IMPACT OF MID-DAY MEAL PROGRAMME ON HEALTH STATUS AND EDUCATIONAL ATTAINMENTS OF THE CHILDREN: A CASE STUDY OF MAYURBHANJ DISTRICT OF ODISHA

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DECLARATION

I, Sharmila Tamang, hereby declare that the subject matter of this thesis is the record of work done by me, that the content of this thesis does not form base for the award of any previous degree to me or to do with the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University/Institute.

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CHAPTER I

INTRODUCTION

Education is the backbone of developing countries. An educated person serves an asset as it improves knowledge, skills, attitudes and values. Education creates human capital and this in turn benefits the society and country. Among all resources, human resource stands foremost as it makes the best possible use of available resources by making realization of its importance. Human capital is considered as the most critical factor of development as it constitutes the ultimate basis for the wealth of the nation[1]. It is a broad concept which identifies human characteristics that lead to higher productivity and living standards. It includes in its gamut people's knowledge and skills which are acquired partly through education while on the other hand their strength and vitality, which are dependent on health and nutrition[2] . Human capital formation has become a special subject of economic enquiry as it forms basis for development of other sectors. Improvement in human capital facilitates expansion and reinforces all other aspects of development. A nation can develop when human capital is fully utilized in productive activities.

Studies shows human capital helps in transformation of traditional economies into modern and industrial economies. Proper and efficient utilization of human capital could help to improve economic and social standards of country and their peoples. The role of human capital is also vital in economic welfare as it consist improvements in qualitative abilities and skills of human beings.

In spite of the fact that human capital is the most strategic and crucial determinant of economic development, it has not received the required attention. Some countries who possess abundant physical resources, failed to make rapid economic and social development due to lack of human resource development. Thus, development of

[1] Adeyeye T.C (2015), "Manpower Development and Economic Growth in Nigeria", *Journal of Economics and Sustainable Development*, Vol-6, No-9.
[2] Appleton S. and Teal F. (1998), "Human Capital and Economic Development", African Development Report, 1998.

human resources is the most essential aspect of the development process of the country[3].

The education enables a person to sharpen and realise his/her innate abilities and talents. It also helps in developing the correct attitude towards self and integrates freely and broadly with others in the society. Further, it also makes people vigilant of their duties and rights. To make access of the above benefits and improves welfare of the society as a whole, it is imperative to make education reachable for each and every section of society.[4]

According to the Census report 2011, in India the population of children under age group 0-14 years is 36.28 crore as against the total population of 121.01 crore thereby sharing 31.1 percent of the total population. This will serve as demographic dividend if could be nourished and developed with education and nutrition.

Primary education constitutes a very important part of the entire structure of education as it provides platform to build strong foundation among children. In the view of Amartya Sen, "primary education enlarges human capabilities and enables a person to reflect, make better choices, articulate his views and enjoy a better life"[5]. According to various educationists, the progress of primary education builds an index of general, social and economic development of the country.

Universal primary education was among the important objectives of Millennium Development Goals (MDG) which ensures every child should complete their primary schooling irrespective of gender, caste and status. Ever since independence, India tries to bring changes and development in the country through developing human resources via formal education. Government has made considerable attempts for the development of education system in our country especially primary level. Article 45 of the Indian Constitution directs that "the state shall endeavor to provide free and

[3] Lekhi R.K (2005), "Human Capital Formation and Economic Development" in *The Economics of Development and Planning*, Kalyani Publishers.
[4] Bordoloi R. (2011), "Challenges in Elementary Education In India: Various approaches*" Journal of Education and Practice*, Vol.2, No 7.
[5] Bhardawaj R. et.al (2012), " Human Development*", International Journal of Scientific Research Engineering and Technology*, Vol-1, Issue-5.

compulsory education to all children up to the age of 14 years. Universalization of Elementary Education (UEE) has been accepted as a national goal. This Universalization of primary or elementary education involves three major elements i.e.[6]

- Universalization of Provision: It means that formal schooling facilities should be provided to all children between the age group of 6 -14 years in the country which should be easily accessible and within walking distance.
- Universalization of Enrolment: It requires compulsory enrollment of all children between the age group 6 - 14 years in the country.
- Universalization of Retention: This means that every enrolled child should continue till he or she completes up to class 8.

The 86th Amendment Act 2002 via Article 21A seeks to make free and compulsory education as a fundamental right for all the children's between age group 6-14 years in our country. Following the direction, Right to Education Act (RTE) was enacted and came into force on 1st April 2010.

The Important features of the Act are as follows:

- Every child in the age group of 6-14 has the right to free and compulsory education in a neighborhood school, till the completion of elementary education.
- Private schools must keep 25 percent seats reserved for weaker section of society and should follow a random selection process. Those selected children education will be funded by the government.
- No child shall be given any kind of physical punishment or mental harassment.
- The Act lay downs the norms and standards of Pupil Teacher Ratios, building and infrastructure, school working days, teacher working and minimum teaching hours. Schools not following the norms are punished according to the prescribed guidelines.

[6] Dash M. (2004), " Universalization of Elementary Education", in *Education in India: Problems and Perspectives,* Atlantic Publishers and Distributors, New Delhi.

1.1. Approaches for Universalization of Elementary Education

The Government of India has appointed many commissions and committees to give suggestions for improvement in education system from time to time. The common recommendation of all the commission and committees has been Universalization of Elementary Education at the earliest.

National Education Policy

The National Education Commission (1964-66) popularly known as Kothari Commission was appointed to advice the GOI on the general principles and policies for the development of education in India. The Commission recommended common school system of public education so that different section of students irrespective of caste and class join together.

Based on the report and recommendations of the Kothari Commission, the National Policy on Education NPE (1968) was formulated for radical restructuring and equalizing educational opportunities to achieve national integration, cultural and economic development. This policy demands compulsory education for all children's upto the age of 14 and compulsory training and better qualification of teachers[7]. The policy was introduced with positive attitude, but due to lack of fund and adequate manpower many of its recommendations were not achieved.[8]

The New Policy on Education 1986 emphasized on removing disparities and provides equal educational opportunities, especially for women and backward section of society (STs and SCs). Incentives were provided for the poor families to send their children to schools regularly.

Operation Blackboard (OB)

The NPE initiated with child centered approach in primary education and launched "Operation Blackboard" in 1987. This scheme seeks to provide minimum essential

[7] National policy on education, wikipedia.org

[8] Bala I, (2017)" Universalization of elementary education under different schemes", *International Journal of Advanced Research and Development*, Vol.2, Issue 1.

facilities required to all primary schools in the country. Lack of teaching materials, uniforms facilities and lack of provision of breakage of equipment were some of the drawbacks in implementation of the scheme[9] .

Moreover, the major sub-schemes under OB are as follows:

- Continuation of OB to cover all uncovered primary schools especially in SC, ST concentrated areas.
- Expanding the scope of OB to provide three teachers and three rooms to each primary schools wherever enrolment warrants,
- Expanding OB to upper primary schools so as to provide a) at least one room and one teacher in each class b) Headmaster cum office room c) separate toilet facilities for boys and girls d) essential teaching learning equipment including a library.

Sarva Siksha Abhiyan (SSA)

This program was introduced in 2001 and is among the biggest social welfare projects in India. SSA is a flagship program targeting the children to get Universal access of Elementary Education (UEE). This program was executed over entire country and works in joint collaboration of both centre and state sharing financial burden of 75:25. The programme is an attempt to provide an opportunity for improving human capabilities to all children through provision of community owned quality education in a mission mode. It seeks to meet twin dimensions of education i.e. firstly introducing schools in uncovered habitants and secondly, strengthening existing school infrastructure through provision of additional classrooms, toilets, drinking water, maintenance grant and school improvement grant. This scheme especially made focus on deprived and excluded sections i.e. girls, children belonging to SC/ST communities, urban slum dwellers and lower female literacy blocks.

District Primary Education Programmes (DPEP)

DPEP is the centrally sponsored scheme launched in 1994 as a major initiative to

[9] www.educationforallindia.com

revitalize the education system so as to achieve the objective of universalization of primary education. DPEP in several phases had covered 272 districts over 18 states of a the country. The expenditure on the programme was shared both by the Central Government (85%) as well as the State Governments (15%). The objective of the scheme was

- To reduce dropouts to less than 5 percent and disparities among gender and social groups.
- To raise the average achievement rate by 25 percent measured on baseline level,
- Ensuring achievement of basic literacy and numeracy competencies, with minimum of 40 percent achievement in other competencies by all primary education children.

Kasturba Gandhi Balika Vidyalaya (KGBV)

The KGBV was launched in July 2004 for setting up of residential schools at upper primary level. The scheme is mainly implemented in the parts of country were girls aren't enrolled in school. This scheme provides reservation of 25% to girls from families below the poverty line and the rest 75% to the girls belonging to ST, SC, OBC and the other minority communities. The main objective of the scheme is to provide education to girls from the disadvantage and deprived section of the society.

National Programme for Education of Girls at Elementary Level (NP-EGEL)

In July 2003, Government of India approved a new programme called NP-EGEL as an amendment to an existing scheme of Sarva Siksha Abhiyan for providing educational support to the under-privileged and disadvantaged girls at elementary level. This scheme is implemented in Educationally Backward Blocks (EBBs), where the level of rural female literacy is less than the national average and the gender gap is above the national average. Only blocks were selected which are not covered under EBBs but are having at least 5% SC/ST population and where SC/ST female literacy is below 10% and also in selected urban slums. About 3272 EBBs were covered under the scheme.

Despite of various efforts, majority of the masses continue to remain deprived of elementary education in India due to poverty and inaccessibility.

1.2. Poverty and Education in India:

The term poverty primarily means scarcity of resources. The numbers of people who are residing below poverty line are measured in term of inadequacy of income to procure define minimum level of calories. Poverty is not only concerned with lower income of individuals but also the lower access to opportunities for developing human capital and education[10]. According to Adam Smith, "*No society can be flourishing and happy , of which by far the greater part of numbers are poor and miserable*".

According to UNDP data (2010), approximately 29.8 percent of Indians lives below the national poverty line. The children are deprived of education facilities as the parents were not willing to send their children to school due to poor economic status. For these parents, sending their wards to school will not only create extra burden on the family but also deviate the income which could be generated by engaging them in some work. The poor children instead of getting basic education facilities are forced to engage themselves as worker/labour thereby supplementing the income of their family.

The 2017 Global Hunger Index (GHI) report ranked India 97th out of 118 countries with a serious hunger situation. Indian State Hunger Index (ISHI) reported that, "*India is home to the world's largest food insecure population, with more than 200 million people who are hungry*". The WHO defines Malnutrition as "*the cellular imbalance between supply of nutrients and energy and the body's demand for them to ensure growth, maintenance and specific functions".* Malnutrition is the lack of proper nutrition. The food one eats might not have sufficient amount of micro nutrients, vitamins and minerals. Hunger and malnutrition stands among major obstacles in the child development.

[10] Tilak J(2002), " Education and Poverty", *Journal of Human Development and Capabilities*, Vol-3, No-2

Almost in every country development of children's health are kept under special category as school age children constitute a major segment of the community. Thus development of children health and nutritional status occupies utmost importance for the development of a country. Studies shows in rural areas, poverty stands among major factor causing malnutrition and this adversely affect the educational and economic attainments. According to WHO, malnutrition is a major health problem in South East Asian regions, especially the large section of children from rural and urban areas in India are suffering from malnutrition.[11] Despite India's 50 percent increase in GDP since 1991, till date more than 1/3rd of the world's malnourished children lives in India and suffers from micronutrient deficiencies. The World Bank estimates also show India among one of the highest ranking countries in the world for the number of children suffering from malnutrition.

The school age period is nutritionally significant because it is the prime time to build up body stores of nutrients in preparation for the rapid growth of adolescence. Good nutrition is an indispensable component of healthy life. Further, it acts as a vital determinant for physical, mental and emotional development of children's, especially school going who are largely affected by malnutrition.[12] Malnutrition impairs immunity increasing disease and disability and thus remains the world's most serious health problem and single contributor to child mortality.[13]

Study found health status has a significant impact on the development of the children and also on their educational prospects as malnourished children or children with poor health often pay less attention in classrooms which affect their academic performance. This leads to increase in rate of absentees and ultimately prone to higher risk of drop-out from schools.

[11] F. Alim , et.al, (2012) " Nutritional status of children attending mid-day meal scheme in government primary school in Aligarh city", *Indian Journal of Community Health* , Vol.24, No.3.
[12] Bolagir R.(2010) " Health Scenario of Major Tribals of Northern Orissa in Relation to Hunger Growth and Development and Nutrition and the Role of Genetics Factor in Small and Tasting abilities in Children", *Online Journal of Health & Allied Sciences,* Vol.9, Issue 4.
[13] Singh S.(2014), " Malnutrition Among Primary School Children in Hyderabad, Andhra Pradesh, India", *International Journal of Technical Resarch and Applications,* Vol.2, Issue1.

Micronutrient deficiencies is more commonly referred as hidden hunger form a significant component of malnutrition worldwide and especially in developing countries like India. The major nutritional deficiencies affecting young children in India are a) Protein Energy Malnutrition (PEM), b) Vitamin A Deficiency (VAD), c) Iron Deficiency Anaemia (IDA), and d) Iodine Deficiency Disorder (IDD).

Protein Energy Malnutrition (PEM): PEM is a major public health problem in developing countries due to inadequate food supply caused by socio-economic, political and occasionally environmental factors such as natural disaster.

Vitamin A Deficiency (VAD): Vitamin A Deficiency stands among major determinant to deleteriously impact the health and economic status of populations belong to lower income group. VAD exist due to decreased dietary intake of preformed Vitamin A and its precursors together with high prevalence of infectious diseases like measles, diarrhea and respiratory tract infections[14].

Iron Deficiency Anaemia (IDA): Iron Deficiency Anaemia is a major health problem which is affecting the development of children especially in developing countries like India. It is the most common type of Anaemia caused due to inadequate availability of iron for hemoglobin production and lack of dietary iron intake. Presence of iron in the brain is essential in early life and lack of which will have adverse effects on behavioural pattern of infants. Many studies concluded, children having deficit of iron generally possesses low IQ scores, less attentive in class and poor score poor in academics. According to the Clinical, Anthropometric and Biochemical (CAB) survey of Odisha in 2014 found 70.6 percent of 6 – 59 months old childrens and 81.2 percent of children aged between 5 – 9 years were suffering from anaemia

Iodine Deficiency Disorder (IDD): Iodine Deficiency Disorder is the major nutritional disorders throughout the world which has affected around 200 million peoples worldwide and another 71 million were suffering from goitre and other

[14]Akhtar S. et.al. (2013)," Prevalence of Vitamin A Deficiency in South Asia: Causes, Outcomes and Possible Remedies", *Journal of Health, Population and Nutrition*, 31(4).

IDDs[15]. This deficiency majorly affects learning disabilities and psychomotor impairment. Studies shows children living in iodine deficient areas possess on an average low IQ compared to children of iodine sufficient areas. India has the largest number of children born vulnerable to iodine deficiency. IDD is therefore declared as national issue in all states and Union territories of India. The 2000 – 01 NNMB report shows the prevalence of total goitre rate (TGR) among six to twelve years old children of about 4 percent in rural areas of Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra, Madhya Pradesh, Orissa and West Bengal[16]. Further, state-wise analysis shows higher prevalence in Maharashtra (11.9 %) and West Bengal (9%).

1.3. Assessment of Health Status among Children

Anthropometry is one of the most useful tools used for assessment of the nutritional status of primary school children. It is the single most universally applicable, inexpensive and non-invasive method available to assess the size, proportion and composition of human body (WHO 1995). Weight, Height and Body Mass Index (BMI) for age are three anthropometric parameters used for assessment of nutritional status in children. Children height, weight and age data are used to calculate the indices stated below

- **Height for age (Stunting):** Height for age is a measure of linear growth retardation and cumulative growth deficits. It is a sign of chronic undernutrition that reflects failure to receive adequate nutrition over a long period (NFHS). Stunting is the impaired growth and development among children due to lack of proper nutrition, continuous infection and inadequate psychological stimulation (WHO). Children are defined as stunted if the height for age is below minus two standard deviations (moderate stunting) and minus three standard deviations (severe stunting) from the median of the WHO child growth standards. Stunting is also associated with underdevelopment of brain which results in diminishing mental ability and learning capacity leading to poor academic performance in schools. India has the highest

[15] Kaur G. et.al (2017), " Past, present and future of iodine deficiency disorders in India:Need to look outside the blinkers", Journal of Family Medicine and Primary Care, Vol.6 Issue 2.
[16] Chandrakant S. et.al.(2013), " Iodine Deficiency Disorders (IDD) controls in India", *Indian Journal of Medical Research,* 138(3).

number of stunted children in the world (46.8 million) which is approximately one third of the total global stunted children under the age of five (UNICEF).

- **Weight for height (Wasting):** Weight for height index measures body mass in relation to body height or length and describes current nutritional status. It is a measure of acute undernutrition and may result from the inadequate food intake or from a recent episode of illness which resulted in weight loss (NFHS). Children are defined as wasted if the weight for height is below minus two standard deviations (moderate wasting) and minus three standard deviations (severe wasting) from the median of the WHO child growth standards. According to Global Hunger Index 2018, at least one in five Indian children under the age of five was wasted, reflecting acute under nutrition (The Hindu, 2018 October).
- **Weight for age (Underweight):** Weight for age is a composite index of height for age and weight for height and takes into account both acute and chronic undernutrition (NHFS). It is commonly used for monitoring growth and to assess changes in the magnitude of malnutrition over time. Children are defined as wasted if the weight for height is below minus two standard deviations (moderate underweight) and minus three standard deviations (severely underweight) from the median of the WHO child growth standards.

India is home to the largest number of children in the world. NFHS 4 (2015-16) reported that nearly every third child in India is undernourished- underweight(35.7%), stunted(38.4 %) and 21% of children under five years is wasted. According to National Institute of Nutrition (NIN) and Indian Council of Medical Research (ICMR), 58.6% of the children of age group 6-9 years and 77.9% of children of age group 10-13 are underweight. Even due to poverty one third of the school children are malnourished. Children are vulnerable to growth retardation due to malnutrition.

Malnourished children have high rate of morbidity and mortality[17]. Various studies suggested inter-relation between food and education. Since childrens often dropout at

[17] Jalal P. and Sareen N.(2018), " A study to assess the knowledge about MDM scheme in Bikaner district of Rajasthan", *International Journal of Chemical Studies*,6(5)

an early age due to family financial crisis which in turn mitigate more adverse impact on their nutritional status.

To restrict the impact of poverty and improve school participation among the children, various interventions have been introduced worldwide. One such programme widely operating is school lunch or mid-day meal (MDM) programme which provides free meal to the children in schools. Mid-Day Meal is the largest food security programme in the world where the obstacles such as Hunger and malnutrition are counterfeited. Thus, during the introduction of MDMS, the relation between educational development and nutritional status of children was taken into consideration. This scheme not only provides nutritional status to children but also universalizes primary education and thus fulfills essentials of human capital formation and development of the nation.

