach and methodology adopted to bring innovation

This programme was started in 2018 at four KVKs centres (viz., Patna, Nalanda, Purnea and Khagaria) of BAU, Sabour. All these centres have their unique approaches to meet with the demands of micronutrients to the unprivileged one. The following section will enlighten the glimpse of major initiatives and achievements by these four KVKs so far.

1. KVK, Barh, has started nutritional awareness programme to combat malnutrition among children,

pregnant, lactating women, adolescent girls and other rural people through Community Radio Services (CRS). Five blocks under KVK, Patna (viz., Barh, Athmalgola, Belchhi, Pandarak and Bakhtiyarpur) have been selected, where population was more than 3000. A quick survey to get the feedback from

the people from this block was conducted and results were highly fascinating. People also shared the nutritional knowledge that they perceive through this platform. Balanced diet, food and nutrition, nutritional deficiency diseases, enhancing nutrition through low-cost diets, nutritional efficiency diet, benefits of moringa, mushroom, techniques for upgrading nutrition in regular food, cooking and processing method to retain nutrition availability like fortication, germination, fermentation and high protein diet etc. were the major attention covered for broadcasting every day for 3 hours. This programme



to food habits including mushroom consumption. The rural woman was empowered with technical knowledge of nutri-garden establishment, **Figure 1: Linkage for adaptation of the model.**

mushroom cultivation and diversification culinary. Nutrition education on selection of right food as per local availability, removal of taboos in food, causes of malnutrition and issues regarding micronutrient deficiencies were thoroughly discussed to bring about desirable changes in food consumption pattern.

also comprised of question-answer interactive session, poshan songs, drama nukkad-natak, stories, poems and lectures and interviews, etc. with nutrition experts, AW workers, CDPOs, scientists, local leaders and progressive women and farmers. A special session on supplementary feeding and preparation was concealed in details. Table 1 represents Prevalence of symptoms related to malnutrition/hidden hunger among children in adopted villages before and after implementation of Apni thali Apni Kyari initiative at KVK, Nalanda under Poshan Abhiyan.

selected nutritious crops, garden tools, method of cultivation, uses and preservation techniques were facilitated by KVK to ensure their availability throughout the year. This programme was aimed to reduce atleast Rs 5000/- for fruits and vegetables from the total food budget of AW center. The nutri-garden at AWCs utilizes locally available compost for promotion of zero budget veg. cultivation. Local women of these area have been associated as committee members to the nutri-garden for production, management and efficient utilization. So far, 40 nutri-garden has been made and working day-night to fulfil the requirement of fresh fruits and green vegetables.

3. KVK Jalalgarh, Purnea also ensures to enhance or meet nutritional requirement through nutrigarden and local people are opting it with a great enthusiasm. Main objective of the project is to provide nutritional education and also to upgrade micronutrients consumption for pregnant and lactating women of selected villages through Anganwadi centers. Total

of 50 nutrigarden has been established with technical support like availability of seeds and seedling cultivation of seasonal vegetables and fruits for whole year. The produce of nutrigarden were distributed among beneficiaries as well as in AW meal for children. We are also conducting the training programmes to the progressive women,

