

# **Guidelines for Planning Nutritionally Adequate Meals for Primary School Girls**

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## **1.0 Background**

A Government primary girls school, Machi Inam, a village in remote area of Tehsil Bhag, District Kachi, about 250 km from Quetta was visited. The selection of one school represented 16% of the schools having feeding programme at the time of visit in Kachi. The Coordinator, Tawana Pakistan Project (AKU), Coordinator (IDSP), District Incharge TPP (PBM), Provincial Incharge (PBM), field workers and Social Mobilizer (PBM) were also present. The school had two rooms, without boundary wall, water, latrine, floor mat and reading and writing materials and had 32 enrolled (registered) girl students. According to attendance register 28 enrolled girls were present, but head count was 33 indicating 5 non-enrolled girls were present on the day of visit. According to school record, 4 to 25 non-enrolled girls had been visiting the school on different days for food during the last one-month. Most of the girls were bare footed and appeared to be malnourished (Protein calorie malnutrition and lack of micronutrients), anemic and infested with worms. Pond was the only source of drinking water. An attempt was made to analyze the school feeding activities, affecting school enrollment of registered and out of school girls and to suggest guidelines for improving nutritional adequacy of school meals.

## **2.0 Assessment of nutritional adequacy of meals**

The food was cooked and served regularly except one day, according to weekly planned menu. The food (Rice-potato Palau) was cooked, on the day of visit. The cooked food was weighed before and after feeding. The food was acceptable by the girls. On an average 200 gm of cooked food was consumed by each girl. About 2 Kg of cooked rice was left (wasted) after feeding. The meal provided 480 calories and 7 gm of protein per girl. The caloric intake was lower than the required intake level of 600-900 calories from the meal. The protein calorie percentage (Pcal%) of the meal was also less than 7% indicating that the meal was not adequate for the schoolgirls. The cost of the meal was calculated to be Rs 5.00 including the cost of Rs.2.88 for water and fuel per girl per day. The quality of such meal can be improved by increasing edible oil (15gm per girl) and adding 35-45 gm of dhal (channa, Moong etc) per girl with total cost of Rs.7.00 per girl per day.

**2.1** The analysis of the rest of the meals viz bread with meat curry, bread with vegetables, bread with dhal, a glass of milk or fruits only, consumed by girls revealed that the available calories for consumption in the meals ranged from 106-1270 Calories per girl per meal. The average cost of meal per girl per day was found to range from Rs 3.00 to Rs.10.00 when cost of water and fuel was excluded. Average cost of meal per girl per day varied between Rs.5.40 and Rs.12.30 when cost of water and fuel was included.

**2.2** It is evident that most of the meals were not suitable either due to low caloric value (meals based on rice, milk or fruit alone) or due to their high cost, ranging from Rs.9.00 to Rs.12.30 per meal. The high cost of the meals could be due to mismanagement

and lack of supervision/check on the quantity of food purchased and cooked according to the total number of students by member of School Tawana Committee (STC), field workers, NGO's, Social Mobilizers (PBM) or member of monitoring team of The Aga Khan University (AKU). Some examples of mismanagement were:

- i. every day 10 kg of wheat flour was used to make bread without considering the number of students. e.g. same quantity of wheat flour (10 kg) was used for 32 students on one day and for 57 students on another day.
- ii. One kilo of ghee was used to make meat curry (3 kilo) for 43 students whereas half kilo of ghee was used for same quantity of meat for 57 students on another day.
- iii. Rs.95.00 were spent daily to buy fuel, wood, dung cake and water.

**2.3** The main factor responsible for providing low caloric and nutritionally inadequate meal to girls was the ignorance of community organizer/teacher and field workers (NGO's) about the quantity of foods required not only to make nutritionally adequate meal costing Rs. 7.00 per girl per day, but also to save food losses at the end of the feeding. The lack of coordination/interaction among the members of School Tawana Committee (STC) appeared to be the main factor affecting the quality of school feeding and also dissemination of health and nutrition messages to improve the healthy living of the community.

### **3.0 School feeding as incentives for improving enrollment and encouraging daily attendance.**

**3.1** According to the attendance register, 32 girls were enrolled, but on the day of visit, only 28 enrolled students and 5 un-enrolled were present. According to school record, 4 to 25 un-enrolled (out of school) girls had been visiting the school on different days for food during the last one month. The daily attendance of enrolled and un-enrolled students was inconsistent and zigzag pattern was observed, indicating either feeding was not regular or absence of learning incentives due to lack of reading and writing materials in the school. The monthly feeding record showing number of registered and out of schoolgirls fed was not available.

### **4.0 Nutritional guidelines to be implemented by concerned stakeholders.**

**4.1** Protein calorie malnutrition (PCM) and micronutrient deficiencies are the major public health problems, resulting in low literacy and enrollment rates among the schoolgirls in the rural areas. Investment in the promotion of optimal growth and development in girls during childhood is a sound strategy for affecting female nutrition. Addressing nutritional problems in school age girls is infact addressing malnutrition and health problems in women and in the coming generations thereafter.