1.4. Statement Of The Problem

Education and health stands as most important elements in the development of the country. Mayurbhanj district being a tribal dominated area lacks these basic elements of development. Tribals in Odisha are still traditional, conservative and thus underprivileged. They are weaker on socio-economic background and also under abject poverty due to engagement in subsistence economy. Study shows lower literacy rate in the district as compared to state and national average. Higher incidence of poverty and lack of health facilities in the district create space for emergence of diseases especially among children. Therefore, Mayurbhanj was among the intensive districts covered under mid-day meal programme since inception.

But right from the implementation of the mid-day meal scheme issues and problems were reported from different end. The scheme lacks on developing infrastructural facilities i.e. cooking shed, water supply, storage and utensils. Executional problem such as poor quality, adulteration, unhygienic cooking environment and corruption on supply and record have been reported. Further, disruption in classroom teaching also stands among significant problems. In some cases there is irregular and delay in delivery of food grains and funds. No clarity was provided about parent perception and their response towards MDM. The present study therefore, has examined the problems

of MDM programme from different end and have provided suggestions for substantial improvement in the scheme. It is further believed that this research will help in the adoption of required plan and policies for governments and for professionals in the mid-day meal programme.

1.5. Significance of the Study

Improvement in human capital not only helps the other forms of capital such as physical and natural to grow but also harness them for overall development of the region. Thus, good health and education stands vital factor for the development of country/state/region.

The tribal societies in India are considered as the weakest sections of the population in demographic and socio economic arenas by bearing higher incidence of poverty, illiteracy, deviation from development and inadequate access to health facilities[18]. Odisha is a land of largest number of tribal communities with population of 9.59 million thereby constituting 22.86% of total population of state. According to census 2011, Mayurbhanj district has the highest tribal population (1.4 million) and has been identified among most backward district of Odisha by US-India policy institute. Being among the tribal dominated district of less educated and underdeveloped people, the human capital status of the district is deplorable. The evaluation of Mid-day Meal Scheme in Mayurbhanj district becomes more important due to its utmost need in meeting the health and educational attainment of the children.

1.6. Brief Profile of the Study Area

i. Introduction

The name of the district has been derived by joining two clans "The Mayurs" and "The Bhanjas".The Mayurs as known from records were ruling over Banai Mandal contemporaneous with the Bhanjas of Bhijinga Mandal. Social and cultural relations between these two ruling families were very close. So the kingdom was maned as Mayurbhanj in commemoration of the traditional relation of these two ruling families. The Bhanjas ruled Mayurbhanj for more than 1000years in royal succession until the

[18] Mohanty B. (2017), "Tribal Population of Mayurbhanj", *IOSR Jornal of Humanities and Social Sciences*, Vol 22, Issue 1.

freedom of the country. The name of the state under the early Bhanja rulers was Khijinga Manadala, name after the capital Khijinga Kotta. The copper plate inscription issued by those rulers indicate that Khijing Mandala was an extensive territory comprising the present Mayurbhanj and Keonjhar district as well as part of Singhbhum district in Bihar and Medinipur district in West Bengal. During the Moghul period the territory of Bhanja rulers extended as far as the sea. By that time the capital had shifted from Khijinga Kotta to Haripur.

The Kings of Mayurbhanj were pioneering force in the upliftment of Odisha under British rule. The Mayurbhnaj state got emerged in the state of Odisha on 1st January 1949. Since the date of its merger Mayurbhanj has been organized and is adminstered as one of the districts of Odisha.

ii. Location

Mayurbhanj district is one of the centrally located districts in Odisha. It lies between 85º 40' to 87º 11' East longitude and between 21º 16' to 22º 34' North latitude. It is bounded by Jharkhand state in the north, Balasore district in the south, West Bengal state in the east and Keonjhar district in the West.

iii. Administrative structure

The district headquarters of Mayurbhanj is situated at Baripada. It has 3950 villages (including 199 un-inhabited villages) covering 26 Blocks, 26 Tahasils and 4 Sub-Divisions.

iv. Climate:

The climate of the district is generally hot with high humidity during the month of April and May and cold during November and December. The monsoon generally breaks during the month of June. The average rainfall of the district was 1599.4 mm in 2014 which is lower than the normal rainfall (1600.6 mm) in the district.

v. Agriculture:

Agriculture sector continues to be the main stay of the economy of the district. The agro climatic zone and the favourable soil type induce the proper growth of agriculture in Mayurbhanj district.During the year 2014-15, the net sown area was 318 thousand hectares against 4474 thousand hectares of the state. The production of paddy which

is the major cereal crop was 10415413quintals, 1375 quintals wheat, 15209 quintals maize, 4027 quintals moong, 2083 quintals biri, 1360 quintals kulthi, 1272 quintals till, 14413 quintals groundnuts, 807 quintals mustard, and 8762 quintals sugarcane. During 2014-15, the use of fertilizers in Mayurbhanj District was 22386 MT with a breakeage of 13964 MT nitrogenous, 6109 MT phosphates and 2313 MT potash. The consumption of fertilizer per hectare is 41 Kg.

vi. Industry and Mining:

Mayurbhanj district has great mineral and forest wealth but still lacks medium or heavy scale industry. Industrial backwardness in the district is due to inadquate infrastructural facilities like road communication, railway links and telecommunication facilities .The district has quite good number of small scale industries like mineral grinding, stone crushing,china-clay washing, ceramic industries, fertiizers, paper mill, safety matches, paints and chemicals, washing soap, electrical items, high voltage cable manufacturing, aluminium utensils, cold storage, mechanised hatchery, general fabrication, sheet metals, poly leaf cups and plate making, cement products, sabai products,rice huller, flour mill and allied repairing and servicing etc. . During the year 204-15, 1375 nos. of small scale industries have been established with the total capital investment of about Rs. 3611.42 lakhs with 3963 nos. of employment opportunities generated in the Mayurbhanj district.

vii. Irrigation:

During the year 2013-14, it is reported by the Deputy Director Agriculture Mayurbhanj that the irrigated potential created during Kharif and Rabi are 120773 hectares and 79324 hectares respectively through all sources including irrigation projects namely Baladiha, Bankabal, Deokunda, Deo (P), Kala, Katra, Khadakhai, Nesa, Subarbarekha (P), Sunei (P) and Sunei Extn. Irrigation projects in the districts.

viii. Demography

Population constitutes the human resource of a region. Human resources is one of the most important aspects on which other resources depends. The district constitute total of 25.19 lakhs population with 50.13 percent share of females. The density per square

km. is 242 as against 270 of state. The district literacy rate is 63.17 percent with higher dominance of ST population i.e. 58.72 percent with sex-ratio 1010 per thousand male.

ix. Tourist centres:

There are 16 tourist centre such as Similipal, Khiching, Haripur, Jashipur, Kuliana, Baripada, Kuchei, Deokund, Bangiriposi, Jamsola, Bhimkunda, Bisoi, Manitri, Rairangpur, Samibrukhya and Suleiput identified by the department of Tourism and Culture, Odisha. During the year 2009, the numbers of domestic tourist were 787123 and foreign tourists were 191 who visited the tourist spots of the District.

x. Vegetation

Mayurbhanj district has a lush green vegetation. The simlipal forestof the district comprising a single compact area, represents virgin semi- ever green form. The growth of forest is thick and impenetrable and is dominated by gigantic growth of large number of tree species and chief being sal. Other species such as piasal, asan, neem, kusum, mahul, chow and sisu are found all over the area.

xi. Minerals

The district is endowed with various types of mineral resources like Iron Ore, China Clay, Quartz, Soap Stone, Granite, Manganese etc. Of these iron ore deposits of Gorumahisini, badampahar and Suleipat hills in Bamanghaty sub division have been exploited for a period more than half a century. Due to presence of huge mineral resources, mining activities have been undertaken in big scale.

xii. Transport and Communication:

Railway is one of the vital means o transportation and communication. Road networks are also much developed in the district.During 2014-15, there are 265 kms.of National Highways, 253 kms. of State Highways, 140 kmsof major District Roads, 448 kms of other districts roads, 1600 kms.of PS Roads, 7970 kms.of Gram Panchayats Roads and 959 kms. of Forest Roads in the district. Besides, 144.84 kms.of railway lines with 18 nos. of railway stations and passenger halts are continuing in the district.

xiii. Power and Water Resources

The district is divided into two physiographic zones with regard to availability of water resources. These are a) Eastern and Western divisions are plain area and b) Central part is hilly track. Rivers, streams, water falls are the source of water. The rivers

emerged out of hill tract are full of waters during monsoon season and remain dry in summer season. Baitarani is the largest river in the district. Consumption of electricity in Mayurbhanj district during the year 204-15, covers 315.420 million units and villages so far electrified are 3601 which constitutes 96.10% to the total villages of the district.

xiv. Financial institutions

Finance is the life support system of any eonomic activity like industry, trade and business. As on December 2015, there were 247 nos. of all banks having 6427.23 crores rupees deposits and 2450.72 crores rupees credit in the district.

xv. Tourism

Mayurbhanj is considered to be nature's paradise and occupies an important palce as a major tourist destination. It has large hilly tracts, mountain peaks, scitalating waterfall and streams, and dense forest. There are 16 tourist centres such as Simplipal, Khiching, Haripur, Jashipur, Kuliana, Baripada, Kuchai, Deokund, Bangriposi, Jamsola, Bhimkunda, Bisoi, Manatri, Rairangpur, Samibrukhya and Suliepat identified by department of tourism and culture, Odisha. During 2015, the numbers of domestic tourist were 1189636 and foreign tourists were 64 who visited the tourist spots of the District.

xvi. Education:

There are 2905 nos. of primary schools, 1468 nos. of Upper primary schools, 614 nos. of secondary schools and 121 nos. of general colleges in the district during the year 2014 - 15. Besides, there are 4 engineering school (ITI) and 5 nos. of engineering college in the District to impart technical education.

xvii. Health:

The medical facilities are provided by different agencies like government, private individuals and voluntary organizations in the district. There were 118 nos. of Allopathic medical institutions with 852 beds facility, 44 nos. of homeopathic dispensaries and 44 nos. of Ayurvedic dispensaries in the district during the year 2014-15.

xviii. Veterinary services:

During the year 2014-15, 42 nos. of hospitals and dispensaries, 166 nos. of livestock Aid centers were functioning in Mayurbhanj to provide veterinary services to people.

1.7. Objectives of the Study

The following are the specific objectives of the present study

1. To investigate into the organizational set up for executing the mid-day meal programme in Mayurbhanj district of Odisha.
2. To analyse the contribution of mid-day meal scheme in improving educational attainment and health status among primary school children.
3. To examine whether the scheme has been effective in reducing dropout rate and gender gap in primary schools of Mayurbhanj district.
4. To examine the views of different stake holders pertaining to problems hindering successful operation and performance of mid-day meal in schools of Mayurbhanj district.
5. To suggest suitable measures for effective implementation and operation of programme in the study area.

1.8. Hypotheses of the Study

The present study attempts to the empirical validity of the following hypothesis.

1. The average BMI of students from blocks less than average school and blocks more than average school are same.
2. The mid-day meal programme has equal impact on the BMI of both Male and Female students of primary schools in the study area.
3. The average BMI of students from different caste are equal.
4. There exist a significant correlation between the decision to send their ward in school for MDM with income and levels of education of parents.
5. The engagement/information pertaining to PTA among parents/guardians is equal in both the blocks.

1.9. Methodology

Present study is based on both primary and secondary data. Primary data has been collected through field survey with interview schedule. The sample population have been collected through multi stage sampling method.

Stage 1

In the first stage all 26 blocks of Mayurbhanj district is divided into two categories: Blocks having number of primary schools more than average and Blocks having number of primary schools less than average on the basis of average school per block.

Table 1.1. Classification of Blocks on the basis of number of Primary schools (2015-16)

Sl. No	Name of the Blocks	Total no. of primary schools
1	Bahalda*	162
2	Bangriposi**	224
3	Badasahi**	283
4	Baripada**	198
5	Betnoti**	250
6	Bijatola*	139
7	Bisoi*	170
8	Gopabandhunagar*	172
9	Jamda*	117
10	Jashipur**	231
11	Kaptipada**	320
12	Karanjia**	209
13	Khunta*	158
14	Kuliana*	184
15	Kusumi*	171
16	Morada**	234
17	Rairangpur*	155
18	Raruan*	161
19	Rasgobindpur**	188
20	Samakhunta*	136
21	Saraskana**	207
22	Sukruli*	140
23	Suliapada**	189
24	Thakurmunda**	217
25	Tiring*	100
26	Udala*	166
	Total	4881

Source: OPEPA, (2015-16)

*Less than Average Blocks

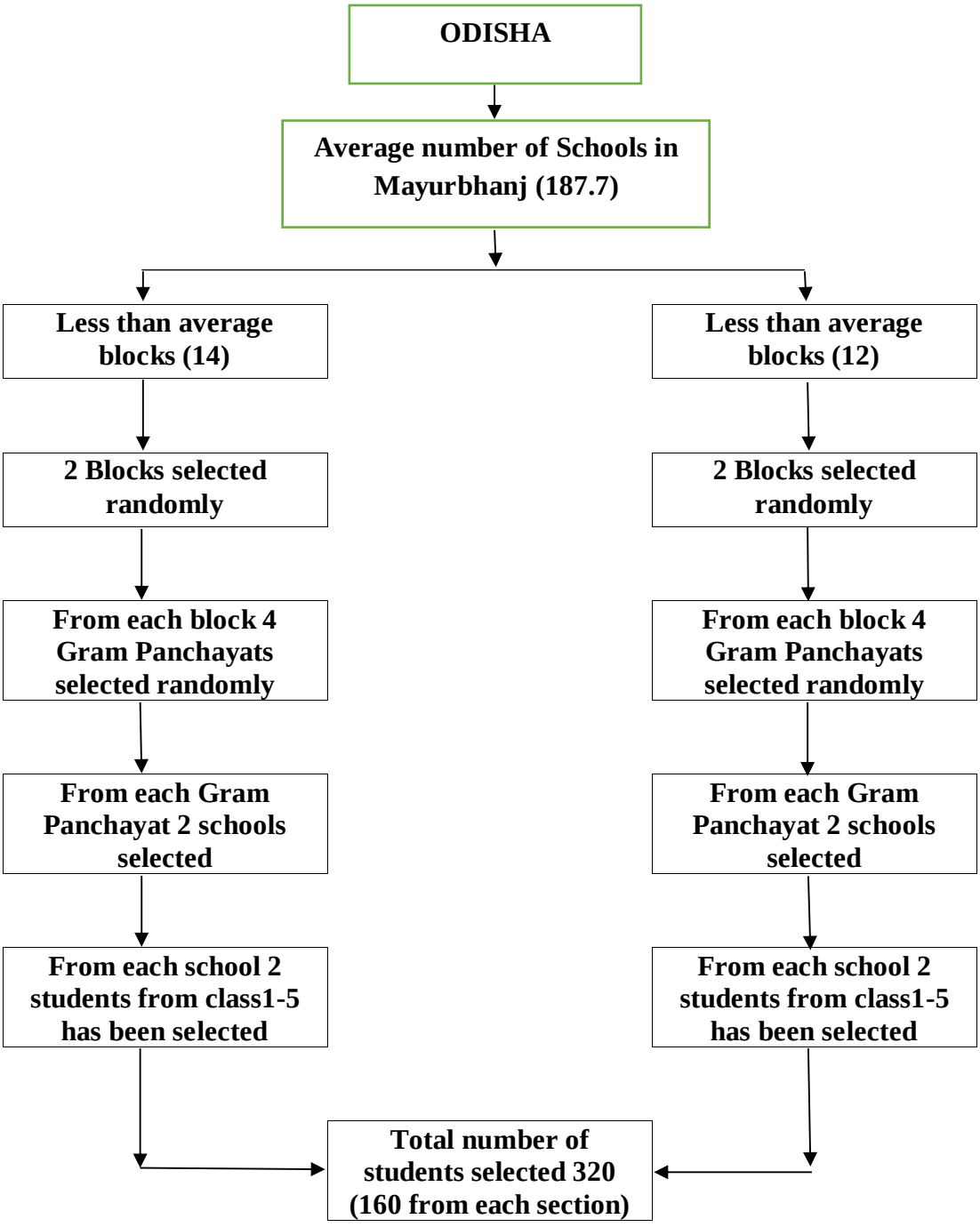
**More than Average Blocks

Stage 2

In the second stage, 2 blocks from each category i.e more than average blocks (Bangiriposi and Suliapada) and less than average blocks (G.B Nagar and

Fig. 1.1. Sampling Design

(Multi-Stage Simple Random Sampling Method)



Shamakhunta) is selected through simple random sampling method. Therefore the study is executed in 4 selected Blocks of Mayurbhanj.

Stage 3

In the third stage, from each selected block 4 gram panchayat has been selected randomly. Therefore the study is executed over 16 gram panchayats i.e. 8 gram panchayat from each section.

Stage 4

In the fourth stage, 2 schools from each gram panchayat have been selected on random basis. Therefore, a total of 32 school of Mayurbhanj have been covered with 16 schools from each section.

Stage 5

Lastly in the fifth stage, from each school 10 students have been selected randomly making restriction of 2 students from each class (i.e covering class I to class V). Therefore a total of 320 children from primary schools have been selected comprising 160 children's from each section.

In addition, 320 parents/guardians of selected children respondent, 32 teachers (each from selected school), and 32 cooks/helpers (each from selected school) have been interviewed in order to have clear picture from each stake holders.

The secondary data has been obtained from the published and unpublished reports various departments such as School and Mass Education, Directorate of Economics and Statistics, Directorate of Women and Child Development, Department of Planning and Co-ordination, Annual Work Plan on MDM and Census Publications.

1.10. Measurement Process

Anthropometric measurements are widely used in the assessment of health status. Similarly, the present study assessed the health status of the students by measuring height and weight using standardized tools and techniques.

Weight: Electronic flat weighing machine was used for measuring weight of the students. Each student was wearing school uniform and was bare foot while taking the measurement.

Height: During pilot survey it was observed that every school in their wall have painted height measurement scale and the same was used for measuring height of selected students.

1.11. Statistical Tools used in data analysis

Keeping in view the background of the study, personnel interview method was employed with specific scheduled for separate respondents. Four separate scheduled have been used in order to collect information for meeting the desired objectives.

Scheduled I was used to collect data pertaining to childrens,

Schedule II was utilized for grabbing information from parents/guardians of selected children's.

Scheduled III was used for teachers of selected school involved in MDM activity, and

Schedule IV was utilized for recording cooks/helper views on programme.

1.12. Reference period

Primary data of children's, teachers, parents and cooks were collected during the period of July 2017 to February 2018.

