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# Impact of alleviating programmes & natural resources management in ensuring food security

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**Abstract**
The objectives of the study was to assess the impact of alleviating programmes and natural resources management in ensuring food security of rural people. One hundred respondents belonged to Bholagadia and Rajabasa village of Mayurbhanj district of Odisha were selected by cluster sampling method for the present study. The data was collected by focus group discussion and interview method with the help of pretested questionnaire. The results of the study revealed that alleviating programmes had a positive impact in ensuring food and nutrition security of the respondents. They were getting more remuneration from construction work and plantation work. Savings from PDS and income from kitchen garden and forest produce were being utilized to meet the other expenses of the family. Coping up tendency regarding intake of different food items during inflation was found to be poor except rice. Majority of the respondents were found to be mildly food insecure. Thus use of HYV seeds, availing government supply agricultural inputs for better cropping should be encouraged in that locality through result demonstration and motivation to improve public health nutrition.

**Keywords:** Food security, alleviating programmes, inflation

## 1. Introduction
Food security may be defined as physical, social and economic access to sufficient, safe and nutritious food for all people, at all times, that meets their dietary needs to lead an active and healthy life. Food security is necessary to maintain an optimal nutritional status, which refers not only taking sufficient quantities of food, but also better quality foods which meet needs of an individual. The absence of any component, including cultural acceptability of food, and stability of food availability, access or utilization results in food insecurity.
According to FAO (2009) accessibility of food refers to acquire adequate amount of food through production and stocks, purchase, gifts, borrowing and this interlinks with the economic ability of the population to afford the sufficient food for their survival. Food stability is the condition where food is regularly and periodically available in the domestic market so that it also contributes to nutritional security. This includes the impact of natural calamities like floods and drought on crop production; which has an effect on continuity of food supply to meet the demand of food grain product.
Achieving food security needs policy and investment reforms on multiple fronts, including human resources, agricultural research, rural infrastructure, water resources, and farm- and community-based agricultural and natural resources management. The problem in India relates to regional disparities, particularly in economic, political and agro-climatic zones. Under these circumstances, the ability of the Central government to implement policies that can lead to uniformity in levels of food security becomes problematic. Keeping these facts in mind the present research is designed to study the impact of alleviating programmes in ensuring food security in rural Odisha. The objectives of the study were.
- To assess the demographic profile of the respondents.
- To study the alleviating programme benefits of the respondents.
- To know the coping up tendency during inflation.

## 2. Methodology
The study was carried out in Bholagadia and Rajbasa village of Khuta block of Mayurbhanj district of Odisha in the year 2016 .100 marginal farmers & landless laborers belonged to ST, SC and General category were selected for the present study by cluster sampling method.

The information on demographic profile, alleviating programme benefits and coping up tendency during inflation was collected by focus group discussion and interview method with the help of predesigned questionnaire. Assessment of food security was done with the help of scoring method.

## 3. Result and Discussion

The collected data were statistically analyzed and were discussed below.

All the respondents were belonged to the age group of 37 to 45 years and people belonged to general category had better educational qualification in comparison to ST/SC. Majority of them engaged in moderate activities such as construction work, agricultural work, plantation work etc. and very few of them were government employees.

### 3.1 Demographic Profile

**Table 1:** Demographic profile of the respondents.

| Sl. No. | Characteristics | Variables | GEN | ST/SC |
|---|---|---|---|---|
| 1 | Age group | 37-40 | 15 | 28 |
| | | 40- 45 | 35 | 22 |
| 2 | Educational level | Illiterate | 0 | 10 |
| | | Primary | 13 | 15 |
| | | Secondary | 27 | 20 |
| | | Higher secondary | 10 | 5 |
| 3 | Activity status | Sedentary | 17 | 0 |
| | | Moderate | 33 | 42 |
| | | Heavy | 0 | 8 |
| 4. | Types of works | Construction works (Rs150/ day) | 8 | 0 |
| | | Agriculture works (Rs100/ day) | 20 | 13 |
| | | Plantation works (Rs180/ day) | 10 | 14 |
| | | Government employee | 5 | 1 |
| | | Housewives | 7 | 22 |
| | | Business or for home use (making of ropes Rs 20-25) | 50 | 50 |

Increased in labour employment has increased the income and expenditure of the respondents which is used for home ration, and education. Wages from constructions of roads, plantation work (rubber, mango, cashew nut and lemon) was Rs 180/day which was more than the income from any other field or labour works. Soyabi grasses were used for making rope which was used to make cot and mat during summer days. It was interesting to note that most of the male members were engaged in construction of Indira Awas Yojana since 5 year. So laborer problem for other works was observed in that locality.