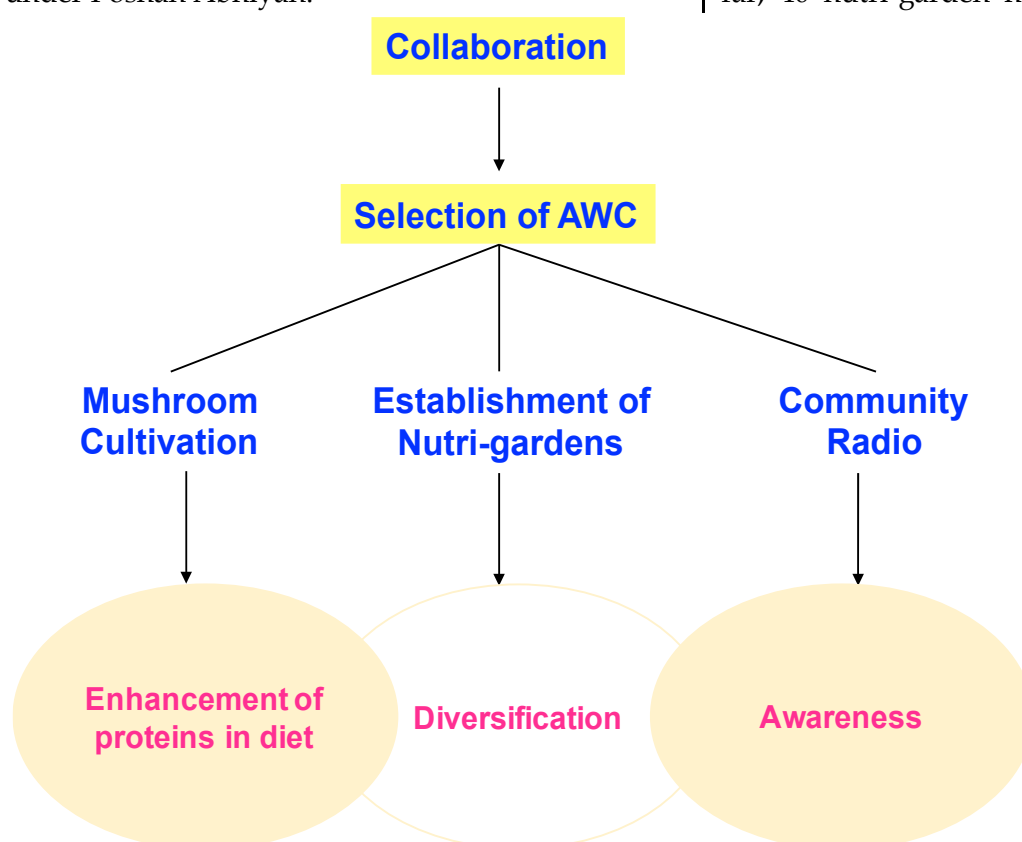


Figure 2: Working flow chart of the model.

2. KVK Khagaria ensured cheap, regular and handy supply of fresh vegetables via AWCs through establishment of nutritional garden. The major objective of nutritional garden was to provide green leafy vegetables and fruits into the diets of pregnant women and children of 6-24 month old. Supply of

lactating mothers and others to facilitate this concept to them.



A



C

Figure 3: Glimpse of AKAT at different KVKs of BAU, Sabour, Bhagalpur. (A) Distribution of radio by Hon'ble Agricultural minister, Bihar to the rural woman. (B) & (C) Establishment of nutri-gardens and adaptation of mushroom cultivation by rural woman.

4. KVK, Nalanda employed mushroom cultivation, a nutrient-dense versatile food which shares some of the benefits of fruits and vegetable and complement almost every day meal. Total 25 mushroom production units were established in the selected villages. So far, 50 malnourished children ranging from 06-36 months and 20 pregnant women were selected from each center with the help of Anganwadi Sevika. We also conducting the detailed study or survey on approximately 250 children and

50 pregnant women to see the effect of mushroom supplementation. Each unit has produced



B



D

approximately 50 kg mushroom so far, which was collected at ICDS center and distributed among 50 children and 20 pregnant mother. Mushrooms are being served as a supplement in meal at every AW center. We included mushroom in the recipe of pulao and halwa, which was well acceptable by children.

Impacts/Benefits resulting from the initiative

The initial baseline survey conducted across the selected AWCs in 04 districts of Bihar indicated presence of various symptoms of malnutrition among children, NPNL, pregnant and lactating woman. Community radio station led nutritional awareness campaign resulted in significant improvement in knowledge attitude and practice in various life styles related to diet. The use of green leafy vegetables, Mushroom, Moringa in daily diet

has been increased to the tune of 10-15 per cent. Awareness on hygienic food, safe drinking water, care during diarrhoea, anaemia management etc. has enhanced up the tune of 10-20 per cent through awareness campaign led by CRS (Table 2). Establishment of nutri-gardens has significantly enhanced the daily consumption of nutritious vegetables and fruits among the pregnant woman, lactating mothers and children. The midterm