1.13. Analytical tool used

Keeping in view the objective of the study both tabular as well as statistical tests have been used for data analysis. Tabular analysis has been made to distinguish the performance of MDM under less than average and more than average blocks. Further, regression and independent sample t test has been used to access significant difference between beneficiaries of two sections and within caste. Correlation co-efficient was used to analyse the relationship between decision to send the ward to school for MDM with level of income and educational status of parents.

1.14. Chapterisation

The study is divided into following chapter

CHAPTER I: Introduction: This chapter gives an overview of Mid-day meal scheme in India. It further highlights the need of primary and elementary education in India and various agencies associated to bring the quality enhancement. This chapter also

includes the need, significance, objective, hypotheses of the study and methodology used in collection of data.

CHAPTER II: Literature Review: This chapter forms the basis of study through highlighting the planning, operation, execution and performance of the programme in different regions of India. It further helps in finding the gap of the study through analyzing the issues and challenges in operation of programme and way ahead.

CHAPTER III: Mid-day Meal Scheme- An Overview of India and Odisha: Attempts have been made in this chapter to highlight the history of mid-day meal in India and its expansion over the period of time. The change in status of primary education comprising schools, enrollment and dropout has been analysed both at national as well as state level. Special focus has been made to show the primary education scenario in different districts of Odisha.

CHAPTER IV: Mid-day Meal and Development Dimensions: This chapter is dedicated to the major stakeholder of the programme and our study i.e. childrens from class I to V. In common term they are referred as beneficiaries. This chapter shows socio-economic status of childrens, their academic performance and benefits availed under MDM. This chapter also highlights their health status and views on MDM.

CHAPTER V: Mid-day Meal Scheme- Parents perception and Review: This chapter tries to explore the satisfaction on part of the parents about MDM programme. Special attention has been made to find comparative view with teachers and childrens about the performance of programme in the study area. This chapter further highlights the issues pertaining to MDM on part of parents and possible suggestions.

CHAPTER VI: Mid-day Meal Programme – Teachers Impact and Judgement: This chapter highlights the composition and qualification of the teachers in the study area. It tries to find the actual role played by MDM in improving the retention and attendance in class. Further, attempt has been made to identify the problems in operation of MDM at school and possible suggestion from their part.

CHAPTER VII: Mid-day Meal execution process and Cook status: This chapter deals with the major facilitator of the programme i.e. cooks of the selected schools.

The issues pertaining to operation and execution of programme at school level has been elaborated. Further, comparison from data provided by teachers are done (cross check) so as to find discrepancies (if any) in infrastructure and operational support.

CHAPTER VIII: Major Findings, Summary & Policy Recommendations: This chapter highlights the major finding of the study along with the testing of hypotheses. Attempts have been made to provide possible suggestion to overcome the challenges faced by teachers and cooks. Special evaluation and supporting suggestions are also provided for policy makers and higher authorities for meeting the desired objectives of MDM Programme at state. This chapter also highlights the limitation and scope for further research of the study.

Bibliography

CHAPTER II

LITERATURE REVIEW

Kumari[19] (2005) conducted a study on health and nutritional status of school going children in Patna. The survey revealed that the children from low income group families were deficient in all categories of daily supply of nutrients. Vitamin A deficiency was quite high in the children from low income group households in which 61.8 percent of the males and 59.78 percent of females receive less than 55 percent of the RDA (Required dietary allowance). Children belonging to higher income groups also showed varying degrees of deficiences. The average height among children was found to be slightly less than the standard recommended by the National Centre for Health Statistics (NCHS). Average weight was observed to be slightly higher in comparison to the NCHS standards due to altered food habits among children.

Nanjunda[20] (2009) stated that educated person himself is a form of human capital to a society. When a child gets more and more education his or her human capital increases. There is a positive relationship between schooling and human capital acquired. It is important for children to get primary education. Steps should be taken to create awareness among parents on long term benefits of schooling.

According to Babar et.al[21] (2010) child malnutrition is a major public health and development concern in most of the poor countries leading to higher morbidity and mortality. They

[19]Kumari K (2005), " Health and Nutritional Status of School Going Children in Patna", *Health and Population- Perspectives and Issues*, Vol.28, Issue 1.

[20]Nanjunda D.C (2009), "The Dynamics of Child Labour" in *Anthropology and Child Labour*, Mittal Publications, Delhi

[21]Babar F., Muzaffar R., Khan M.andImadad S.,(2010) "Impact of Socio-Economic factors on Nutritional Status in Primary School Children.", *J.Ayub Medical College*, Abbottabad, Vol-22, No-4.

highlighted the impact of socio economic factors on nutritional status in primary school children. The nutritional status of children from lower socio economic class was poor as compared to the upper socio economic class. Prevalence of malnutrition was 42.3% among children of illiterate mothers as compared to 20% in those of literate mothers. The factors like poverty, low literacy rate, large families, food insecurity and food safety was responsible for poor health status of the children from low socio economic class. Improvement of nutritional status of children is only possible through economic, political and social changes as well as changes for personal advancement mainly through educational opportunities.

Jomaa et.al[22] (2011) in their paper mentioned that around more than 121 million school-aged children are still out of school. Two third of them are girls living in rural areas in the most vulnerable regions of the world. The major reasons for lag in process towards universal primary education are the persistence of poverty, hunger and malnutrition. Improving childrens diet and nutrition can have positive effects on their academic performance and behaviours at school as well their long term productivity as adults.

According to Kaur and Nanda[23] (2013) education and health are the main dimensions of human capital. Those countries who have invested steadily in raising the level of education of their people have experienced higher levels of growth. Developing countries need flexible education and training system that will provide foundation for learning and develop required competences as means of achieving life long learning. In developing countries public expenditure on health is low. Investmet on health should be increased as access to health and education is a prior

[22] Jomaa L., Donnell E. and Probart C.,(2011) "School Feeding Programmes in Developing Countries : Impacts on Childrens Health and Educational Outcomes", *Nutrition Reviews*, Vol 69, Issue 2.

[23]Kaur H. and Nanda P.(2013),"Human Capital Growth and Inclusiveness in Developing Countries", *Varta*, Vol.34.

condition of inclusive development. Inspite of rapid economic growth, challenges of universal access to quality education and health facilities for the downtrodden still exist in the society.

Gulhane[24] (2014) conducted a study on factors affecting tribal primary education in Malghat area of Maharasthra. He found from the interview with headmasters that there were various factors affecting the dropouts among the students. 38percent of headmasters pointed that poor economic condition of parents was the cause for dropout rate of students,16 percent stated lack of interest of students in education, 14percent opined that children were engaged to look after his/her younger siblings, 4 percent pointed out that parents engaged their children for housework activity particularly girl students.

Sood and Sidhu [25](2014) in their paper stated that education and health are the two important tools for reducing poverty and ensuring development of a country's economy. Universalisation of primary education has improved primary school enrollment in many developing countries. But despite of improved school enrolment, attendance remained low in poor households as school age children are needed at home to take care of younger siblings so that their parents can work or they may be needed to help in work. Providing quality food to school going children will improve both school attendance and academic performance. Moreover, it will have distinctive impact on child's overall nutritional status. The nutritional status of community in general and children in particular are of immense importance as children of today are the future residents of the country and only a nutritionally sound community can ensure a country's progressive economicgrowth.

[24]Gulhane G.L (2014),"Factors Affecting Tribal Primary Education", *International Inventive Multidisciplinary Journal*, Vol.2, Issue 4.

[25]Sood R. and Sidhu A. (2014), "Mid-day Meal Programme in India: History, Impact and Way Ahead", *International Journal of Emerging Technology and Research,* Vol.1, Issue 5.

According to Daru[26] (2015) education and health sectors are the two major sources for the formation of good quality human capital. Human capital formation raises the productivity and production. Moreover, increase in productivity and quality production depends on technical skills of the people which can be acquired only by education and maintaining health of the people. Health facilities and availability of nutritive food enable people to live a healthy and long life. Healthy person is more productive and is asset for a nation than an unhealthy person.

Sharma[27] (2015) stated that malnutrition has a powerful impact on child mortality. It involves long term deficit in mental, physical, social and emotional development that leaves children unable to take maximum advantage of learning opportunities in school. In order to improve nutritional levels among children and to encourage school attendance, in the year 2001, the Indian Supreme court mandated school feeding programme also known as mid-day meal scheme. The scheme has been successful in addressing classroom hunger and raising enrollment rates in the beneficiary schools. The contribution of MDM scheme to food security and child nutrition is crucial in tribal areas where hunger is endemic.

Shrivastava and Choudhury[28] (2015) stated that malnutrition remains the single biggest contributor to child mortality across the developing countries. One third of the children in developing countries are either underweight or stunted. As compared to other countries of South and East Asia, the children in India have a lower nutritional status. In India, in the late 1990's about 37 percent of children of age 4 or below suffered from

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[26]Daru M. (2015), "Human Capital: The Tool for Economic Growth and Development", *International Journal in Commerce, IT and Social Sciences*, Vol.2, Issue 8.

[27]Sharma R. (2015), "Mid-day Meal in India: The Road Ahead", *Journal of Developing Country Studies*, Vol.5, No.11.

[28] Shrivastava S. and Choudhury N. (2015), " Status and Dynamics of Child Malnutrition: *An Overview of Literature in India", Man and Development*, Vol. 37, No.4.

stunting which was higher in Karnataka, Madhya Pradesh, Gujarat, Andhra Pradesh, Bihar, Uttar Pradesh , North East states, Haryana and West Bengal and about 29 percent of children in the age group 5-12 are stunted. Health and nutritional status affects the capacity to learn, which in turn determines productivity and economic growth. Malnutrition adversely affects the health of the children and their pace of learning and ability to cope with health shocks whereas nutrition has a encouraging effects on health that enables one to lead a socially and economically active life.

Laxmaiah et.al[29] (1999) conducted a study to assess the impact of mid-daymeal program on enrolment, attendance, dropout rate in the schools and on nutritional status of children in the state of Karnataka. A total of 2694 children (MDM: 1361 and Non MDM: 1333) from 60 schools (MDM: 30 and Non MDM: 30) were covered in the study. The study found that on an average, the number of children enrolled in schools with the MDMprogramme was higher (72%) as compared to schools in non MDM areas (68%). The percentage of children with better attendance was higher in MDM schools (97.8%) than in non MDM schools (95%). The retention rate was better in MDM schools (80%) than in non MDM schools (80%). The retention was higher among girls in MDM areas while the proportion was higher among boys (78.3%) than girls (75.6%) in non MDM areas. The scholastic performance of students was better in MDM schools as compared to non MDM schools.

Sethi[30] (2002) prepared a report on mid-day meal programme and its impact on improving enrolment in Raygada district of Orissa. Raygada is one of the poorest regions in the state.

[29]Laxmaiah A., Sharma K.V, Rao D., Reddy C., Ravindranath M., Rao V. and VijayaraghavanK, (1999), " Impact of Mid-day Meal Programme on Educational and Nutritional Status of School Children in Karnataka", *Indian Pediatrics,* 36(12).

[30]Sethi B. (2002),"Mid-day Meal Programme and its Impact on Improving Enrolment in Raygada district", *The Adminstrator,* Vol.45.

He stated that poverty is a major issue and it has its impact on primary education as well. Because of mass illiteracy and endemic poverty, community participation in education is low. High dropout, low retention, problems of girls education and education of Scheduled Tribes are the major issues for the administration. To solve these issues, mid-day meal programme was started in the district in July 1995. After analysing the situation before mid-day meal programme and afterwards, it was found sharp departure from the trends of pre mid-day meal situation. It can be said that that mid-day meal programme has made significant contribution for the improvement in enrolment, retention in various classes, reduction in drop out and having more number of Scheduled Tribes and girl children completing class five in the primary schools.

Dreze and Goyal[31] (2003) suggests that school meals have made a promising start around the country. Yet, quality issues need urgent attention if mid –day meal programme are to realize their full potential. Improved mid-day meal programme could have a major impact on school attendance, child nutrition and social equity. Earlier research on primary education in rural India suggests that mid-day meal programme enhances school participation especially among girls. Mid-day meal facilitates the abolition of classroom hunger. The contribution of mid-day meal to food security and child nutrition seems to be particularly crucial in tribal areas, where hunger is endemic. Apart from promoting school attendance and child nutrition mid-day meal have an important socialisation value, as children belonging to different caste and class have to sit together and share a common meal. The scheme has also helped in reducing gender gap in education, since they boost female school attendance along with male attendance.

Afridi[32](2005) studied the institutional and financial organisation of mid-day meal

[31]Dreze J. and Goyal A.(2003), "The Future of Mid-day Meals", *Economic and Political Weekly*", Vol-38, No-44.

[32]Afridi F. (2005), "Mid-day Meals in Two States Comparing the Financial and Institutional Organisation of the Programme", *Economic and Political Weekly,* Vol-40, No-15.

scheme in Karnataka and Madhya Pradesh. In the context of Madhya Pradesh, panchayats have the primary administrative and financial responsibility of implementing the school meal programme in all the villages within it purview. Village Education Committee and the Parents Teacher Association of the school were expected to monitor and supervise the implementation of the programme.But these institutions were not participating actively in the process. The report argued that though the implementation of the programme was improving, the quality of food was not good. The stated reasons were grain stocks running out, cooks on holidays and delay in receiving permits for obtaining grain allocation from PDS. In Karnataka, the scheme was successfully implemented. Children were provided 100gms of ricewith 20gm of pulses and 25gm of vegetables with some variation in the cooked meals every week. Childrens were also provided iron folic tablets every other school days as well as deworming tablet twice a year. Central government provides fund for infrastructure and payment of salaries to cook which reduced the burden of panchayat. Community participation and school development and management committee were functioning well.

Das and Mishra[33] (2008) conducted a study in Gunpur block of Raygada district of Orissa to find out the drop out in primary education. They randomly selected seven primary schools from the block to analyse the enrolment and dropout of the students. From their study they found that in the five primary classes the enrolment per class ranged from 3.64 to 23.04,on an average 10.75 students have been enrolled per class in the sample schools. Moreover, 69.27 percent of students in the school were tribal childrens. In the total enrolment of students, the girls enrolment was 42.71 percent. In case of scheduled tribes and general community girl students were low but in case of scheduled caste the enrolment of girl students were more than boys. Regarding

[33] Das S. and Mishra B. (2008), " Dropouts in Primary Education, Study of a Tribal Block of Raygada District of Orissa" in Thakur A. and Salam A. (eds.) *Economics of Education and Health in India*, Deep and Deep Publications Pvt.Ltd., New Delhi.

the dropout of students from primary classes the average percent was 14.93 in the year 2001-2006. Out of the total dropout students 52 percent were girl students. Severals reasons were identified for the drop out likes students had to take care of their siblings at home, migration of parents, child labour, engaged in household works, disinterested students. Among all the reasons, the highest percentage of 46 percent were due to pre occupation of the students both boys and girls in domestic work. Though the mid-day meal scheme attracted students to the school to avail meals distributed in the schools, the students have not realized the importance of studies. In every school the attendance of the students are 100percent before meals are served while after the meal the attendance reduces to 51 percent. Thus the meals provided to the students could not restrict the dropouts from the classes.

Mallik[34] (2008) in his study of best practices in implementation of mid-day meal programme in Orissa stated that the objective of the programme was to boost the universalisation of primary education by increasing enrollment, retention and attendance and simultaneously on nutrition of students in primary classes. In the earlier phase of programme, dry ration at the rate of 3kgs of rice per beneficiary per month was being supplied. But after 1st September, 2004, as per the direction of honorable Supreme Court, cooked meal was provided to all students of all the government and government aided primary schools. The meal contained 464kcal and 14.2gms protein in case of class I to V and 681kcal and 19.8gms protein in case of class VI-VIII. Moreover, the doctors posted in local Public Health Concern (PHC) checks the health status of the school students. The health departments are requested to supply iron and folic acid to schools under National Rural Health Mission (NRHM). The cooking and serving work are done by the

[34]Mallik S.K (2008), "Best Practices in Implementation of Mid-day Meal Programme in Orissa", Department of Educational Finance, National University of Education, Planning and Adminstration.

cooks and helpers engaged under the programme through WSHGs or teacher in charge of MDM. WSHG are assigned the duty of supervision, quality testing, proper storage of food stuff, preparation and distribution of food and cleanliness.

Deodhar et.al[35] (2010) stated that with the twin objectives of improving health and education of the poor children, India has embarked upon an ambitious scheme of providing mid-day meals in the government and government assisted schools primary schools. The scheme is important in terms of its potential for substantially improving the health of younger generation of the country. In fact it is an important instrument to encourage children to attend school. The administration and logistic responsibilities of this scheme are enormous and therefore, offering food stamps or income transfer to targeted recipients is considered as an alternative

Malyadri[36] (2010) in his paper has made an attempt to investigate the impact of mid-day meal programme on education, health and nutrition in two districts Nellore and Prakasam of Andhra Pradesh. He selected 110 primary schools from the two districts. The study revealed that most parents and students were satisfied with the implementation of mid-day meal scheme. 90 percent of the interviewed parents accepted that their chidren received the mid-day meal everyday. It was also observed that children consumed mid-day meal at school and did not take it home. 70 percent of the parents were of the opinion that both the student attendance and quality of education has improved as a result of mid-day meal programme. Enrolment and retention figures of surveyed schools over the last three years revealed that enrolment and retention has increased in 75 percent of schools, but had no significant improvement in 25 percent of schools. Regarding

[35]Deodhar Y.,MahandirattaS.,Ramani K., MalvankarD.,GhoshS.and Braganza V.(2010), "An Evaluation of Mid-day Meal Scheme", *Journal of Indian School Of Political Economy*, vol-22 no-4.

[36]Malyadri P. (2010) "Impact of Mid-day Meal Programme" *Kurukshetra*, February.

doctor visits and check-up, 88 percent of respondents stated that doctor and nurse visited their schools and 90 percent said that they were given supplementary vitamins and iron pills regularly. 70 percent of parents and 38 percent of teachers confirmed that there has been improvement in health and nutrition of children as a result of mid-day meal programme.

James[37] (2013) stated that mid-day meal scheme helps overcome classroom hunger, as many children come to school empty stomach and cannot concentrate on studies. The contribution of scheme to food security and child nutrition seems to be crucial in tribal areas where hunger is endemic. The scheme has encouraged enrolment and reduces absenteeism and dropout rates. MDM scheme serve as a very effective mechanism for strengthening the socialization process. It not only helps in breaking the caste and class barriers but also erode the barriers that prevent girls from going to school. The scheme has created various good habits in children, such as washing one's hand before and after eating food, use of clean water, good hygiene etc. Thus, the programme has created a very congenial atmosphere for education, health and overall well-being of the poor and needy children which will have a prolonged impact on nations overall social development.

According to Khantawala et.al[38] (2013) mid-day meal is like a boom for low socio economic children studying in government primary school. It has strong implication for reaching the target group of malnourished children and raising their nutritional standards. The food provided from centralised kitchen (Akshaya Patra Foundation) has helped in improving the consumption as well attendance and scholastic performance of the children. Teachers were also satisfied with the

[37]James G.(2013), "Fighting Classroom Hunger- Achievements of Mid-day Meal Scheme", *Yojana*, September.