### 3.2 Alleviating Programmes

**Table 2a:** The Alleviating Programmes Benefits

| Alleviating programmes | VIW | | MGNREGA | | RGDWN | | Land registration on female | | Loans on livestocks | | No benefits government programmes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | Gen | St/Sc | Gen | St/Sc | Gen | St/Sc | Gen | St/Sc | Gen | St/Sc | Gen | St/Sc |
| Percentage | 7 | 12 | 5 | 11 | 20 | 16 | 0 | 3 | 0 | 8 | 18 | 0 |

**Table 2b:** Alleviating Programmes for Nutritional Upliftment

| Alleviating programmes for nutritional factor | PDS | | AWC | | Mamata Yojana | | MDM | |
|---|---|---|---|---|---|---|---|---|
| Category | GEN | St/Sc | Gen | St/Sc | Gen | St/Sc | Gen | St/Sc |
| Percentage | 48 | 49 | 13 | 14 | 16 | 11 | 13 | 8 |

Different types of alleviating programmes such as PDS, NREGA, loans on livestock (cow, sheeps, goats), NRHM, RGDWM, GREEN CARD, AWC, MDM, Old age and widow scheme, Indira Awas Yojana, VLW, KCC, JSY, Mamata yojana, subsidy on seeds, lands for female, drought relief fund, subsidy on farm ponds,loans on livestock (sheeps, poultry) were actively working in that village. Poultry and piggery breeding was done through own investment, piciculture was done by using natural sources and own investment which was a source of upliftment of the people in that locality. Parida *etal*.(2016)[7] found in their studies 100% implementation of PDS in Kalahandi district and also other alleviating programmes expect NMBS i.e.National Maternity Benefit scheme being the worst.

### 3.3 Principal Crop Produce

**Table 3:** Principal Crop Produce

| Crops | Paddy | | Groundnut | | Sugarcane | | Banana | | Pulses | | Employed other than field work (government employee or programmes/ housewife/ ) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | Gen | St/Sc | Gen | St/Sc | Gen | St/Sc | Gen | St/Sc | Gen | St/Sc | Gen | St/Sc |
| Percentage | 23.0 | 10 | 10 | 7.0 | 7.0 | 3.0 | 5 | 0 | 0 | 5 | 5 | 25 |

The principal crops produce in that locality were paddy, banana, groundnut and sugarcane. Pulses were not cultivated in that area since 40-50 years except few respondents. They cultivated all those crops only during rainy season because of lack of irrigation facility.

### 3.4 Agricultural Input

**Table 4:** Agricultural Input from Market and Government Organisation

| Agricultural input | Fertilizers | | Pesticides | | Weedicides | | Fertilizers Pesticides/ Weedicides fromblock | | No use of Fertilizers Pesticides/Weedicides (workers in other field) | | HYV seeds | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | GEN | ST/SC | GEN | ST/SC | GEN | ST/SC | GEN | ST/SC | GEN | ST/SC | GEN | ST/SC |
| Percentage | 50 | 10 | 50 | 10 | 50 | 10 | 0 | 8 | 0 | 12 | 0 | 0 |

It was interesting to note that none of the respondents used High yielding variety seeds for crop cultivation, rather they used local seeds. They preferred to purchase fertilizer, pesticides & weedicides from local market because of long distance of block from their village. None of the respondent's belonged to general category were bringing fertilizers, pesticides & weedicides from block. Only 8% ST/SC people were getting it from block. 12% ST/SC people were not using fertilizer etc. for their crop production.

### 3.5 Share Cropping

**Table 5:** Share Cropping

| Variables | Share cropping | | Cultivating own land | |
|---|---|---|---|---|
| Category | GEN | ST/SC | GEN | ST/SC |
| Percentage | 17 | 0 | 33 | 0 |

None of the ST/SC respondents preferred share cropping only 17% general people did it in others land.

### 3.6 Kitchen Garden

**Table 6:** Kitchen Garden and Forest Resources

| Kitchen garden | Drumstick trees | Papaya | Jack fruit | Custard apple | Cashew nut |
|---|---|---|---|---|---|
| Percentage | 15 | 20 | 30 | 10 | 22.5 |

Different types food stuffs from Kitchen gardens and forest resources available were drumstick leaves, papaya, lemon, custard apple, coconut, guava, bitter gourd, ridge gourd, cluster bean, jack fruit, cashew nut, palm trees, tamarind, mana leaves (the tender part of the stem is consumed), colocasia, mahuli, tul, leafy vegetables, flowers, mushroom and wood. There food stuffs provide them sustenance during most part of the year and additional amount generate income for them by selling those in the market.

### 3.7 Live Stock

**Table 7:** Livestock

| Livestocks | Sheeps | | Goat | | Hen | | Cows | | Pig (Hybrid) | | No Livestocks | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | GEN | ST/SC | GEN | ST/SC | GEN | ST/SC | GEN | ST/SC | GEN | ST/SC | GEN | ST/SC |
| Percentage | 2 | - | 5 | 20 | 8 | 10 | 15 | 5 | 0 | 3 | 20 | 12 |

Livestock's act as an assets to fulfill the urgent requirement, for consumption of flesh food, and income generation.

### 3.8 Future PDS

**Table 8:** Future Pds Expectation

| Pds requirement | Potato | | wheat | | Pulses | | Sugar | | Oil | | Tea powder | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | Gen | St/Sc | Gen | St/Sc | Gen | St/Sc | Gen | St/Sc | Gen | St/Sc | Gen | St/Sc |
| Percentage | 8.0 | 0 | 10 | 0 | 12.0 | 17.5 | 8.0 | 10 | 10 | 22 | 2.0 | 0 |

It was interesting to note that the public expects distribution of potato, pulses, oil and tea powder by Government to meet their nutrition security in future.