**4.2** The objectives of Tawana Pakistan Project (TPP) was to improving nutritional status of girls and school enrollment targeting 530,000 girls (5-12 years) in 5300 primary

schools located in 29 high poverty districts of Pakistan including Northern Areas and AJ&K through administering deworming drug and feeding balanced meals and micronutrient supplements including iron, iodine and vitamin A. The TPP is expected to achieve the targets of reducing stunting by 10%, wasting by 18%, anemia by 30% increasing school enrollment by 100% and reducing drop out rates by 30%, at the end of two years of feeding in the schools and also creating awareness of better healthy living in the community through health and nutrition education.

**4.3** In order to improve the nutritional status of the school girls and to utilize micronutrients more effectively, there was need to reduce/eliminate PCM by supplying nutritionally adequate meal, providing maximum proportion of Calories, protein and other nutrients to meet one third to one half (600-900 Calories) of the daily energy needs of the girls. The recommended dietary allowances for girls are given in Annex 1. The role of the food and nutrition group of AKU was very important in providing technical input of quantifying uncooked local foods required to satisfy the above needs of the school girls. The following Table 1 may help in selecting different foods and their amounts (gm/girl) to plan nutritionally adequate meal costing Rs 7.00 per girl. This may be included in the training manual for field workers, community organizers and school teachers.

**Table 1**  
Amount of uncooked foods required to plan nutritionally adequate meal  
for girls (5-12 years)

<b>Food Items</b>	<b>Amount (gm/girl)</b>
Cereals (wheat, rice, maize, millet etc)	150-200
Pulses (Dhal channa, masoor, mong,lobia etc)	40-50
Vegetables	30-50
Leafy vegetables	30-50
Roots (potato etc)	30-40
Fruits	100-150
Meat(beef)	50
Milk	250
Edible Oil/ghee	15
Sugar	15

**4.4** The following combinations of foods with quantity given in the Table 1 may be used according to local food habits to provide 600-900 Calories per meal within the cost of Rs.7.00 per day. The trainers should keep in mind that in a well-balanced meal, 10-15% of the total energy is usually derived from protein, 55-70% from carbohydrates and 15-30% from fat.

- i. Roti/Boiled Rice + Dhal
- ii. Roti/Boiled Rice + Vegetable with Dhal
- iii. Roti/Boiled Rice + Vegetable + Milk
- iv. Roti/Boiled Rice + Meat with Vegetable or Dhal
- v. Roti + Milk + Fruit/Boiled Rice + Milk + Sugar
- vi. Kheer
- vii. Kichri (Rice + Minced Beef + Vegetable)

**4.5** School feeding programme should be regular and adequately address the complex nutritional deficiencies in the girls diets, to have a positive effect on the long-term nutritional status of the school girls. The benefits of the programme can be increased by using local knowledge particularly that of mothers in developing locally acceptable recipes, methods of cooking and identifying availability of local foods.

**4.6** Parents should be encouraged to participate in the development and implementation of school feeding programme. Parents should provide adequate food to school girls at home and school meal should not be considered as replacement of home meal. Getting the community involved and giving them ownership of school feeding programme increases the chances for the programmes success and sustainability.

**4.7** The positive impact of school feeding programme should not be limited to improving nutritional status and educational performance. They should also serve as means of introducing sound and healthy food habits and basic food hygiene practices. Certain activities such as school gardening, nutrition education and food preservation and storage practices may be promoted to improve efficacy of the school-feeding programme.

**4.8** In order to utilize food and micronutrients more efficiently by the girls, there is need to break the transmission of parasitic infections by using pit latrines and by wearing shoes. These concepts need to be highlighted in the awareness raising activities for the community.

**4.9** The cost of the meals may be reduced by using the right quantity of different foods required as given in the Table 1 and regular visits of member of STC and AKU monitoring team, field workers and Social Mobilizers to supervise the school feeding

programme and to check the leakages in the feeding operations. Possibility may be explored to include wife of Imam Masjid in the STC for achieving the above objectives as it has the potential to offset opposition to project interventions as well as local monitoring of the feeding programme. The regular meetings of STC would help not only in improving the quality of feeding operations in the school but also in achieving the objectives of the project. The cost may further be reduced by involving students to collect fuel wood at weekends and local councilor/leader for arranging drinking water free of charge for schoolgirls. This may create a sense of participation among the community.

## Annex 1

**Recommended Dietary Allowances for Girls**

<b>Age Group (years)</b>	<b>Weight (kg)</b>	<b>Calories (Kcal)</b>	<b>Protein (gm)</b>	<b>Iron (mg)</b>	<b>Iodine (ug)</b>	<b>Vitamin A ug (retinol)</b>
5-7	19	1820	30	19	90	400
7-10	25	1900	34	23	120	400
10-12	34	1905	49	25	150	500

Source: FAO 1997, Food and Nutrition Division, Rome.