[38]Khantawala S., Iyer U., Dhruv S. and Gandhi H. (2013), "Perceptions of Municipal School Teachers of Urban Vadodara on Strength and Weakness of Mid-day Meal Programme: Voices from the Ground", *Journal of Community, Nutrition and Health*, Vol.2, Issue 2.

functioning of the programme, menu and quality of the food. Moreover, teachers play a crucial role in the success of mid-day meal scheme, as they play a pivotal role in motivating children for achieving 100 percent compilance and improving the hygienic practices among the children.

Mohanty[39] (2014) conducted a study on implementation of mid-day meal scheme in Odisha. Initially he conducted studies to get the perception of stakeholders of elementary education where the MDMS is being implemented. The data was obtained from variety of sources such as interview with headmaster, teachers, SMC (School Management Committee) and students. From his studies he found that the student enrollment and daily attendance has increased by implementation of MDM in schools. There has been no student dropout from the school since the starting of the scheme. Moreover, the parents who were not able to send their children to school due to lack of food, they started sending them to school. Teacher, parents and SMC opined that the achievements of the student has been improved in the schools by implementing the scheme. The student's regularity helped them to understand the topics properly and secure good marks. The stakeholders reported that MDMS provided a scope for better relationship with society. For smooth functioning of the schools the community members are involved in the implementation and monitoring of the scheme. Most of the children were found to accept the MDM willingly. The children irrespective of their background enjoyed sharing the food. Some of the parents reported that the scheme has provided a platform to learn good habits like washing hands before taking food, discipline, respect to elders etc.

[39]Mohanty S.P (2014), "Practice of Mid-day Meal Scheme at Elementary Education Level: A Case Study of a Rural Elementary School", *Journal of Arts, Humanities and Social Sciences*, 2(3A).

Rana[40] (2014) from his study observed that mid-day meal scheme is successfully serving the purpose for which it was started. It has brought an increase in attendance rate of children but could not put a complete check on the dropout rate of students. Mid-daymeals provide adequate nutritional support to the children but the whole process took so much time which affected the teaching and learning process.Children were satisfied with the quality and quantity of the food distributed while teachers showed their concern for quality and hygiene. Mid-day meal scheme has helped in socialization of the students but at the same time teachers faced the overburden of work load. Inspite of some of these drawbacks, teachers were in favour of the scheme and supported its continual in future.

Rao[41] (2015) conducted a study on Mid-day Meal Scheme in Gajapati district of Odisha. His studies revealed that student enrollment from the poorest families have increased due to MDM scheme. There were no student dropouts. If there was any dropout, it was due to migration of parents from one place to another in search of livelihood. The children also migrate along with their parents. He also found that menu was flexible, with cooked rice, dalma and vegetables, soya chunks being the main menu with eggs twice a week. Fortified rice was provided for on-site cooking of supplementary food under the scheme. Rice fortification technology was uesd to add iron to the school meals. In some schools teacher were involved in MDM activities and in some other schools, teachers did not take any responsibility. According to the information collected from the officials, parents and publics, 20 percent of students were attracted by

[40]Rana S.(2014), "An Evaluative study of Mid-day Meal Programme in Chandigarh and Panchkula", *Scholarly Research Journal for Interdisciplinary Studies,* Vol-2, No-12.

[41]Rao S.K (2015),"Mid-day Meal Scheme in Gajapati district of Odisha", *Journal of Exclusive Management Science*, Vol-4, No-6.

MDM scheme. The scheme has fostered social equality and reduced gender gap among the students. He stated that providing better infrastructural facilities, quality education and mid-day meals can increase student enrollments.

Das[42] (2006) stated that mid-day meal scheme has given good results in educationally backward and tribal districts of Orissa, than in relatively advanced districts. The enrolment, attendance and retention of children in schools have gone up with the sharp decline in the dropout rates of the children. Though there has been great impact of the mid-day meal programme, there are certain problems confronted with it. Inadequate infrastructure in form of utensils, kitchen room, inadequate cooking materials are affecting the implementation of the programme. Pilferage and corruption have become the common factors affecting the purpose of the mid-day meal programme. Anganwadi workers regularly make complaints against the pilferage of food materials supplied to the centres from the government agencies. There is no separate budgetary allotment of funds for the programme. It is treated as a part of Child and Women Welfare department of Government of Orissa. In order to remove the nutritional deficiency of the poor childrens of the villages, more seriousness has to be attributed to the programme.

Kheera[43] (2006) stated that there has been substantial increase in the enrollment, retention and attendance of the children due to mid-day meal scheme. But the scheme had to face various challenges. The amount of food provided by the schools does not meet the Supreme Court norms. The quality of meal was the main challenge as far as the mid-day meal scheme is concerned. Further, for many states bringing varied menu was the big challenge when the

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[42]Das R. (2006), "*Poverty and Hunger- Causes and Consequences*",Sarup and Sons publishers, New Delhi.

[43]Kheera R.(2006), "Mid-day Meals in Primary Schools, Achievements and Challenges", *Economic and Political Weekly*, Vol.41, No. 46.

programme was initiated. The other major problems found were lack of adequate staff for preparing the meal, lack of adequate funds and lack of infrastructure. Various studies also found lack of water facilities. In some cases children were being asked to fetch water for cooking from the nearest water sources. In various schools, staffs for management of meals are inadequate which results in disruption of teaching activities as teachers have to supervise mid-day meal apart from teaching. Mid-day meal plays a role ineroding caste prejudices and nurturing social equity, as children from different class and caste backgrounds share a meal together. But there are reports of caste discrimination in MDMs. Two distinct form of caste discrimination was reported, one of discrimination against children on their basis of their caste and religion and second against cooks.

Rani and Sharma[44] (2008) undertook an empirical study of mid-day meal programme in Khurda district of Odisha. The study found that enrolment and attendance of children has increased during the cooked meal scheme. Parents also find that mid-day meal scheme have benefitted their children. Socialisation of the children was also effective. However, an examination of the scheme finds that the schools did not have adequate infrastructure and staffs to implement the mid-day meal scheme. The menu was monotonous but nutritious. Due to inadequacy of staff, the teachers had to spend much time and effort in running cooked meal scheme. But on the whole, mid-day meals have functioned reasonably well in spite of certain inadequacies and shortcomings, mainly of infrastructure and staff.

[44]Rani A. and Sharma N.(2008), " An Empirical Study of the Mid-day Meal Programme in Khurda, Orissa",*Economic& Political Weekly*, Vol.33 No.25.

Singh and Mishra[45] (2010) conducted a study on mid-day meal programme in Meghalaya to assess the performance of the programme in the entire state. The main aim was to understand the major constraints and bottlenecks of the programme. The study found that there was lack of clarity regarding the objectives of the scheme to most of the stake holders in the state. Majority of the stake holders particularly parents and teachers felt that whatever they were receiving were free and hence, there was no reason of raising questions regarding its weakness in implementation process. Evaluation team was not able to see any systematic government mechanism to assess the outcome of the scheme in terms of well-defined parameters during evaluation period. In most of the schools, regular inspections were not carried out to ensure the overall quality of mid-day meal served and neither, they maintained basic records such as issue and receipt of food grains and meal quality. Despite of the instructions that teachers are not allowed to cook mid-day meal, they spend considerable teaching time in supervising the cooking and serving of meals. Moreover, the evaluation of the implementation of the scheme in the state revealed leakages, deficient infrastructure, delayed releases of funds and inflated transportation costs.etc.

Hamid and Hamid[46] (2012) conducted a study to assess the impact of mid-day meal scheme on attendance, enrolment and dropout rates of children in primary school of district Anantnag in Jammu and Kashmir. Though the result showed impressive impact of mid-day meal on enrolment, attendance and dropout rates, the scheme suffered from various bottlenecks in course of its implementation. The study found number of socio-economic, cultural, financial and

[45]Singh M. and Mishra N. (2010),"Evaluation Study on Mid-day Meal Programme in Meghalaya", Council for Social Development, Southern Regional Centre, Hyderabad.

[46]Hamid Y. and Hamid A. (2012), "Mid-day Meal Scheme and Growth of Primary Education: A Case Study of District Anantnag in Jammu and Kashmir", *Bangladesh E-Journal of Sociology*, Vol.9, No.1.

administrative problems influencing the operation of the scheme. It was found those students belonging to general caste were not taking mid-day meals with reserved caste (ST, SC, OBC) students on account of their social status and prestige. The quality of food material supplied for school lunch programme was found very poor. Rice and dal supplied by FCI godown were found producing foul smell. The scheme also suffered from managerial and adminstrative problems. There was no separate staff to look after the operation of MDM programme. The teacher had to maintain daily record, receipts and expenditure under the programme which affected the study hour and teachers ability in engaging classes. Overall it made adverse impact on study atmosphere. Moreover, at the upper level there was poor coordination and co-operation among the officials with regard to the operation of the scheme. The scheme also suffered from financial problems. Financial allocation was not only inadequate but also irregular. Due to inadequate provision of money for purchase of vegetables, condiments etc. quality of meals served in all the schools were very sub standards.

Nambiar et.al[47] (2012) from their studies found that MDM programme has shown partial success in encouraging enrolment for the disadvantaged section. The actual number of beneficiaries is still less from expectation due to various reasons such as monotonous recipes, poor quality of raw ingredients and lack of palatability. They suggested that by improving the logistics and facilities in the schools will help in improving the quality of MDM served as well as adhering to the cyclic menu thereby fulfilling the nutritional quality and quantity of the programme. Repetitive training programme should be provided to the school teachers as well as MDM staff

[47]Nambiar V., Desai R., Patel N. and Roy K.(2012), " Mapping the Functioning of Mid-day Meal Programme in Schools of Rural Vadodara and its Impact on the Nutritional Status of the Children", *Journal of Pure and Applied Sciences*, vol-20.

to develop positive attitude and improve their capacity building. The nutritional status of the children revealed high prevalence of micro nutrient deficiencies, highlighting on deficit of micro nutrient consumption, unhygienic cooking conditions and high relevance of infection. Thus there is need to augment seasonal vegetables, improve sanitation and hygienic conditions during food handling and undergo some treatment of disinfection for the children.

Mehta et.al[48] (2013) conducted a study to evaluate the nutritional contribution of mid-day meal to the actual dietary intake of children in Ludhiana district of Punjab. It was observed that a cyclic menu for six days provided by state MDM cell was uniformly followed by all schools. The data revealed that kadhi chawal was the most liked meal (45%), followed by sabji roti and dal chawal (35%), dal roti (30%) and chana roti (29%). The least preffered meal was sweet rice (26%). The energy and protein content of six days menu varied from 350-386 kcal and 10.9-11.9 gm protein per day which was below the recommended norms of 450 kcal and 12gm protein. Their studies found that the diet of school going children was deficient in all the food groups which resulted in low intake of all nutrients. Mid-day meal programme has been found to be substitute rather than a supplement for the home meal.

Molla and Sheikh[49] (2013) in their study on impact of mid-day meal programme on educational level: A case study of Ballabhpur village of Birbhum district in West Bengal find out that 80 percent of respondents view is positive about MDM i.e the programmehas increased the school attendance children in primary level. On the other

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[48]Mehta B., Grover K. and Kaur R. (2013), "Nutritional Contribution of Mid-day Meal to Dietary Intake of School Children in Ludhiana District of Punjab", *Journal of Nutrition and Food Sciences*, Vol. 3, Issue 1.

[49]Molla F. and Sheikh J. (2013), " Impact of Mid-day Meal Programme on Educational Level: A Case Study of Ballabhpur Village of Birbhum District, West Bengal", *International Journal of Innovative Research in Science, Engineering and Technology*, Vol.4, Issue 4.

hand only 20 percent of respondents view was negative i.e there is no effect of programme on primary education system. The author stated that though there is increase in the regularity of the school attendance of children at primary level but the quality of the students has fallen down due to lack of proper manpower assistanceand extra effort on continuation of the scheme. For suitable performance of the programme the government should make proper rules and regulations and all the parents and teachers should be concerned about the sustainable education and development.

Sharma[50] (2013) mentioned in her paper that mid-day meal provides both nutrition and education to the children. Though the enrolment statistics have improved and dropouts might have reduced, however, the quality of education and food has decreased. From the survey of primary schools of Mohali, Panchkula and Chandigarh it was found that there was no proper kitchen to prepare food in the primary schools. The cooks in the schools didn't know the guidelines to ensure hygiene. The water used for cooking was not wholesome. The teachers stated that there are many obstacles which are affecting the quality in the education. The foremost duty of the teachers has become the supervision and distribution of food among the students which distracted the teachers from the main duty of teaching. Thus, mid-day meal scheme has been implemented but it was not monitored properly.

SCERT[51] (2014) in their report on "Study of impact of mid-day meal programme on school enrolment and retention in Chhattisgarh" stated that there has been positive impact of the scheme on the enrolment, retention and attendance of the students. Student's learning ability particularly in rural locations has been enhanced due to improvement in nutritional status which helps them to concentrate and perform better

[50]Sharma U. (2013), "Mid-day Meal Scheme and Primary Education in India: Quality Issues", *International Journal of Scientific Research and Publication*, Vol.3, Issue 11.

[51]SCERT(2014), Final report on "Study of impact of mid-day meal programme on school enrolment and retention", Chhattisgarh.

in the classroom. However, it was observed that no indicator based monitoring of the schemes was introduced to measure the impact of scheme on nutrition and health status of the children. Moreover the scheme faced various constraints .WSHG stated that only rice was made available through PDS and they put their own resources to purchase several items like vegetable and oils. On account of improper flow of funds the quality of meal suffered in many schools. No health check-up was undertaken for students taking the benefit of mid-day meal scheme. They also found while interacting with state officials and employees that there is shortage of officials and employees at state, district and block levels. Regarding infrastructure, there was no proper storage facility. Old cooking and serving utensils were used. SMCs lacked adequate training as a result of which there was reduction in their involvement in monitoring the scheme.

Shrivastava et.al[52] (2014) in their paper stated that mid-day meal scheme is the world largest school feeding programme that caters to about 120 million children in over 1.2 million schools and other centres. Though progress has been observed in the countries, the overall achievement is far from expected. Many barriers have been recognized in the successful implementation of the programme such as ineffective mechanism for monitoring and evaluation, inferior food quality and non- adherence to recommended protocols while preparing food. In order to improve the current status of the implementation of the scheme various measures has been undertaken such as increase in the financial allocation in proportion to their needs, formulating special guidelines (to ensure quality, safety and hygiene of the meals, sound monitoring and evaluation of policy and to strengthen infrastructure), training of cooks and helpers, conducting social audit and organizing regular review meetings to enable implementation of the corrective measures.

[52]Shrivastava S., Shrivastava P. and Ramasamy J.(2014), " The Mid-day Meal Scheme: A Holistic Initiative to Augment the Nutritional and Educational Status of the Children", *Journal of Medical Society*, Vol. 28, Issue 1.

Maheswari[53] (2015) have made a study on "Mid-day Meal Programme Implementation in MirshikSeetapur" to assess the performance of the programme in the village and to understand the constraints and bottlenecks in implementing the programme. The study revealed that MDM has proved as instrument to increase enrolment in sample MDMcentres and has also reduced the dropout rate at primary level to less than 10 percent. By discussing with teachers and managing committee, it was found that most of the parents were not allowing their children to eat meals especially girl students were feeling hesitant to have food in the schools. Parents expressed their dissatisfaction regarding the way of functioning of MDM scheme. Very few parents expressed their satisfaction over quality of food. Students did not get cooked meal regularly. They were sometimes provided dry ration as it was quite difficult to arrange cook and provide good quality food in the given amount. Moreover, teachers argued that MDM scheme is disturbing their teaching schedules.

Sahoo[54] (2015) conducted a descriptive study on effectiveness of mid-day meal programme in selected government primary school of Bhubaneswar, Odisha. The objective of the study was to understand the infrastructure and institutional arrangement of the scheme and to access the performance of the mid-day meal scheme in the state. The study revealed that school attendance and enrolment has increased after the implementation of mid-day meal scheme. The teachers were of the view that students span of attention has also increased. Infrastructure level was perfect in all disciplines but few areas which need to be improved was fund to build proper storage facilities, proper and safe place to keep raw ingredients, separate cooking place to cook

[53]Maheswari S. (2015), "Mid-day Meal Programme Implementation in MirshikSeetapur", *Online International Interdisciplinary Research Journal*, Vol-V.

[54]Sahoo P. (2015), "A Descriptive Study on Effectiveness of Mid-day Meal Programme in a Selected Government Primary School of Bhubaneswar, Odisha", *International Journal of Extensive Research*, Vol 9.

food, wide varanda for serving food etc. The appearance and texture of food was appropriate but the taste and smell can be improved. Many school teachers felt that mid-day meal programme is burden for them as no extra member is there to look after the mid-day meal progamme. The students were satisfied with the programme.

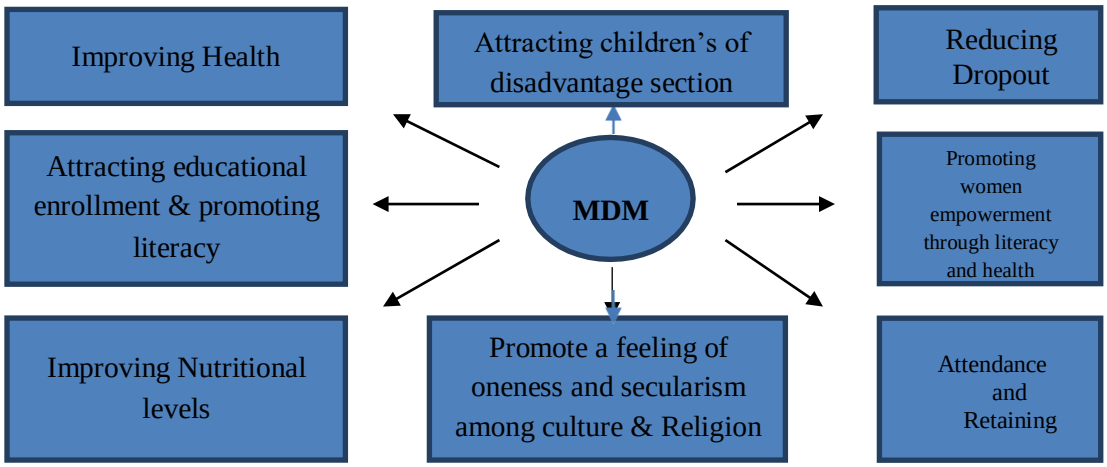
CHAPTER III

MID-DAY MEAL SCHEME: AN OVERVIEW OF INDIA AND ODISHA

Mid-day meal programme has been initiated to accelerate the process of economic and social development through making education reachable to poor and marginalized section of the society. The concept of MDM has gained momentum due to successful operation and attracting poor households for including their children into formal education system of a country. The programme has been initiated to meet the child nutritional requirements and now is contributing as the major factor attracting enrollment of students in rural and urban areas. Malnutrition acted as one of the major reason for implementation of MDM in India. The World Bank reports stated, India has one of the highest demographics of children suffering from malnutrition and said to be more worsening than Burkina Faso, Hatai, Bangladesh and North Korea. Global Hunger Index shows India ranks 67 out of 80 nations as 44 percent of children's under age of 5 years are underweight, 72 percent infants and 52 percent of married women is suffering from anemia. According to Nobel Prize winner for Economics Angus Deaton, "*malnutrition in India is not just related to calorie intake, but India's dependence on carbohydrate based diet with low protein and fat contains*" (https://www.savethechildren.in).

