**TITLE:**

**DEVELOPING HOME-BASED VEGETABLE GARDENS AND AWARENESS ON LOW COST NUTRITIOUS FOOD AMONGST THE RURAL YOUTHS AND WOMEN TO OVERCOME MALNUTRITION AND TO ENSURE FOOD SECURITY IN FEW UNDERPREVILEGED VILLAGES OF SOUTHERN BENGAL AND REPLICATE THE MODELS IN OTHER PARTS OF BENGAL**

***A STUDY REPORT:***

Dr. Jit Sarkar, Scientist, IICB and Consultant, Swanirvar

**BACKGROUND:**

In the post-economic reforms period, India not only experienced a rapid economic transformation, but also substantial changes in the other aspects of well-being including its dietary pattern. There is a trend of declining cereal intake particularly coarse cereals accompanying a very low increase of consumption of other food items in the rural diet. These changes in diet pattern, however, are not uniform rather they vary across various socio-economic groups. Such differential access to food has resulted in widening inequalities among the groups in terms of nutrition intake which in turn has led to inequalities in health outcomes.

One of the unique features of our country is the co-existence of under-nutrition & over-nutrition, together termed as the dual burden of malnutrition. India’s prevalence of underweight (47%) compares to Bangladesh (48%) and Nepal (48%), which is much higher than all other countries within South Asia and far higher than the averages for other regions of the world. And the percentage of underweight children in the lowest wealth index category (56.6%) is nearly 3 times higher than that in the highest wealth index category (19.7%). As far as the problem of over-nutrition is considered, about 69.2 million people in India were shown to suffer from diabetes, the most common consequence of over-nutrition, in the year 2015 and the number is predicted to rise to 123.5 million by 2040. This unique picture of an underweight child & an overweight adult in the same household has already invited a lot of attention of social workers, scientists & policy makers.

Though the agricultural production in our country has increased over the last 3 decades, this highly chemical intensive agriculture is now facing a growing crisis which is attributed majorly to falling land productivity, loss of farmer's control over seeds, massive pesticide related pollution, uncontrolled pest-disease attack, rising input prices and lastly an uncertainty in the market prices.

As we all know, even now more than 55% of the rural economy is dependent on agriculture. But the economic scenario of agriculture as a livelihood option today stands in a crisis in rural India. This is where the concept of Nutrition Security was conceived as a strategy to address the issues of rural livelihood & rural health together whose main mission is to create a nutrition-sensitive agriculture & lifestyle practice in rural India.

**RATIONALE OT THE PROGRAM:**

India is a land of multiple socio-cultural identities. Though the post-liberal era has seen a rapid & homogenous change of lifestyle (livelihood options, food habit & amusements) across all the urban spaces, rural spaces still display enormous heterogeneity across the entire country. And this is quite an obvious fact as, unlike the urban spaces, the rural spaces have a unique geography, history & culture of their own. And so livelihood options, food habits & amusements all vary to a great extent across all those areas. Nutrition Security targets to identify those unique features of all the rural groups & knit them together to build a nutrition-sensitive agriculture & lifestyle practice.

**RURAL AGRICULTURE: REALITY & PROBLEMS**

The program of Nutrition Security is being carried out across 5 different locations in the state of West Bengal. The core problems to undertake proper farming is those areas are summed as follows:

|  |  |
| --- | --- |
| **LOCATION** | **REALITY & PROBLEMS** |
| **Baropahar, Birbhum** | * A large area is occupied by the mines * Soil is of rocky nature * There is insufficiency of water & proper irrigation * The agricultural lands are mostly covered by trees & forests * The young generation doesn't have enough experience of farming |
| **Kolsur, Deganga Block** | * The household areas are largely shady * Low lying areas easily get immersed after rainfall * Water contains high arsenic levels * Irrigation system isn't that much good * Chemical intensive farming is costly to the farmer |
| **Kachdaha, Swarupnagar Block** | * Low lying areas easily get flooded every year * Commercial agriculture is the main trend requiring costly & huge amount of chemical pesticides. * Irrigation is a problem |
| **Shitulia, Sandeshkhali Block** | * Riverbanks are fragile causing floods in the areas. * Soil & water both have huge levels of salinity * Free grazing of animals lead to destruction of crops. * A mono-cropping area, dependent on rain for farming * Very low market prices of the produced crops. |
| **Tea gardens of North Bengal** | * Water for irrigation is a big crisis here * Elephants often destroy the fields   People are not that much involved in agriculture |
| **Siptibari & Marium Tea Estate** | * Closed tea garden; high number of malnutrition as compared to other areas of West Bengal * Fertile land and availability of water * Lease land need Tea Garden authority’s approval for gardening * Elephants destroyed the plots * Availability of different types of bio-pest controllers and less infestation of Pests. |
| **Bagrakote Tea Estate** | * Closed tea garden; high number of malnutrition as compared to other areas of West Bengal * Fertile land but problems of water * Lease land need Tea Garden authority’s approval for gardening * Elephants destroyed the plots * Availability of different types of bio-pest controllers and less infestation of Pests. |