Table 1. Prevalence of symptoms related to malnutrition/hidden hunger among children in adopted villages before and after implementation of Apni thali Apni Kyari initiative at KVK, Nalanda under Poshan Abhiyan

Symptoms	Before (%)	After (%)
Frequency of falling sick	30	10
Pot belly (Vomiting and Diarrhoea)	12	04
Spoon shaped nails/Brittle nails	02	01
Lustreless and brown hair	05	03
Pale skin	55	53
Sore tongue	10	08
Loss of appetite	05	04
Depression/ Dizziness/ Poor concentration	57	52
Bleeding gums/ Blue spot-on skin	11	10
Lack of growth and low body weight	50	40
Tiredness, Fatigue and lack of energy	65	54

N= 250 families (50 in each village); No. of children - 25 (Under 05 years).

After six months of implementation of the Apni thali Apni Kyari initiative.

assessment of the nutri-garden suggests a positive change on several general indicators among the woman and children up the tune of 20-25 per cent. The innovative cropping system followed in current nutri garden across 50 AWCs has resulted in an

average vegetable & fruit production worth of Rs. 34696 /- per AWC. An average of 1237 Kg of vegetable was produced per AWC per year fulfilling the recommended vegetables consumption needs 16-17 people as per FAO standards. Inclusion of mushroom in the regular diet of malnourished children and pregnant woman resulted in enhanced supplementation in amount of protein and micronutrients such as phosphorous, magnesium, calcium, iron and zinc etc. The supplementation of mushroom has resulted in fulfilment of approximately 12% protein, 22% niacin, 8% vitamin B, 43 % Mg and 36 % Zn towards RDA.

Summary

AKAT is an innovative initiative towards building a strong linkage between existing KVKs and AWCs through ICDS to roll out an integrated strategy to address malnutrition among the rural woman and children (Figure 2). The AKAT programme was conceptualised and implemented in 4 districts of Bihar on pilot basis. Five villages have been selected in each district viz., Nalanda, Patna, Purnea and Khagaria to implement and examine the agri-based innovative model to address the perennial problem of malnutrition (Figure 3). The principal behind the model has three pronged strategies including creation of awareness through CRS among the rural population, a self-reliant agricultural intervention to diversify the dietary habits through establishment of Nutri- gardens at AWCs and kitchen garden among the rural families and to include mushroom as important dietary component by creation village level production hubs. The initiative has been so far successful in its implementation and creating momentum among the selected villages to move towards sustainable, healthy and nutritious dietary habits. India has a vast network of Krishi Vigyan Kendra across the country

with sound experts on various aspects of farming including Home/community science experts. Whereas, AWCs are the village level centres mandated for woman and child development in rural areas. Malnutrition being a major challenge across the country, the institution like ICDS has taken several initiatives to address the same. However, there is lack of linkage between KVKs and AWCs to address this important challenge. The

innovative idea of bringing AWCs and KVKs was principle component of the current initiative where, KVKs with their domain expertise are bringing the perceptible improvement in nutrition education through CRS, enhancing food diversity through Nutri garden and incorporating mushroom in daily diet to enhance availability of Recommended Dietary Allowances (RDA).

Table 2. Impact of Community Radio Station (CRS) led campaign on Knowledge (K), Attitude and Practice (P) of life style activities related to diet among rural woman and children

Activities promoted by awareness through CRS	Percentage population of practicing Prior to Project (%)	After Implementation	
		K	P
Use of Green Leafy Vegetables in daily diet	50	70	60
Use of mushroom in daily diet	25	75	47
Use Moringa products in daily diet	35	75	50
Hygienic & Scientific Processing and Cooking Methods	25	70	40
Frequency of supplementary Feeding among children	20	65	50
Knowledge on Symptoms of Malnutrition and their care	30	70	40
Knowledge and practice of Nutri-garden	50	80	60
Knowledge on different food groups	25	75	-
Immunization and safe Drinking Water	60	80	65
Level Diet Diversification	35	70	40
Scientific Care in Diarrhea	65	90	70
Care of pregnant and Lactating Women	40	85	60
Anemia management	60	90	55
Care of Children during Illness	50	80	60

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