The elementary education universalization has been made for strengthening the socio – economic and literacy status among children's of India. It currently stands as the world largest school feeding programme catering the nutritional requirements of 120 million children's over 1.2 million schools, Aanganvadi and other centres. The broad objective of mid-day meal scheme is highlighted in figure 3.1. thereby classifying all dimensions under one roof.

Fig. 3.1. Objectives of Mid-Day Meal Scheme



3.1. History of MDM in India

Mid-day meal programme has been introduced as school meal programme in 2001 by government of India among school students (especially up to class V) nationwide. The Honorable Supreme court in 2001, passed an order stating *"A basic entitlement of every child in every government and government assisted primary schools with the prepared mid-day meal with a minimum content of 300 calories and 8 – 12 gram of protein each day of school for a minimum of 200 days"*. The concept of serving mid-day meal is not new in India as it was present pre independence era in 1925 as introduced by Madras Corporation under British administration and further by French administration in 1930 in the union territory of Puducherry (annamitra.org). Subsequently, the scheme has extended its wing at state level first in 1963 at Tamil Nadu under leadership of K. Kamaraj and M.G. Ramachandran (Nutritious Food Scheme) and later Gujarat in 1984. Currently, the programme is supported under Sarva Siksha Abhiyan and Ministry of labour supplying free lunches (also breakfast in certain aanganwadi schools) in all working days for students in primary and upper primary classes in government, government aided, local body, education guarantee scheme, Madarsa, Maqtabs and aanganvadi Centre's etc. at all states and union territories of India.

On 15th August 1995, a centrally sponsored scheme i.e National programme of nutritional support to primary education (NP-NSPE) was launched to meet the nutritional as well as classroom hunger of children. The classroom hunger was one of the major problems which restrict poor and marginalized students getting into school. Several cases have been reported where the parents are not sending their children to school because of inability in arranging one square of meal. The situation of multidimensional poverty, lack of competitiveness and several social taboos has attracted the intervention of government. In the year 1991, the literacy rate was 52.21 percent out of which the marginalized section i.e. SC and ST holds 37.41 percent and 29.60 percent respectively. The worst situation of literacy rate was in Bihar (38.48 percent), Rajasthan (38.55 percent), Uttar Pradesh (41.6 percent), Arunachal Pradesh (41.59 percent), Andhra Pradesh (44.09 percent) and Madhya Pradesh (44.20 percent).

Table 3.1: Mid-Day Meal Scheme in different States and Features

States	Year	Features	States	Year	Features
Tamil Nadu	1925	Started by Madras Municipal Corporation	Andhra Pradesh	1995	3kg rice/student /month with minimum 80% attendance
West Bengal	1928	Started by Keshav Academy of Calcutta	Madhya Pradesh	1995	Dry ration/ dalia
Maharashtra	1942	Free MDM in Bombay	Rajasthan	1995	3kg wheat/student/ month
Karnataka	1946	Started in Bangalore with cooked rice and yoghurt	Arunachal Pradesh	1995	Dry ration at 5 districts of state
Uttar Pradesh	1953	Started giving boiled gram, fruits, puffed rice and ground nut	Punjab	1995	3kg wheat/student/ month
Kerala	1960	By CARE under US assistance	Haryana	1995	Implemented in 17 blocks of 6 districts and extended to 44 blocks having female literacy lower than national average
Bihar	1995	Dry ration 3kg/student/month	Himachal Pradesh	1995	Dry rations
Jammu & Kashmir	1995	Dry Rations	Jharkhand	2003	Pilot basis on 3140 government schools in 19 districts
Meghalaya	1995	Dry rations3kg/student/ month	Orissa	1995	Meal up to class 5 at all government and govt. aided schools all over Odisha.

Source: Yojana, Sept.2013 and srjis.com

The scheduled caste situation were worst in states of Bihar (19.49 percent), Rajasthan (26.29 percent), Uttar Pradesh (26.85 percent), Andhra Pradesh (31.59 percent), Madhya Pradesh (35.08 percent) and Orissa (36.78 percent) while the scheduled tribes were isolated in states of Andhra Pradesh (17.16 percent), Rajasthan (19.44 percent), Madhya Pradesh (21.54 percent), Orissa (22.31 percent), Bihar (26.78 percent), West Bengal (27.78 percent) and Tamil Nadu (27.89 percent). Even the gender classification of literacy shows the biased nature of literacy among scheduled caste (female: male) in states of Bihar (7.07: 30.64 percent), Rajasthan (8.31: 42.38 percent), Uttar Pradesh (10.69: 40.8 percent), Madhya Pradesh (18.11: 50.51 percent), Orissa (20.74: 52.42 percent) and Andhra Pradesh (20.92: 41.88 percent). While in case of schedule tribes the situations were more worse in states of Rajasthan (4.42: 33.29 percent), Andhra Pradesh (8.68: 25.5 percent), Orissa (10.21: 34.44 percent), Madhya Pradesh (10.73: 32.16 percent), Bihar (14.75: 38.40 percent) and West Bengal (14.98: 40.07 percent).

The conditions of scheduled tribe women's were satisfactory in case of Mizoram, Kerala, Sikkim, Nagaland, Meghalaya and Manipur. Table 3.1, shows the detail year- wise development of mid-day meal scheme in India along with its distinctive features.

3.2. Mid-Day Meal Programme: Geographical Outreach and Performance

The mid-day meal programme works on the basis of Centre – state financial as well as regulatory structure. The process of execution of model is almost same in all the states except the variation in designation of monitoring authorities. The programme operates in five tiers with top notch occupied by ministry of Human Resource Development makes payment every year by June and October through e-transfer to state account with RBI. In second stage, the state finance department issues sanction orders to release funds to each district. While in third stage, district authorities order the district treasury to pay District Education Officer. The DEO sanctions money to BEOs (Block Education Officers) through treasury and finally the BEO releases money through sanction orders to MDM accounts of different schools. Even some states and union territories have implemented the MDM programme from pre-primary to class XII such as Puducherry and Chandigarh

etc. in which class I to VIII under centre-state scheme while preprimary and IX to XII under state scheme. The programme faces severe criticism broadly classified under monetary and non-monetary categories. Further, several other factors such as corruption and greedy behavior also influences the operation and execution of programme.

The history of Mid-day-meal in India was recorded formally after 1995 under NP-NSPE which extend coverage for distribution of both cooked and uncooked food items. Table 3.2, shows the formal history of mid-day meal programme in India and its expansion in different states of India. In order to have the understanding about impact and coverage of primary education in different state and districts of India, comprehensive comparison has been made taking into consideration the poverty, literacy and primary education status.

Table 3.2:Mid-day Meal Progress in India

Year	Progress
1995	The programme started as centrally sponsored scheme as the National Programme of Nutritional Support to Primary Education (NP-NSPE). Support extended via distribution of both cooked as well as uncooked (majorly) food items.
2001	Converted as cooked MDM scheme under which every school (govt. and govt. aided) has to prepare MDM with minimum content of 300 calories.
2002	Extension of coverage to students of local bodies schools, Alternative and Innovative Education (AIE) and Education Guarantee Scheme (EGS).
2004	Undergone severe changes under PMGY by providing central assistance for covering cooking cost @ Rs.1 per child/school/working day. Transport subsidy increases from Rs.50 to Rs.100 per quintal for special category at Rs.75 per quintal for other states. Provision of MDM in Drought prone areas even during summer vacation.
2006	The scheme has revised the cooking cost to Rs.1.80 per child/school/working day for NER and Rs.1.5 per child/school/working day for other states and UTs. **Under Central Assistance in Phased Manner** Nutritional norms revised to 450 calories and 12 gram protein. Kitchen cum store construction cost provided Rs.50000 and procurement of kitchen devices in school of Rs.5000 per school.
2007	Scheme extended to cover children of upper primary school/classes (vi to viii) studying in 3479 educationally backward blocks. The programme changed from NPNSPE to NPMDMS. The nutritional norm for upper primary stage was fixed 700 calories and 20 gram of protein.
2008	The scheme of covering children's of upper primary schools extended to all areas across the country.
Source: Compiled from selected literature review	

3.3. Broad Scenario of Primary Education in India

After Independence the educational initiates in India has followed the condition of take-off with establishment of several technical and non-technical institutions in higher education. Over the years the mid-day meal to children's were delivered under programme by state, union governments and several NGOs, voluntary organisations. Further, changes have been observed in mechanism of delivery and pattern of foods as from cooked food to dry rations and again towards cooked food at school. The process of providing dry rations was favored by many social scientists as it provides scope to share it with other family members.

In the year 1950-51, there were approx. 2.09 lakh primary schools catering the needs of 19.2 million students, with average of 92 children's per school. The girls enrollment was 5.4 million thereby sharing 28 percent of total enrollment. The teacher student ratio was 1:38 with the average teacher per school of 0.42 which clearly reflects that several primary schools were running without teachers. The dropout rate was not defined as either due to lack of maintenance of records or non-availability of information. Over the years the number of primary schools has shown the average growth of 24.5 percent per annum as against the enrollment growth 40.4 percent. Currently there exists an average of 1056 schools per district catering the needs of 2 lakhs primary students. The girls enrollment in 1950 – 51 was 5.4 million sharing 28.1 percent of total enrollment. It further increases by 111 times in the year 1960 – 61, but as regards to its share in total enrollment concern its shows growth of 4.5 percent compared to previous decade. It shows an increased by 31.7 million enrollment annually with the average growth rate of 54.5 percent per annum.

Table 3.3: Primary Education and Stake holders Status

Year	No. of Primary Schools	Number of Students (in million)	Average number of students per school	Girls Enroll-ment (in million)	Literacy (In %)	Number of Teachers (In million)	Student teacher ratio	Dropout
1950 – 51	209671	19.2	91.6	5.4	18.3	0.5	38:1	N.A
1960 – 61	330399	35.0	105.9	11.4	28.3	0.7	50:1	64.9

1970 – 71	408378	57.0	139.6	21.3	34.5	1.1	52:1	67.0
1980 – 81	494503	73.8	149.2	28.5	43.6	1.4	53:1	58.7
1990 – 91	560935	97.4	173.6	40.4	52.2	1.6	61:1	42.6
2000 – 01	638738	113.8	178.2	49.8	64.8	1.9	60:1	40.7
2010 - 11	748547	135.3	180.6	64.8	74.0	2.1	64:1	20.7
Mean *Mean of Growth Rate%*	484453 *24.5*	75.9 *40.4*	145.5 *12.4*	31.7 *54.5*	45.1 *26.8*	1.3 *28.0*	54:1 -	49.1 -

*Compiled via different sources**

The share of girls in total enrollment varies from 28 percent to 48 percent with no decline in trend over the years. The girl's enrollments have improved from 26 girls per school in 1950 – 51 to 87 girls per school during 2000 – 01. The scenario has improved massively in the year 1980 – 81 and 1990 – 91 with a growth rate of 52.9 percent and 38.5 percent respectively. The teachers per school have increased at the rate of 1.3 million per annum with the average growth rate of 54.5 percent per annum. The average teachers' per school has increased from 2 in 1950 -51 to 3 teachers in 2000-01. With the average of 92 students per school against 2 teachers clearly specify the burden of each teacher carrying the teaching (class I – V) and non-teaching academic activities during1950 – 51. While in 2000 – 01, the average number of students per school has increased to 181 with an average 3 teachers per school (refer table 3.2.). Further, the introduction of mid-day meal has created severe burden as of more documentation, monitoring, making availability of stock and supervision. This may influence the quality of deliberation at teaching in long run as teachers and school authorities are more accountable towards the monetary involvement in this programme.

As the matter of Dropout concern study shows declining trend from 64.9 percent in 1950-51 to 20.7 percent in 2010 – 11 registering an average decline of 7.3 percent per annum. Massive decline in dropout is observed in between 1980 – 90 and 2000 – 2010 registering an absolute decline by 16.1 percent and 20 percent respectively.

3.3.1. Caste-wise enrollment of Children in Primary Education

Data pertaining to caste-wise composition in total enrollment was available since 2005 – 06 onwards. Table 3.4, shows the annual growth in caste-wise enrollments of students in India. In the year 2005 – 06, as whole 132.1 million students were enrolled in primary education programme at different states of India with 47 percent girls enrollment.

Table 3.4: Caste-wise Distribution of Children Enrollment in Primary Education (in Million)

Year	All categories			Scheduled Tribe (ST)			Scheduled Caste (SC)		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
2005-06	70.5	61.6	132.1	7.5	6.6	14.1	14.0	11.3	25.3
2006-07	71.1	62.6	133.7	7.6	6.8	14.4	14.5	11.8	26.3
2007-08	71.1	64.4	135.5	7.7	7.0	14.7	13.7	12.6	26.3
2008-09	70.6	64.7	135.3	7.8	7.2	15.0	14.0	12.7	26.7
2009-10	69.7	63.9	133.6	7.7	7.2	14.9	13.5	12.5	26.0
2010-11	70.1	64.6	134.8	7.7	7.2	14.9	14.0	12.9	26.9
2011-12	72.6	67.2	139.9	7.9	7.4	15.3	14.8	13.9	28.7
2012-13	69.6	65.2	134.8	7.8	7.4	15.2	14.1	13.2	27.3
2013-14	68.6	63.8	132.4	7.6	7.1	14.7	13.6	12.7	26.3
2014-15	67.6	62.9	130.5	7.3	6.8	14.1	13.4	12.6	26.0
2015-16	66.9	62.2	129.1	7.1	6.6	13.7	13.3	12.4	25.7

Source: Educational Statistics at Glance, MHRD New Delhi

The year-wise overall enrollment shows continuous increase in between 2005–08 due to introduction of MDM programme. Extra ordinary jump is observed in between 2009–12 where the student enrollments in primary education has increased by 5.1 million in spite of reduction in number of schools by 36110 compared to previous year. This may be due to misreporting of data or non-submission of data by respective schools. The year- wise enrollment of students in primary schools sharply declines from 139.9 million in 2011 - 12 to 129.1 million in 2015 – 16 thereby registering an absolute decline of 10.8 million students. Even constant year-wise decline in enrollment of children from 2011– 12 onwards have been observed which may be due to decline in reproduction. The female enrollments in between the selected years range from 46.6 percent in 2005 – 06 to 48.1 percent in 2015 – 16. Further, steady increase in enrollment share of female are observed

since the introduction of MDM.

The caste-wise distribution shows STs in 2005-06 shares was only 11 percent of total enrollments with female enrollment of 46.8 percent similar to that of overall enrollment. The ST's enrollment over the last 10 years under study has increased at the rate of 11 percent per annum. The average share of female enrollment has increased from 46.8 percent in 2005 – 06 to 48.2 percent in 2015 – 16. The share of ST girls enrollment in overall girls enrollment falls from 10.7 percent in 2005 – 06 to 10.6 percent in 2015 –16. Though some incremental increase was observed in between 2005 – 14, during which the share of ST girls enrollment has reached to 11 percent of overall girls enrollment.

As the matter of SC children concern study found the constant share of SC children i.e. in between 19 – 20 percent of overall enrollment. The girls enrollment has increased from 44.7 percent in 2005 – 06 to 48.2 percent in 2015 – 16 registering higher growth as compared to ST and overall enrollment. The number of schools has increase from 7.72 lakh in 2005 – 06 to 8.40 lakh in 2015 – 16. This leads to a decline in number of students per school from 171 in 2005 – 06 to 153 in 2015 – 16.

As the matter of release of funds compared to budgetary allocation shows higher utilization in 2015 – 16 with 99.08 percent followed by the year 2016 – 17 (97.76 percent), 2011 – 12 (95.39 percent) and 2012 – 13 (91.04 percent) while lowest utilization is observed in 2017 – 18 (56.69 percent), 2014 – 15 (79.65 percent) and 2013 – 14 (82.68 percent).

3.3.2. Mid-day Meal Allocation in different Schools in India

Table 3.5, shows year-wise budgetary allocation of resources under MDM programme in India. The study found in 2011 – 12, rupees 10380 crore have been allotted for feeding 10.54 crore children under the programme out of which rupees 9901.91 have been released. In 2011 – 12, the average budget allocation per head was Rs. 984.81 as

Table 3.5. Mid-day Meal Fund Allocation and Management

Year/ Components	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Children covered (in crores)	10.54	10.68	10.80	10.22	10.03	9.78	9.83
Food grains allocated (in lakh MTs)	29.09	29.55	29.77	29.33	29.33	27.17	27.01
Budget allocation (in crore)	10380	11937	13215	13215	9236.40	9700	10000
Total release (in crore)	9901.91	10868	10927.21	10526.97	9151.55	9483.4	5669.9

Source: Educational Statistics at Glance, MHRD New Delhi

compared to the average fund release of Rs. 939.46. An average of Rs. 45 per head was not utilized against sanctioned during the said period.

The budgetary allocation has shown an average increase of 0.6 percent per annum with highest allocation increase by 15 percent in 2012 – 13. Thereafter, the budgetary allocation have shown declining trend to 10.7 percent (2013 -14), 0 percent growth (2014 – 15) and -30 percent in 2015 – 16. On the other hand, the release of funds has also shown a decline from Rs. 9901.91 crores in 2011 – 12 to Rs. 5669.99 crores in 2017 – 18 registering an annual decline of 7.1 percent per annum. In between 2011 – 17, there was decline in total release of fund but remains positive except for 2014 – 15 and 2015 – 16 where the total release have shown negative trend compared to the previous year.

The budgetary allocation per head has increased from Rs. 939 in 2011 – 12 to 1017 in 2017 – 18 registering an average growth of 3.29 percent. The budgetary allocation per head was highest in 2013 – 14 and 2014 – 15 with Rs. 1223 and Rs 1293 respectively while shows lowest in 2015 – 16 i.e. Rs. 920 per head per year.

3.3.3. State-wise fund allocation and Utilization under MDM

As per the data available, a status of fund allocation and utilization is drawn to show the comparative picture of utilization of amount sanctioned by central government to different state and their utilization. This will perfectly clarify the state position in discharging the duty and responsibility towards their people. Table 3.6, shows a

comparative picture of fund allocation and utilization by different states of India between the year 2014 – 15 and 15 – 16.