**RURAL HEALTH: REALITY & PROBLEM**

An extensive health assessment was done across the last 3 locations which revealed the problem of underweight children & overweight adults existing together. Further it was also observed that the burden of both the problems hugely vary from one location to another adding some justifications to our need-based strategy of Nutrition Security. Following is the data of the 3 areas-

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Location** | **No of Families** | **No of Adults** | | **Obese (BMI >25) Adults** | |
| **Male** | **Female** | **Male** | **Female** |
| Vill: Shitulia, Sandeshkhali-II Block, 24 Pgs (N) | 199 | 208 | 223 | 30 (14.42%) | 78 (34.98%) |
| Vill: Kachdaha, Swarupnagar Block, 24 Pgs (N) | 112 | 161 | 162 | 26 (16.15%) | 31 (19.14%) |
| Vill: Kolsur, Deganga Block, 24 Pgs (N) | 75 | 120 | 109 | 63 (52.5%) | 67 (61.47%) |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Location** | **Children ≤ 5 yrs** | | **Wasting** | | **Stunting** | | **Total %** | |
| **Male** | **Female** | **Male** | **Wasting** | **Male** | **Female** | **Wasting** | **Stunting** |
| Vill: Shitulia, Sandeshkhali-II Block, 24 Pgs (N) | 16 | 21 | 6 | 12 | 7 | 10 | 51.35% | 45.94% |
| Vill: Kachdaha, Swarupnagar Block, 24 Pgs (N) | 12 | 13 | 3 | 5 | 4 | 3 | 32% | 28% |
| Vill: Kolsur, Deganga Block, 24 Pgs (N) | 12 | 12 | 2 | 1 | 10 | 7 | 12.5% | 70.83% |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Location** | **Children 5-18 yrs** | | **Wasting** | | **Stunting** | | **Total %** | |
| **Male** | **Female** | **Male** | **Wasting** | **Male** | **Female** | **Wasting** | **Stunting** |
| Vill: Shitulia, Sandeshkhali-II Block, 24 Pgs (N) | 83 | 57 | 12 | 10 | 31 | 19 | 15.71% | 35.71% |
| Vill: Kachdaha, Swarupnagar Block, 24 Pgs (N) | 51 | 36 | 9 | 6 | 15 | 4 | 17.24% | 21.84% |
| Vill: Kolsur, Deganga Block, 24 Pgs (N) | 37 | 29 | 2 | 2 | 24 | 17 | 6.06% | 62.12% |

**PROGRAM FLOW-**

**Base line data survey:**

A detailed data survey of all the families including their socio-economic details, livelihood details, health details will be taken. The data will be analyzed to get the following-

* Identification of the local resources (social, economic, physical, human & environmental)
* Identification of seasonal trends, stresses & shocks in the locality
* Identification of the food intake & health risks of the community
* Identification of local traditional practices among the community

**Microplan-**

A microplan will then be made which will bear the blueprint of the entire program strategy. The beneficiaries will be organized into Community based groups which will serve as nodal point of program implementation. The microplan will be made with those groups. It shall consist of a seasonal calendar and a flowchart depicting the inputs, outputs & possible outcomes of the program

**Training on sustainable agricultural techniques-**

Basic concepts of sustainable agricultural techniques with hands-on-trainings will be given to the beneficiaries. Some material supports will also be provided to some of them for building the garden. Methods of documenting the household crop output will be taught to them. Following are some of the techniques-

* Planning a need based kitchen adjacent to home and transforming this to Nutrition Garden.
* Use of different types of beds. Water conservation techniques and mulching.
* Bio-compost and Vermicompost preparation to increase soil fertility
* Use of traditional folk seeds
* Preparation and use of home based low cost bio-nutrients
* Use of biological & botanical pest controls- Integrated Pest Management
* Folk seed production, collection and propagation
* Use of trellis
* Multiple cropping and mixed cropping
* Trials with new varieties
* Integration with animal husbandry and farm

**Training on climate change adaptation techniques-**

Techniques to adapt to the climate change problems which may hamper the agricultural yield will be discussed with the beneficiaries & taught hands-on to them. The techniques will differ according to the locations. Following are some of the techniques-

* Bucket farming/container garden
* Bottle farming
* Emergency tuber cultivation
* Rain water harvesting
* Tree plantation program and linking with MNREGS schemes.

**Training on food & nutrition-**

Basic concepts of food & nutrition will be introduced to the beneficiaries. Each household will be given a household food group chart and further advised to follow the chart for daily consumption.

**Follow-up & evaluation-**

Departmental supervisor will follow up the outputs of the work & bring feasible & required changes in the program activities. A review survey will be done at the end of 1 year to quantify & analyze the specific changes achieved throughout the 1-year program period.