### 3.9 Savings fromPDS

**Table 9:** Use of PDS Savings

| Use of Pds budget | Home Ration | | Handia Preparation | | Educational expenses | | Agriculture expenses | | Medical expenses | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | GEN | ST/SC | GEN | ST/SC | GEN | ST/SC | GEN | ST/SC | GEN | ST/SC |
| Percentage | 18.0 | 8.0 | 0 | 20 | 7.0 | 2.0 | 23.0 | 17.0 | 2.0 | 3 |

The majority of the ST/SC respondents used savings from PDS for handia preparation and agriculture expenses whereas general people used it for agriculture expenses and home ration.

### 3.10 Coping up Tendency

**Table 10:** Coping up during Inflation (Flood & Draught)

| Sl. No. | Intake of different Food Products during Inflation (Flood / Drought) | GEN | ST/SC |
|---|---|---|---|
| 1 | Pulses 2-3 times a week | 10 | 10 |
| 2 | Leafy vegetable 2-3times a week(mostly from natural sources rather than purchase) | 10 | 10 |
| 3 | Other vegetable 2-3times a week | 8 | 10 |
| 4 | Fish once in week(mostly from natural sources rather than purchase) | 7 | 10 |
| 5 | Flesh food once in fortnight | 7 | 5 |
| 6 | Fruits Once in month (mostly from natural sources than purchase) | 3 | 3 |
| 7 | Milk once-twice in 2-3 months | 5 | 2 |

The food consumption amount was found to be decreased during inflation. Instead of 1 Kg they ate 250 grams of pulses / month and also the intake of others food items decreased except their staple food rice. Consumption of pulses, leafy and other vegetables was almost same during the days of inflation but the consumption of flesh foods, fish was found to be increased. Milk and fruits consumption fluctuates depending on income and climatic condition. The coping up tendency was found to be almost same among general and ST/SC category. Parida *et al*. (2016)[7] found in their studies that50% crop loss during draught and intake of various wild roots, bamboo tubes, mango kernels etc. during famine.

### 3.11 Assessment of Food Security

A schedule was prepared specially to asses food security of the respondents. A set of questions such as

i) meal without vegetables
ii) taking only one meal per day
iii) only afford to consume foods supplied by PDS/AWC
iv) food not consist of pulses, vegetable or non-veg
v) No sufficient food to satisfy hunger. Score 1 was given for positive answer and 0 was given for negative answer. Ranking was done based on total score i.e. food secure for – 0, mildly food in secure for 1 to 2, chronically food insecure for 3 to 5. The results are discussed below.

**Table 11:** Food Security

| Sl. No. | Status of Food Security | Frequency | Percentage |
|---|---|---|---|
| 1 | Food secure | 32 | 32 |
| 2 | Mildly food insecure | 61 | 61 |
| 3 | Chronically food insecure | 07 | 07 |

Table No. 11 depicts that majority (61%) of the respondents were mildly food in secure mainly due to meal without vegetable or non-inclusion of pulses and vegetables in their diet. Only 7% respondents were found to be chronically food insecure due to non-availability of sufficient food to satisfy hunger.

### 3.12 Hygiene

**Table 12:** Hygiene

| Hygiene | Washing vegetables before chopped | | Washing vegetables after chopped | | Washing of hands with soap before meal only among children | | No use of soap before meal only among children | |
|---|---|---|---|---|---|---|---|---|
| Category | GEN | ST/SC | GEN | ST/SC | GEN | ST/SC | GEN | ST/SC |
| Percentage | 13 | 20 | 37 | 30 | 10 | 18 | 16 | 32 |

It was interesting to note that hygiene practice was more among SC/ST people in comparison to general people both in hand washing & vegetable chopping.

## 4. Conclusion

Alleviating programmes had a positive impact on rural people in ensuring food security. Engagement in construction work and plantation work became a good source of income for their family. Even though Government is providing fertilizer, pesticides and weedicides, at a subsidized rate only 12% people were availing it because of long distance of block. None of the ST/SC people preferred share cropping. Saving from PDS and Income from kitchen garden, livestock and forest produce was used for ration, education, marriage, agriculture expenses, medical expenses and bank deposits etc. Intake of all food stuffs during inflation was found to be reduced except rice. Hygiene practice was found to be better among ST/SC people in comparison to general people. People expects distribution of potato, oil, pulses, and tea powder through PDS to meet their nutritional needs in future.

## 5. Suggestion

- Government should supply organic fertilizers on subsidy rate at the door step.
- People should be encouraged to use bio-fertilizers to reduce pesticides hazards.
- Public-private partnership should be established for export of fruits and vegetables.
- Result demonstrations should be done to motivate farmers for use of HYV seeds for more production.
- Education should be provided at the household level for proper utilization of available food stuffs to improve their nutritional status.

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