Table 3.6: State-wise fund allocation and Utilisation under MDM (In lakhs)

		2014 – 15			2015 – 16		
Sl. No.	**State/ U.T**	**Central assistance released/ sanctioned**	**Utilization**	**Percentage of fund utilization**	**Central assistance released/ sanctioned**	**Utilization**	**Percentage of fund utilization**
1	Andhra Pradesh	31556.70	31090.81	98.52	29064.76	31090.81	106.97
2	Arunachal Pradesh	3351.71	3283.49	97.96	3273.34	3325.81	101.60
3	Assam	47985.16	53411.93	111.31	55376.49	56189.58	101.47
4	Bihar	136542.10	140647.23	103.01	120013.29	116326.26	96.93
5	Chhattisgarh	31564.09	35760.45	113.29	26991.77	30997.98	114.84
6	Goa	1403.61	1578.86	112.49	1297.20	1259.22	97.07
7	Gujarat	44783.33	45366.71	101.30	38053.30	41360.83	108.69
8	Haryana	16398.99	15358.13	93.65	12382.80	13660.58	110.32
9	Himachal Pradesh	7460.91	7544.43	101.12	8141.23	8013.43	98.43
10	Jammu & Kashmir	6203.30	7650.404	123.33	8366.30	12838.95	153.46
11	Jharkhand	21508.92	36332.05	168.92	24518.16	31050.97	126.64
12	Karnataka	56610.57	59165.60	104.51	41939.61	53949.29	128.64
13	Kerala	22575.34	22623.77	100.21	17120.97	18061.21	105.49
14	Madhya Pradesh	79567.82	76947.50	96.71	60698.68	64774.38	106.71
15	Maharashtra	95059.83	116062.05	122.09	103072.93	88776.04	86.13
16	Manipur	3281.86	2286.05	69.66	2452.83	2570.57	104.80
17	Meghalaya	6247.18	6211.95	99.44	7024.57	6932.29	98.69
18	Mizoram	2049.78	1859.55	90.72	2060.99	1894.88	91.94
19	Nagaland	4226.96	2679.41	63.39	1073.68	2030.77	189.14
20	Odisha	49303.55	51824.23	105.11	39731.89	45522.01	114.57
21	Punjab	13500.81	19084.34	141.36	16650.04	15673.96	94.14
22	Rajasthan	41757.30	49361.93	118.21	41934.63	43288.83	103.23
23	Sikkim	1040.14	1203.99	115.75	1001.38	969.09	96.78
24	Tamil Nadu	63991.10	63061.73	98.55	44253.83	43730.98	98.82
25	Telangana	20114.42	21567.02	107.22	17435.58	18616.27	106.77
26	Tripura	4827.01	5085.171	105.35	5129.42	5154.14	100.48
27	Uttarakhand	8931.74	8678.57	97.17	10419.33	10162.62	97.54
28	Uttar Pradesh	105142.49	117628.94	111.88	86192.86	103567.54	120.16
29	West Bengal	109189.56	113916.42	104.33	75582.33	109107.37	144.36
30	A&N Islands	322.20	276.27	85.74	281.46	183.42	65.17
31	Chandigarh	810.47	486.57	60.03	756.43	694.19	91.77
32	D&N Havelli	4097.77	425.63	10.39	569.38	521.01	91.50
33	Daman & Diu	213.31	183.80	86.17	272.37	263.06	96.58
34	Delhi	7892.30	12308.585	155.96	9449.23	7903.88	83.65

35	Lakshadweep	108.81	87.09	80.04	127.04	85.18	67.05
36	Puducherry	597.70	587.29	98.26	520.77	673.73	129.37

Source: Education Statistics at Glance, MHRD New Delhi

The study found highest central assistance release/sanctioned to Bihar (Rs. 136542 lakhs) followed by West Bengal (Rs. 109189 lakhs), Uttar Pradesh (Rs. 105142 lakhs), Maharashtra (Rs. 95059 lakhs) and Madhya Pradesh (Rs. 79567 lakhs) while lowest in state of Sikkim (Rs. 1040 lakh), Goa (Rs. 1403 lakh), Mizoram (Rs. 2049 lakhs), Manipur (Rs. 3281 lakh) and Arunachal Pradesh (Rs. 3351 lakhs). As the fund allocations are made on the basis of population and area under coverage the share of north-east border sharing states are lower.

The utilization of the sanctioned resources is important parameter to assess the reachability and execution of programme at grassroots level. The data reveals higher utilization of funds in Jharkhand (168 percent), Delhi (156 percent), Punjab (141 percent), Jammu & Kashmir (123 percent), and Maharashtra (122 percent) while lowest in D & N Haveli (10 percent), Chandigarh (60 percent), Nagaland (63 percent) and Manipur (69 percent). Since, the pattern of allocation have been revised where the centre shares 100 percent stake for union territories, 90 percent in case of states of North-east and 60 percent for all other states. The utilization of funds is above 100 percent in 20 states/union territories while more than 90 percent in other 8 states/union territories of India.

In the year 2015 – 16, the centre assistance under MDM has increase in 14 states and union territories while decreases in other 22 states and union territories of India as compared to 2014 – 15. As the centre releases fund on the basis of number of children enrolled, number of schools and utilization of previous fund, attempt have been made to check the relationship between last parameter i.e. utilization of previous fund with the current allotment which shows positive but no significant correlation at 0.05 percent level.

Further, 10 states have shown increase in utilization of central assistance as compared to 20 states/union territories in previous selected year. The highest utilization is observed in Nagaland (189 percent), Jammu & Kashmir (153 percent), West Bengal (144 percent),

Puducherry (129 percent), Karnataka (128 percent) and Jharkhand (126 percent). The utilization of funds is above 100 percent again in 20 states/union territories while more than 90 percent in 11 states/union territories.

During 2015 – 16, in absolute sense the centre assistance under MDM was higher in Bihar (Rs. 120013 lakhs), Maharastra (Rs. 103072 lakhs), Uttar Pradesh (Rs. 86192 lakhs) and West Bengal (Rs. 75582 lakhs) while lowest in the states of Sikkim (Rs. 1001 lakhs), Nagaland (Rs. 1073 lakhs), Goa (Rs. 1297 lakhs), Mizoram (Rs. 2060 lakhs) and Manipur (Rs. 2452 lakhs). Almost similar pattern is observed among the highest and lowest bidders (states) under MDM programme in 2014 – 15 and 2015- 16.

As compared to centre assistance under MDM in 2014 – 15, the states/union territories whose monetary assistance has declined in 2015 – 16 are West Bengal (33607 lakhs), Tamil Nadu (Rs. 19737 lakhs), Uttar Pradesh (Rs. 18949 lakhs), Madhya Pradesh (Rs. 18869 lakhs), Bihar (Rs. 16528 lakhs) and Karnataka (Rs. 14671 lakhs). The Centre has reduced assistance of 22 states/union territories in 2015 – 16 as compared to previous year.

3.4. Broad Scenario of Primary Education and MDM in Odisha

Odisha was formerly known as Orissa an Indian state located in the eastern part. It is surrounded by the states of West Bengal to the north east, Jharkhand to the north, Chhattisgarh to the west and north-west and Andhra Pradesh to the South. Odisha lies between the latitudes 17.31N to 22.31N and between the longitudes 81.31E to 87.29E. It is the 9th largest state by area and 11th largest by population. The state has an area of 155,707km^2, which is 4.87% of total area of India, and a coastline of 450 km. In ancient times Odisha was known as Kalinga. In 261 BCE, it was invaded by the Mauryan emperor Ashoka resulting in Kalinga war, coincides with the borders of modern day Odisha. The modern state of Orissa was established on 1st April, 1936 as a province in British India and consisted predominantly of Odia speaking regions with Bhubaneswar as the capital. Odisha has a rich culture and tradition and is known as “The Land of Temples” as the state is home to several exotic temples. Odisha predominantly holds rural population and

farming acts as their major occupation. Due to high level poverty, dependence on agriculture and regular occurrence of cyclone paralyses the status of poor and vulnerable section again and again. According to the Pioneer (2014), Odisha stands second among the 14 states of India having highest incidence of poverty by 32.59 percent in 2011 – 12.

In the year 2004 – 05, the recorded incidence of poverty in Odisha was 57.20 percent which has improved due to massive intervention and development strategies adopted by state government. As per the latest census the literacy rate in Odisha has increased to 72.87 percent (near to national average of 74.04 percent) compared to 63.08 percent in 2001 census. The gender-wise classification shows massive improvement in female literacy rate from 50.51 percent in 2001 to 64.01 percent in 2011 leading to decline in male-female literacy rate by 7.26 percent. Yet, there exist significant gap between male-female literacy rate (17.58 percent) in Odisha. Further, the literacy rate among males and females of SC and ST communities have also been below 60 percent.

3.4.1. Educational Infrastructure and Enrollment in Primary Education

Despite of massive government intervention the status of tribal dominated districts in Odisha has not improved significantly. The educational infrastructure here includes the number of primary schools available and continuing services. The primary education in Odisha is governed and controlled by Department of School and Mass education under direct supervision of Government of Odisha. The OPEPA stands as an apex agency for implementation of schemes pertaining to organisation and development of primary education in all districts.

Table 3.7, shows the district-wise educational status comprising number of schools and enrollment rate in different selected years. The study found in the year 2008 – 09, there were 35,798 primary schools with the total enrollment of 45.86 lakh with an average of 128 students per school. In the year 2010 – 11, the number of primary schools has increased by 844 with higher concentration in Kalahandi block (209 new schools), Mayurbhanj (126), Kandhamal(125) and Rayagada (99).

Table 3.7: District-wise Primary Education Scenario

Sl. No	Name of District	2008 – 09		2010 – 11		2012 – 13		2014 – 15	
		No. of Schools	Enroll -ment	No. of Schools	Enroll -ment	No. of Schools	Enroll -ment	No. of Schools	Enroll -ment
1.	Anugul	1011	134836	997	128197	983	122036	961	119452
2.	Balasore	1517	268678	1603	255911	1615	232393	1601	231069
3.	Bargarh	1089	128861	1070	138656	1025	129484	1022	123224
4.	Bhadrak	1087	186172	1139	174282	1159	160912	1140	152988
5.	Bolangir	1397	176930	1400	176651	1378	182510	1322	174978
6.	Boudh	470	54124	495	50031	529	48383	535	45693
7.	Cuttack	1557	223665	1537	200538	1544	189833	1554	189513
8.	Deogarh	376	38036	396	35730	391	34127	374	29226
9.	Dhenkanal	934	118715	947	113439	970	104653	882	101502
10.	Gajapati	896	78233	978	79579	1007	82050	896	75052
11.	Ganjam	2391	406223	2439	386441	2399	348228	2431	325279
12.	Jagatsinghpur	942	111851	982	105530	980	89685	999	88071
13.	Jajpur	1363	199153	1386	195855	1360	183594	1349	179158
14.	Jharsuguda	479	51757	471	51423	469	52137	423	50404
15.	Kalahandi	1474	193341	1683	194309	1692	195772	1629	186643
16.	Kandhamal	1180	111063	1285	110609	1284	106717	1230	101833
17.	Kendrapara	1181	146840	1208	142549	1202	129299	1206	127851
18.	Keonjhar	1667	213046	1697	220109	1689	209981	1749	209010
19.	Khordha	1063	208784	1047	201281	1015	187553	1040	187401
20	Koraput	1727	173155	1729	181151	1652	179133	1659	183949
21.	Malkangiri	946	89921	912	87478	1008	95396	875	95293
22.	Mayurbhanj	2369	300766	2495	297848	2846	301818	2905	302262
23.	Nawarangpur	1167	161192	1251	165988	1236	167046	1217	166096
24.	Nayagarh	768	98200	752	93946	753	84606	758	77498
25.	Nuapada	638	88428	632	85521	619	86758	594	78458
26.	Puri	1270	162004	1284	153816	1287	138476	1296	132841
27.	Rayagada	1279	117073	1378	121537	1545	132254	1536	133653
28.	Sambalpur	962	94035	945	91994	929	94094	929	92349
29.	Sonepur	660	59275	656	57772	651	55495	614	54055
30.	Sundergarh	1938	192544	1848	190733	1839	216623	1824	208827
	Total	35798	4586901	36642	4488904	37056	4341046	36550	4223628

Source: Compiled from OPEPA report

The major thing to be noted here is that maximum new schools are introduced in tribal dominated districts. The enrollment of students in absolute sense was higher in Ganjam (3.86 lakhs) followed by Mayurbhanj (2.97 lakhs), Balasore (2.55 lakhs) and Keonjhar (2.20 lakhs) while lowest in Deogarh (0.35 lakh), Boudh (0.50 lakh), Jharsuguda (0.51 lakh) and Sonepur (0.57 lakh). The average students per school were higher in Balasore (159), Ganjam (158), Bhadrak (153) and Jajpur (141) while lowest in Gajapati (81), Kandhamal (86), Sonepur (88) and Rayagada (88). The intensive analysis show compared to 2008 – 09, the enrollment of students has reduced in 23 districts of Odisha in 2010 – 11 with highest decline in Cuttack (23127), Ganjam (19782), Balasore (12762), Bhadrak (11890) and Puri (8188). Further, no significant relationship is observed between changes in number of schools and enrollment. Even in certain districts like Balasore, Bhadrak, Boudh, Ganjam, Dhenkanal, Jagatsinghpur etc. decline in enrollment was observed even after increase in number of schools compared to 2007 – 08.

In the year 2014 – 15, thirteen districts of Odisha have shown an increase in the number of schools compared to 2008 – 09 among which highest increase was grabbed by Mayurbhanj (536 new schools), Rayagada (257), Kalahandi (155), Balasore (84) and Keonjhar (82) while lowest in Gajapati with no increase in number of schools over last 7 years. There exist sixteen districts which have shown decline in the number of schools (between the period under study) in operation with highest decline in Sundergarh (-144), Bolangir (-75), Malkangiri (-71) and Koraput (68). The number of students enrolled per school is highest in Khorda (180) followed by Balasore (144), Nawarangpur (136), Ganjam (133), Jajpur (132) and Bolangir (132) while lowest in Deogarh (78),
Khandamal (82), Gajapati (83), Boudh (85) and Rayagada (87). In terms of enrollment, only 7 districts have shown an increase in enrollment per school while rest have shown decline by 12 students per school during the period under study.

3.4.2. Gender and Caste-wise enrollment of Children at School

After analyzing the detailed information about the existence of primary schools and enrollment rate at different districts of Odisha, attempts have been made to show the composition of different population in total enrollment in table 3.8. The study found in 2008 – 09, the female children participation in total enrollment of primary schools is 47.87 percent as compared to the national average of 47.5 percent.

Table 3.8: Gender and Caste-wise enrollment at Primary Schools

Sl. No.	Name of District	2008 – 09				2014 – 15			
		No. of Schools	Girls Enrollment	SC	ST	No. of Schools	Girls Enrollment	SC	ST
1.	Anugul	1011	67308	30280	27353	961	56198	26395	26265
2.	Balasore	1517	124984	62950	35637	1601	112792	55825	46690
3.	Bargarh	1089	65361	30797	29985	1022	60255	29696	27464
4.	Bhadrak	1087	87365	46829	4335	1140	74003	39910	7435
5.	Bolangir	1397	86171	34688	44294	1322	74003	33776	44455
6.	Boudh	470	25892	14487	6700	535	22694	12289	6344
7.	Cuttack	1557	109409	52868	13351	1554	90842	41557	14965
8.	Deogarh	376	18753	6986	16164	374	13902	5134	12917
9.	Dhenkanal	934	58592	27045	24599	882	48076	22744	23042
10.	Gajapati	896	34220	6646	43870	896	36604	4616	52021
11.	Ganjam	2391	199251	93961	16012	2431	154977	78717	19498
12.	Jagatsinghpur	942	53168	28597	2215	999	42474	22348	2094
13.	Jajpur	1363	94562	55429	21977	1349	85298	46652	26749
14.	Jharsuguda	479	26735	10828	19970	423	24375	9930	16430
15.	Kalahandi	1474	90074	37741	55095	1629	90893	37178	62227
16.	Kandhamal	1180	52034	25143	60159	1230	49465	19543	62509
17.	Kendrapara	1181	73526	36526	2146	1206	61342	31852	2656
18.	Keonjhar	1667	100574	23552	114186	1749	105194	21810	125433
19.	Khordha	1063	109948	32029	13254	1040	89556	28705	21734
20	Koraput	1727	83255	28585	97906	1659	89428	29622	108235
21.	Malkangiri	946	43228	20344	55785	875	45538	19506	65184
22.	Mayurbhanj	2369	136016	22608	181638	2905	146177	19829	214992
23.	Nawarangpur	1167	75230	24768	90258	1217	81860	23230	106063
24.	Nayagarh	768	44107	15688	7161	758	35634	13064	7225
25.	Nuapada	638	41859	12565	32283	594	38570	11305	31532
26.	Puri	1270	75933	37045	1201	1296	64049	31451	1451
27.	Rayagada	1279	54420	20622	68238	1536	63340	20635	89091
28.	Sambalpur	962	41646	17120	36564	929	44240	19023	38835
29.	Sonepur	660	29495	16841	6699	614	26358	15542	6554
30.	Sundergarh	1938	92846	20979	120541	1824	102041	21916	124541

Source: Compiled from OPEPA report

The girls enrollment per primary school was highest in Khorda (103) followed by Ganjam (83) Balasore (82), Bhadrak (80) and Cuttack (70) while lowest in Gajapati (38), Rayagada (42), Sambalpur (43), Kandhamal and Sonepur (44) respectively.

Only five districts have shown girls enrollments over and above 50 percent with highest in Khorda (52.6 percent) and Jharsuguda (51.6 percent) while lowest in Gajapati (43.7 percent), Sambalpur (44.2 percent), Nayagarh (44.9 percent) and Mayurbhanj (45.2 percent).In the year 2014 – 15, the average girls per school was highest in Khorda district (86) followed by Balasore (70), Nawarangpur (67) and Bhadrak (64) while lowest in Deogarh (37), Gajapati (40), Kandhamal (40), Rayagada (41) and Boudh (42). A severe decline in decline in girls enrollment per school compared to 2008 – 09was observed in Ganjam (19), Khorda (17), Bhadrak (15), Jagatsinghpur (13) and Deograh (12) while lowest in Keonjhar (0.18), Bargarh (1.06) and Kandhamal (3.88).

As per the census 2011, the ST population concentration is highest in Malkangiri (57.4 percent), Mayurbhanj (56.6 percent), Rayagada (55.76 percent), Nabarangpur (55.03 percent), Kandhamal (51.96 percent), Gajapati (50.78 percent) and Surdergarh (50.19 percent) while lowest in Puri (0.30 percent), Kendrapara (0.52 percent), Jagatsinghpur (0.82 percent), Bhadrak (1.88 percent) and Ganjam (2.88 percent). The enrollment of ST children in 2007 – 08 was highest in Sundergarh (63 percent), Malkangiri (62 percent), Mayurbhanj (60 percent), Rayagada (58 percent), Koraput (56 percent), Gajapati (56 percent), Nawarangpur (55 percent) and Kandhamal (54 percent) while lowest in Puri (0.74 percent), Kendrapara (1.46 percent), Jagatsinghpur (1.98 percent), Bhadrak (2.32 percent) and Ganjam (3.94 percent). As compared to ST concentration in districts, the ST children enrollment ratio is higher in both more concentrated as well as less concentrated districts. The district sharing highest number of ST students per school is Nawarangpur (77), Mayurbhanj (77), Keonjhar (68), Sundergarh (62), Malkangiri (58) and Koraput (56) while lowest in Puri (1), Kendrapara (2), Jagatsinghpur (2), Bhadrak (4) and Ganjam (6).

In 2014 – 15, the enrollment of ST students was higher in Rayagada (76 percent), Mayurbhanj (71 percent), Gajapati (66 percent), Nawarangpur (66 percent), Surdergarh

(64 percent) and Koraput (62 percent) while lowest in Puri (0.89 percent), Kendrapara (2 percent), Jagatsinghpur (2 percent), Ganjam and Bhadrak (4 percent respectively).The enrollment of ST children has increased in 21 districts of Odisha by 4.5 percent while decline is observed in 9 districts by 2.36 percent compared to 2008 – 09. The average number of ST students per school was reported highest in Nawarangpur (84), Malkangiri (74), Mayurbhanj (74), Keonjhar (71), Sundergarh (68) and Koraput (65) while lowest in Puri (1) , Jagatsinghpur (2), Kendrapara (2), Bhadrak (6) and Ganjam (8).

The SC children enrollment in primary education in various district of Odisha ranges from 5 to 26 percent of total enrollment. According to 2014 – 15 data, the highest SC enrollment is observed Sonepur (26 percent) followed by Bargarh (23 percent), Jajpur (23 percent), Boudh (22 percent), Malkangiri (21 percent) and Kendrapara (21 percent) while lowest in Gajapati (5 percent), Mayurbhanj (6 percent), Keonjhar (10 percent) and Sundergarh (11 percent). The schools recorded highest average number of SC students is Bhadrak (35), Balasore (34), Jajpur (34), Ganjam (32) and Bargarh (29) while lowest in Gajapati (5), Mayurbhanj (6), Sundergarh (12), Keonjhar (12) and Rayagada and Deogarh (13 respectively).

3.4.3. Drop-out Status of Children in Primary Schools of Odisha

Dropout of students in primary education was always a matter of concern as the stage tries to establish base among students. Studies found other factors than learning and understanding mostly directs the dropouts.

Table 3.9: Dropout Status of Children in Primary Schools

Sl. No	Name of the District	2011-12	2012-13	2013-14	2014-15	2015-16
1.	Anugul	74	9	7	0	0
2.	Balasore	93	7	1	0	0
3.	Bargarh	596	81	130	118	0
4.	Bhadrak	79	37	49	23	3
5.	Bolangir	35	8	7	73	33
6.	Boudh	1	11	22	7	0
7.	Cuttack	0	18	13	1	0

8.	Deogarh	807	96	35	0	0
9.	Dhenkanal	107	217	0	12	0
10.	Gajapati	327	167	47	0	30
11.	Ganjam	541	18	33	193	5
12.	Jagatsinghpur	8	3	47	92	30
13.	Jajpur	133	89	17	0	0
14.	Jharsuguda	105	10	55	43	55
15.	Kalahandi	51	284	53	7	1
16.	Kandhamal	288	969	420	211	28
17.	Kendrapara	27	0	0	0	0
18.	Keonjhar	860	90	93	85	1
19.	Khordha	31	249	280	244	2
20.	Koraput	1028	1819	944	127	40
21.	Malkangiri	0	194	266	147	0
22.	Mayurbhanj	1811	519	394	8	2
23.	Nawarangpur	635	300	167	174	5
24.	Nayagarh	39	26	59	0	0
25.	Nuapada	10	1	304	308	0
26.	Puri	0	54	12	2	12
27.	Rayagada	1495	716	270	500	482
28.	Sambalpur	72	1	0	36	168
29.	Sonepur	34	15	0	0	0
30.	Sundergarh	623	78	189	32	1
	Total	9910	6086	3914	2443	898

Source: OPEPA reports

The higher dropout rate is found in disadvantages and backward sections of society. Table 3.9, shows the dropout status and its existence over the period under study.

In the year 2011 – 12, a total of 9910 students have dropout from all districts of Odisha with higher concentration in Mayurbhanj (1811) Rayagada (1495), Koraput (1028), Keonjhar (860) and Deogarh (807) while lowest in Puri (0), Malkangiri (0), Cuttack (0) and Boudh (1). The comparison with the previous table highlights positive relationship between ST dominated districts with districts having higher dropout.

In the year 2012 – 13, the dropout in the state was reduced by 38 percent compared to previous year with highest reduction in Mayurbhanj (1292) followed by Rayagada (779), Keonjhar (770) and Deogarh (711) while increase in dropout was noted with Koraput (791), Kandhamal (681), Kalahandi (233) and Khurda (218). In the year 2015 – 16, the dropout rate has reduced to zero in13 districts of Odisha. The higher is observed in Rayagada (482) and Sambalpur (168) while dropout rate less than 5 students was

observed in eight districts.

3.5. Mid-Day Meal Programme in Odisha

In Odisha, the Mid-day Meal programme was introduced in the year 1995 as a nutrition intervention programme. The slogan of programme is taken as "Nutrition for Education". Its aim was to universalize primary education by increasing enrollment, reducing dropouts and providing nutrition supplementation to the primary school going children (upto age of 11 years) who are deprived of adequate and proper diet at home.MDM programme provide cooked noon meal to primary school children of all Government and Government aided schools studying in class I to V all over the state for about 210 working days in a year. However in 2001, it was decided to provide cooked meal to the primary school children in all Government and Government aided primary schools children only in rural areas of the 8 KBK district and 74 ITDA blocks of non KBK district. While in the other districts of the state dry ration @ 3kg of rice per beneficiary per month was being supplied. As per the order of Honorable Supreme Court in the year 2004, cooked meal was provided to all students of all Government and Government Aided schools, EGS/AIE centres.

As per the guidelines issued from time to time, different recipes are being served on different days of the week on rotational basis. Varied cooked foods are being served every day as given in the table no 3.10.

Table 3.10: Weekly Schedule of MDM Class I -VIII

Sl.no	Day	Menu	Calorie intake	Protein intake
1	Monday	Bhata and Dalma	503.8	13.09
2	Tuesday	Bhata and Soya Badi Curry	470.8	14.09
3	Wednesday	Bhata and Egg Curry*	506.3	14.29
4	Thursday	Bhata and Dalma	503.8	13.09
5	Friday	Bhata and Soya Badi Curry	470.8	14.09
6	Saturday	Bhata and Egg Curry*	506.3	14.29
Total			493.63 (450gm)	13.82 (12gms)

**Fruits are supplied instead of eggs for vegetarian children.*

Under the present Mid-day Meal scheme the above cooked food is supplied to the students during the lunch hour on all working days but in certain schools MDM are provided during summer vacation which are declared by government as natural calamity/drought affected areas.

3.5.1. Fund Flow Mechanism under MDM in Odisha

It is imperative to provide nutritious food to the school children uninterruptedly. All the stakeholders have important roles to play in providing wholesome meals without interruption. The government has to overcome the following impediments which stand in the way of providing meals:

i. Availability of cooking cost in the joint account opened in each school
ii. Supply of rice to the school point
iii. Regularity in serving the meals and adherence to weekly schedule of MDM
iv. Procurement of prescribed cooking ingredients

Release of funds from the Centre in time and ensuring availability of the same according to requirements of all levels solves a lot of problems in ensuring timely support of hot cooked noon meal. Delay in releasing monetary assistance from Centre to the State, from State to the District and from District to the Block and the School, deprives children of their right to food. All the agencies associated with fund flow mechanism must perform their assigned duties in proper manner.

The School and Mass Education (S&ME) department sanctions fund in favour of Director Elementary Education (DEE) from the budgetary allocation of MDM scheme. DEE acts as a controlling Officer in respect of release of funds under MDM scheme. The DEE draws the amount under different components of MDM scheme for the districts according to their entitlements and deposit in the joint account opened in SBI which is operated by FA cum Joint secretary of the S&ME dept. and State Nodal Officer, SPMU. It should take maximum 3 days for withdrawl and deposit in the joint account.

On receipt of the amount the Nodal Bank at the state level i.e. SBI releases the fund to the districts through e –transfer the same day of the receipt. At district level a joint account has been opened in the name of the DPC and Headquarters DI. The Headquarters DI with the approval of Collector releases the fund meant for each school of the Block through e-transfer according to the requirement within 3 days of the receipt. The BDO releases fund meant for each school through e- transfer. At school level, joint account in the name of the Headmaster& SHG/SMC/VEC has been opened.

3.6. Conclusion

This study found the share of girls in total enrollment varies from 28 percent to 48 percent with no decline in trend over the years. Even the girl's enrollments have improved from 26 girls per school in 1950 – 51 to 87 girls per school during 2000 – 01. The teachers per school have increased at the rate of 1.3 million per annum with the average growth rate of 54.5 percent per annum. The average teachers' per school has increased from 2 in 1950 -51 to 3 teachers in 2000-01. With the average of 92 students per school against 2 teachers clearly specify the burden of each teacher carrying the teaching (class I – V) and non-teaching academic activities during 1950 – 51. In Odisha, the dropout was mostly associated with tribal dominated districts such as Mayurbhanj, Rayagada and Koraput which has significantly reduced during 2015 – 16.

CHAPTER IV

MID-DAY MEAL AND DEVELOPMENT DIMENSIONS

This chapter explains the social profile of the selected sample respondent under available infrastructure. Further, attempts have been made to highlight the views of the children's pertaining to MDM and their position/decision after consumption ofmeal.

4.1. Demographic Classification of SampleRespondents

This sub-section shows the demographic profile of sample respondents highlighting age-wise classification, gender and social status.

4.1.1. Age wise Classification of SampleRespondents

Table 4.1.1, shows the age-wise classification of sample respondents. The study found that maximum respondents are 6, 8 and 9 years old students (19 percent respectively) followed by respondents of 10 years old (18 percent), 7 years old (17 percent) and 11 years old (5 percent).

Table 4.1.1: Age-wise Classification of Sample Respondents

Sl. No.	Age of Respondents	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**5**	2 (2)	2 (2)	4 (2)	5 (6)	1 (1)	6 (4)	10 (3)
2	**6**	16 (20)	14 (17)	30 (19)	14 (17)	16 (20)	30 (19)	60 (19)
3	**7**	13 (16)	16 (20)	29 (18)	12 (15)	15 (19)	27 (17)	56 (17)
4	**8**	16 (19)	14 (17)	30 (19)	14 (17)	16 (20)	30 (19)	60 (19)
5	**9**	15 (19)	13 (16)	28 (17)	18 (22)	16 (20)	34 (21)	62 (19)
6	**10**	14	15	29	12	16	28	57

		(17)	(19)	(18)	(15)	(20)	(17)	(18)
7	**11**	4 (5)	6 (8)	10 (6)	5 (6)	0 (0)	5 (3)	15 (5)
Total		80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

As per the norms of the government the entry to class 1 is allowed after completion of 5 years and subsequent increase for upper classes. This higher concentration of sample respondents at particular age i.e. 6 years, 8 years and 9 years is due to later entry i.e. admitted after completion of defined age during inception.

The section-wise analysis shows in more than average blocks maximum students are of 6 and 8 years of age (i.e. 19 percent respectively) followed by students of 8 and 10 years (18 percent respectively), 9 years old (17 percent) and 11 years (6 percent). The current year admitted students age are as par that is defined by government due to interference and support of various officials at villages. The major reason for higher concentration for particular age is due to unavailability of information for admission process, lack of willingness of parents and lack of time. In more than average blocks, similar situation is observed i.e. maximum students are of 9 years old (21 percent) followed by 6 and 8 years old (19 percent respectively), 7 and 10 years old (17 percent) and 5 years old (4 percent). The sample respondents mean age are class I is 5.86 (s.d., .393), Class II 6.92 (s.d., .370), class III is 8.09 (s.d., .294), Class IV is9.14
(s.d., .350) and class V is 10.22 (s.d., .453).

4.1.2. Gender wise Classification ofRespondents

Gender equality in education is important for economic development of the country. The World Bank believes that one of the most important investments a country can make to achieve development goals is educating girls. Enrolment of girls in school is not only fundamental to achieve broader equality between genders but has positive ripple on effects that can improve the wider well-being of communities and nations.

Table 4.1.2: Gender wise Classification of Respondents

Sl. No.	Gender	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**Male**	34 (43)	35 (44)	69 (43)	33 (41)	39 (49)	72 (45)	141 (44)
2	**Female**	46 (57)	45 (56)	91 (57)	47 (59)	41 (51)	88 (55)	179 (56)
Total		80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source:FieldSurvey Figures in parentheses indicatespercentage

The data in table 4.1.2, shows gender wise classification of respondents. It reveals that in more than average blocks 43 percent of the respondents are male and 57 percent of respondents are female. The study shows inmore than average blocksi.e. Bangriposi and Suliapada percentage of female respondents are higher as compared to male respondents by 15 percent and 12 percent respectively. Similarly in less than average blocks 45 percent of respondents are male while 55 percent of respondents are female. In both selected blocks under less than average i.e. G.B Nagar and Samakhunta, percentageof female respondents are higher as compared to male respondents by 17 percent and 2 percent. The female enrollments in all selected blocks are higher than male enrollments.

Table 4.1.3, shows gender classification of respondents both standard and block-wise. In Mayurbhanj, the male-female enrollment ratio in primary education as per OPEPA is 1: 0.93 while in our selective study the ratio found is 1:1.27 with higher enrollment ratio in less than average blocks (i.e. 1:1.31) as compared to more than average blocks (1:1.22).

The block-wise classification shows higher enrollment of female students in Gopabandunagar block (1:1.42) followed by Bangiriposi (1:1.35) while lowest in Shamakhuntai.e. 1: 1.05 (with female enrollment still more than male)

Table 4.1.3: Gender Classification – Block and Standard wise

Sl. No.	Standard	More than Average						Less than Average						Total	
		Bangiriposi		Suliapada		Total		G.B.Nagar		Shamakhun-ta		Total			
	Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1.	Class I	4 (25)	12 (75)	8 (50)	8 (50)	12 (37)	20 (63)	8 (50)	8 (50)	6 (37)	10 (63)	14 (44)	18 (56)	26 (41)	38 (59)
2.	Class II	8 (50)	8 (50)	5 (31)	11 (69)	13 (41)	19 (59)	9 (56)	7 (44)	10 (63)	6 (37)	19 (59)	13 (41)	32 (50)	32 (50)
3.	Class III	6 (37)	10 (63)	8 (50)	8 (50)	14 (44)	18 (56)	8 (50)	8 (50)	5 (31)	11 (69)	13 (41)	19 (59)	27 (42)	37 (58)
4.	Class IV	7 (44)	9 (56)	6 (37)	10 (63)	13 (41)	19 (59)	3 (19)	13 (81)	10 (63)	6 (37)	13 (41)	19 (59)	26 (41)	38 (59)
5.	Class V	9 (56)	7 (44)	8 (50)	8 (50)	17 (53)	15 (47)	5 (31)	11 (69)	8 (50)	8 (50)	13 (41)	19 (59)	30 (47)	34 (53)
Total		34 (42)	46 (58)	35 (44)	45 (56)	69 (43)	91 (57)	33 (41)	47 (59)	39 (49)	41 (51)	72 (45)	88 (55)	141 (44)	179 (56)

Source: Field Survey

The standard-wise analysis shows in Mayurbhanj, higher share of female enrollment in Class I and IV while equal in class II. The higher share in class I represent good sign of female rights. The section-wise analysis shows in more than average block higher share of female enrollment in class I (63 percent) with range from 47 to 63 percent while that in less than average blocks higher enrollment is observed in class III and IV with range from 41 -59 percent. Data reveals higher share in female enrollment in last five years in the study area.

4.1.3. Caste-wise Classification ofRespondents

Being among the tribal dominated (56 percent ST population) and backward districts of Odisha, caste-wise classification becomes necessary to analyse the impact of any programme/schemes. The Scheduled Tribes (STs) are socially and educationally the most disadvantaged groups in Odisha. Among various schemes implemented by the government of India for the educational development of the disadvantaged sections of society, MDM has a positive impact on the enrolment of STs. Table 4.1.4, showshigher concentration of ST sample respondents i.e. 56 percent followed by OBC (27 percent), General (12 percent) and SC (5 percent). The district profile also

shows same pattern

i.e. maximum concentration of ST population followed by OBC. The section-wise analysis shows in more than average blocks though having higher concentration of ST their presence is limited to 46 percent followed by OBC (32 percent) while that in less than average blocks the presence of STs are 20 percent higher (in absolute term). The OBC's share is 21 percent and General (4 percent).

Table 4.1.4: Caste wise Classification of Respondents

Sl. No.	Caste of the respondents	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	General	8 (10)	17 (21)	25 (16)	13 (16)	2 (2)	15 (9)	40 (12)
2	SC	8 (10)	2 (2)	10 (6)	4 (5)	2 (2)	6 (4)	16 (5)
3	ST	43 (54)	30 (38)	73 (46)	58 (73)	47 (59)	105 (66)	178 (56)
4	OBC	21 (26)	31 (39)	52 (32)	5 (6)	29 (37)	34 (21)	86 (27)
	Total	80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey 2018

In Bangriposi Block, 54 percentage of respondents are STs, followed by OBCs (26), General (10) and SCs (10). While in Suliapada block highest percentage of respondents are OBCs (39 percent) followed by ST's (37 percent), General (21 percent) and SC (2 percent). On the other hand, in G.B Nagar block ST constitutes 73 percent followed by general respondents (16 percent), followed by OBC (6 percent) and SC(5 percent). In Samakhunta Block, ST respondents represents 66 percent share followed by OBC(36 percent), General and SC(2 percent) respectively. The caste-wise analysis has been done to have indepth analysis of gender enrollment in the study area. Table 4.1.5, shows higher enrollment rate of female students among all caste with higher percentage among samples of OBC (64 percent), SC (53 percent) and STand General (53 percent respectively). The section-wise distribution shows in more than average blocks enrollment of female student are higher i.e. 73 percent

followed by SC (60 percent), general (56 percent) and lastly ST (45 percent). While in less than average blocks, female enrollments are higher among ST's (58 percent), followed by equal share of 50 percent in SC and OBC category students.

Table.4.1.5:Caste-wise Classification of Male-female Enrollment

Sl. No.	Caste	More than Average						Less than Average						Total	
		Bangiriposi		Suliapada		Total		G.B.Nagar		Shama -khunta		Total			
	Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1.	General	4 (50)	4 (50)	7 (41)	10 (59)	11 (44)	14 (56)	6 (46)	7 (54)	2 (100)	0 (0)	8 (53)	7 (47)	19 (47)	21 (53)
2.	SC	2 (25)	6 (75)	2 (100)	0 (0)	4 (40)	6 (60)	1 (25)	3 (75)	2 (100)	0 (0)	3 (50)	3 (50)	7 (44)	9 (56)
3.	ST	23 (54)	20 (46)	17 (57)	13 (43)	40 (55)	33 (45)	23 (40)	35 (60)	21 (45)	26 (55)	44 (42)	61 (58)	84 (47)	94 (53)
4.	OBC	5 (24)	16 (76)	9 (29)	22 (71)	14 (27)	38 (73)	3 (60)	2 (40)	14 (48)	15 (52)	17 (50)	17 (50)	31 (36)	55 (64)
Total		34 (42)	46 (58)	35 (44)	45 (56)	69 (43)	91 (57)	33 (41)	47 (59)	39 (49)	41 (51)	72 (45)	88 (55)	141 (44)	179 (56)

Source: Field Survey

4.2. Mid-day Meal and Children'sViews:

This section attempts to show the position/views of sample respondents pertaining to food consumption habits before school along with food sufficiency and parents views on MDM. This sub-section further show differences in position with respect to caste and gender ofrespondents.

4.2.1. Food Consumption Habit before coming toSchool:

Mid-day meal was meant to provide meals to the children who comes empty stomach to school. The meals given to the children not only provide nutrition but also help in

Table 4.2.1: Consumption of food before coming to School

Sl. No.	Consumption of food	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Yes	40 (50)	19 (24)	59 (37)	23 (29)	8 (10)	31 (19)	90 (28)
2	No	28 (35)	53 (66)	81 (51)	54 (67)	60 (75)	114 (72)	195 (61)
3	Sometimes	12 (15)	8 (10)	20 (12)	3 (4)	12 (15)	15 (9)	35 (11)

Total	80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

concentrating in the class. Table 4.2.1, shows 61 percent of the respondents in the study area do not consumed food before coming to school followed by 11 percent children who consumes food sometimes before arriving school. In less than average blocks 71 percent of the respondents stated that they do not consume food before coming toschool whereas in more than average blocks the percentage was 51percent.The block interpretation shows in Suliapada, G.B Nagar and Samakhunta blocks maximum respondents comes empty stomach to school as most of the students in rural Government schools belongs to poor families. Parents face financial hardship which makes them unable to provide foods to their children. Studies shows parents believe that mid-day meal will be sufficient for their children. Only in Bangriposi block 50 percentage of respondents consumed food before coming to school.

Table 4.2.2: Multiple Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	.825	.107		7.700	.000
SC	-.388	.200	-.123	-1.933	.054
OBC	-.348	.130	-.225	-2.685	.008
ST	-.381	.119	-.277	-3.215	.001

Source: Field Survey

The caste wise classification of respondents regarding intake of food before coming to school through dummy multiple regression analysis shows the respondents of general caste are in better position in terms of intake of food before coming to school as compared to Scheduled caste, ST and OBC which are reduced to 0.437, 0.444 and 0.477 respectively and significant at 0.05 percent level. The mean difference between students of SC, OBC and ST's not availing food before coming to school is not statistically significant.

4.2.2. Food most likely to have inMDM

The MDM menu in broader sense are decided and controlled by state project management unit under Department of school and Mass Education, Government of Odisha. But some flexibility and alteration are allowed on recommendation of school management committee and district project coordinator/supervising officer.

Table 4.2.3: Food most likely to have in MDM (In %)

Sl. No.	Food like in MDM	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Rice	12	4	8	12	32	22	15
2	Dalma	42	31	37	42	12	27	32
3	Soyabean	51	47	49	59	25	42	46
4	Egg	62	61	62	55	86	71	66
5	Others*	15	19	17	9	1	5	11

Source: Field Survey

Table 4.2.3, shows the multi responses of 320 students for their preferences of different items simultaneously. The study found the minimum standard is followed to fulfill the nutritional requirements i.e. giving mixture of carbohydrates with protein and vitamins. The common menu of Rice with Dalma, Rice with Soyabean and Rice with egg curry are followed on repeated basis i.e. twice in a week on alternative days. In Mayurbhanj, 66 percent sample respondents like egg curry in their menu while 46 percent have caste their preference for soyabean. The major reasons for likeness of these foods are non-reachability or regular access. Further, Rice as regular item in menu grasp less attention of sample respondents (15 percent) while Dalma (32 percent).

4.2.3. Food Sufficiency underMDM

Mid-day meal provides balanced and nutritious diet to the children. It should be ensured that the children get sufficient amount of meal at school. The sufficiency of

food acts as an important parameter in evaluating the objective of the programme. Lack of sufficiency in availability and irregularity in distribution of food grains act as an important factor hindering the progress of programme. Further, studies show black marketing of FCI food grains and fewer amounts during supply compared to allotment which reduces the quantity of food inplates.

Table 4.2.4: Food sufficient provided at school

Sl. No.	Food sufficient	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Yes	74 (93)	73 (91)	147 (92)	74 (93)	77 (96)	151 (94)	298 (93)
2	No	1 (1)	1 (1)	2 (1)	2 (2)	1 (1)	3 (2)	5 (2)
3	Sometimes	5 (6)	6 (8)	11 (7)	4 (5)	2 (3)	6 (4)	17 (5)
	Total	80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

Table 4.2.4, shows 93 percent of sample respondents have reported sufficient quantity of food in their meal while 7 percent are dissatisfied with quantity of MDM. Further, field observations show consumption of MDM food by School teaching and non- teaching staff including cook. The section-wise analysis shows equal status in terms of quantity of food sufficiency among beneficiaries of bothblocks.

4.2.4. Views on Eating MDM atSchool

The difference in caste and way of living impacts most on behavior, views and decision of students. There exist several studies which show different behavior of students in respect of availing meal and other benefits in school premises. Table 4.2.5, shows in Mayurbhanj, 89 percent of students are comfortable in taking MDM at school with other students while 2 percent straightly have concluded problem. Further, 9 percent of respondents have given mixed response i.e. like to eat but not always. The in-depth analysis shows out of total respondent, the maximum respondents who don't like to eat MDM at school are from general category (50

percent) that all from Suliapada block. Further, 37 percent of respondents are from ST category of Bangiriposi, Suliapada and Samakhunta have reported shy nature, caste feeling and family problem as their issues.

Table 4.2.5: Consumption Behaviour pertaining to MDM at School

Sl. No.	MDM at School	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**Yes**	71 (89)	67 (84)	138 (86)	72 (90)	74 (93)	146 (91)	284 (89)
2	**No**	2 (2)	4 (5)	6 (4)	0 (0)	1 (1)	1 (1)	7 (2)
3	**Sometimes**	7 (9)	9 (11)	16 (10)	8 (10)	5 (6)	13 (8)	29 (9)
	Total	80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

The respondents who like to take food sometimes are basically present in all blocks but major concentration (62 percent) was reported from Suliapada block while maximum respondents are from ST category. The reported reasons are taste, quality and preferences.

4.2.5. Parents Opinion regarding MDM atSchool

This subsection indirectly tries to show the views of parents on MDM programme. Table 4.2.6, shows in Mayurbhanj, 95 percent of respondent's state positive attitude of parents for consuming MDM at school while 5 percent parents hold negative perception.

Table 4.2.6: Parents Opinion for MDM at School

Sl. No.	Allow Eating at School	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**Yes**	76 (95)	68 (85)	144 (90)	80 (100)	80 (100)	160 (100)	304 (95)
2	**No**	4 (5)	12 (15)	16 (10)	0 (0)	0 (0)	0 (0)	16 (5)
	Total	80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

The section-wise classification shows in less than average block the decision of parents to consume MDM at school is cent percent while that in more than average 10 percent of respondent parents have hesitation in eating MDM at school. The cross tabulation between decision of respondents parents allowing consumption of MDM at school and caste shows higher disagree with general caste respondents i.e., 25 percent of general caste respondents have objection in consuming MDM at school. The negative responses from SC are zero while among ST only 1 respondents parent have negative view because ofpoverty.

4.3. Mid-day Meal Impact on Education andSchooling

This sub-section shows impact of mid-day meal scheme on educational attainment and schooling of children's in the study area. The factors contributing for overall development of students under light of MDM have beendiscussed.

4.3.1. Regularity in School by SampleRespondents:

Attempts have been made to highlight the regularity in attending school by sample respondents in table 4.3.1. Several studies show positive correlation between MDM and regular attendance children at school. The study found regularity of 94 percent sample respondents in attending school and only 6 percent are irregular. In more than average blocks, 95 percent of respondents attend schools regularly whereas in less than average blocks regularity is 92 percent. The block-wise analysis shows highest regularity of students in Bangiriposi block while lowest is observed in G.B nagar and Suliapada (91 percent respectively).

Table 4.3.1: Regularity in School of Sample Respondents

Sl. No.	Regularity in School	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**Regular**	79 (99)	73 (91)	152 (95)	73 (91)	75 (94)	148 (92)	300 (94)

2	**Irregular**	1 (1)	7 (9)	8 (5)	7 (9)	5 (6)	12 (8)	20 (6)
Total		80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

Among the irregular students most of the students were female (8 percent) while male only 4 percent. The respondents stated that they could not attend school regularly because they have to do household chores or look after the younger siblings so that their parents can go for work. Even cases have been reported through interaction where students not turn up for classes but fake attendance are created to support their nutritional requirement.The caste-wise classification shows highest percentage of ST students are irregular i.e. 8 percent while in general caste the regularity in school is cent percent.

4.3.2. Grade Obtained in PreviousExamination

Most of the families in rural areas are below poverty line and the students have to go school empty stomach as a result of which they lack concentration in studies and do not perform well in academics. MDM programme helps student to concentrate more in class as their stomach are full and they perform well in academics. Table 4.3.2, shows the academic performance of the students in their previous academic session. The study found 40 percent of sample respondents have achievedA grade followed by respondents achieved grade B (34 percent) and grade C (6 percent).

Table 4.3.2: Grades obtained in Previous Academic Session

Sl. No.	Grades obtained	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**No Grade**	16 (20)	16 (20)	32 (20)	16 (20)	16 (20)	32 (20)	64 (20)
2	**A**	20 (25)	38 (47)	58 (36)	28 (35)	42 (53)	70 (44)	128 (40)
3	**B**	38 (48)	23 (29)	61 (38)	27 (34)	21 (26)	48 (30)	109 (34)
4	**C**	6 (7)	3 (4)	9 (6)	9 (11)	1 (1)	10 (6)	19 (6)

Total	80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

In more than average blocks most of the students(38 percent) obtained grade B, followed by grade A (36percent), and 6 percent students got grade C. On the other hand in less than average blocks most of the students (44 percent) obtained grade A, followed by grade B (30 percent)and only (6 percent) respondents obtained grade C in their previous session. The performance of less than average block is better than more than average blocks. Block-wise data comparison showsSamakhunta has the highest percentage of respondents obtaining grade A (52 percent), followed by Suliapada (47 percent), GB Nagar (35percent) while lowest in Bangriposi (25 percent). No grades are obtained by 20 percent of students as they are of standard I and have taken admission in current year. Similar situation is observed in all selectedblocks.

The caste wise analysis has been made to understand whether the grade obtained by the sample respondents varies with caste through dummy variable multiple regression model. The study shows no statistical significant difference between mean grades of sample respondent of different caste.Further, highest mean grade is obtained by SC students followed by respondents of general caste but respondents of OBC and ST are lagging by 0.089 and 0.069 respectively which is not statistically significant at 0.05 percent level.

4.3.3. Activities Sample respondents like inschool

In table 4.3.3, attempts have been made to highlight the reasons why students are attracted to schools. Since multiple responses exist due to various attracting factors interpretation has been done in percentage of total respondents under study. In addition of the primary objective of learning, student attend school for several other reasons among which MDM stands front with 81 percent followed by studying (50 percent), student like teacher (16 percent) and others (4 percent).

Table 4.3.3: Things Students like in School (in %)

Sl. No.	Things Students like	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Teacher	15	1	8	12	35	24	16
2	Studying	44	63	53	54	41	47	50
3	MDM	79	67	73	81	95	88	81
4	Others*	7	5	6	3	0	1	4

Source: Field Survey

The section-wise analysis also shows similar pattern i.e. higher share of MDM and study in both the sections attracting students to school.The caste-wise distribution shows higher percentage of OBC (83 percent), ST (83 percent) and SC (75 percent) respondents attend school for MDM. Further, 70 percent of general caste respondents attend schools forstudying.

4.3.4. Sitting Arrangement ofStudents

In rural areas, there is exists lot of disparity in terms of socio economic condition and same pattern is reflected in schools. Being as tribal dominated district, the differences in living and consumption standard are expected among different caste. MDM programme promotes socialization by making children to have their meal together irrespective of caste, class and religion. This helps in achieving equality by inculcating in children social values that removes the barrier of caste and class.

Table 4.3.4: Sitting with other Castes during MDM

Sl. No.	Sitting with other caste	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**Yes**	80 (100)	78 (97)	158 (99)	80 (100)	80 (100)	160 (100)	318 (99)
2	**No**	0 (0)	2 (3)	2 (1)	0 (0)	0 (0)	0 (0)	2 (1)
	Total	80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

Table 4.3.4, reveals that in study area 99 percent of the sample respondents intimated no problem in sitting with other caste students while only 1 percent of samples that

too from Suliapada block have problem in sitting with other castes. No impact and personal conflict relating to caste is observed in the studyarea.

4.3.5. Arrangementof Plates for AvailingFood

For availing food under MDM the students' needs plate/utensil and as per review of several literatures, these facilities are provided either by school authorities or student brings from their respective home.The study found 83 percent of respondents avail plates during lunch from their respective schools while 13 percent respondents bring plates from their home. There exist norms that plates should be washed before and after taking food with water. Personal investigation finds no soap/dish wash at any schools understudy.

Further, the sectional analysis shows in more than average blocks 72 percent of sample respondents avail plates from school while 28 percent samples bring plates from their house. In less than average blocks, the respondents availing benefits of school i.e. plates

Table 4.3.5: Availing Plates for MDM

Sl. No.	Availing Plates	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**From School**	56 (70)	60 (75)	116 (72)	69 (86)	80 (100)	149 (93)	265 (83)
2	**From Home**	24 (30)	20 (25)	44 (28)	11 (14)	0 (0)	11 (7)	55 (17)
	Total	80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

provided by school is higher in 93 percent while respondents bring plate from home is 7 percent. Cent percent plate support is provided in schools under Suliapada block. Further, it has been observed that the sample respondents bringing plates from their home is higher in general caste (42 percent) and OBC (27 percent) as compared to SC (nil), ST (11 percent).

4.3.6. Washing Hand before AvailingMeal:

Washing hands before eating food can prevent children from many diseases. Health costs due to hygiene related diseases can be reduced by developing good hygienehabits

i.e. by washing hands regularly. MDM programme imparts a good habit among children of washing hands with soap and water before and after eating food and also educate children about the importance of clean water, good hygiene and other related matters. There exists mandate direction from state government to develop hygiene and cleanliness among student through class lecture, displaying photo/pictures and personal interaction. Even the students of Aanganvadi are instructed/ guided to have regular hand-wash before and after food. The sole responsibility of maintaining hygienein school premises rest with the authority and by making queue the regularity in process of washing hands could be maintained.

Table 4.3.6: Washing Hand before availing MDM

Sl. No.	Washing Hands	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**Yes**	68 (85)	73 (91)	141 (88)	64 (80)	74 (92)	138 (86)	279 (87)
2	**No**	12 (15)	7 (9)	19 (12)	16 (20)	6 (8)	22 (14)	41 (13)
	Total	80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

The study found in Mayurbhanj, 87 percent of sample respondents wash their hand with soap regularly while 13 percent perform it on occasional basis. The sample respondents as discussed in table 1 are in between age of 5 – 11 years and their mindset is yet to be nurtured. Therefore, the total responsibility of developing good habits rests with school authorities. The section-wise analysis shows equal status of respondents in washing hands regularly before taking meal in both more than as well as less than average blocks. The students not washing hands regularly exist in all standard from I to V with higher dominance in Class IV (10 respondents) and Class I (9 respondents). Further, the caste-wise classification shows higher

percentage of respondents not washing hands regularly are from OBC community, ST (16 percent), SC (14 percent) while General (3percent).

4.3.7. Leaving School after takingMDM

The MDM programme was introduced to meet twin dimensions i.e. removing classroom hunger and retaining students in class. The programme was successful in achieving both the dimensions while in certain locations only first dimension is met. When the students feel good after taking food, they become active and will concentrate more in the class. In this regard attempt has been made in table 4.3.7,to show students attendance after taking MDM in the study area. The study found 82 percent of sample respondents attend classes even after taking MDM while 11 percent leave the school on regular basis after taking MDM. Further, 7 percent of respondent's leaves school sometimes after taking MDM.The stated reasons are household chores or help their parents in their work. This clearly shows the positive attitude of students towards MDMscheme.

Table 4.3.7: Leaving School after MDM

Sl. No.	Leaving School after taking MDM	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**Yes**	7 (9)	15 (19)	22 (14)	7 (9)	5 (6)	12 (7)	34 (11)
2	**No**	65 (81)	64 (80)	129 (81)	70 (87)	65 (82)	135 (84)	264 (82)
3	**Sometimes**	8 (10)	1 (1)	9 (6)	3 (4)	10 (12)	13 (8)	22 (7)
	Total	80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

The section-wise analysis shows in both more than and less than average blocks the percentage of respondents attend classes after MDM is approximately same i.e. 81percent and 84 percent respectively while in terms of students leaving school regularly after taking meal is higher in more than average blocks (14 percent) than

less than average blocks (7 percent). The caste-wise classification shows higher share of student leaving school after taking meal on regular or sometime basis is higher among STs (20 percent) and OBCs (19 percent) while lowest in general and SCs.

4.4. Conclusion

The study shows higher enrollment of female students in primary schools both selected sections but higher concentration of ST students in less than average blocks. The caste- wise classification shows higher enrollment of female children among all caste and standard as compared to male children which provides the positive signal of change in mindset. The study found satisfactory performance of MDM as majority of respondents reported regularity in attending schools, not leaving school after MDM, maintains hygiene, cultural harmony and the most important better academic performance. Since majority of the students comes to school without taking meal at home their physical and mental development totally rest upon the quality of meals provided at school.

CHAPTER V

MID-DAY MEAL SCHEME: PARENTS PERCEPTION AND REVIEW

After analyzing the impact of Mid-day meal scheme on student's performance and infrastructure support available at school attempt have been made to analyse the parents view in attainment of major objectives of the programme. Further, student's performance and views are compared with parent perception. This chapter is divided into two sections highlighting socio-economic profile of family of selected students and second part views/perception about MDM.

SECTION I

5.1.1. Selected Guardian/Parents and Relationship with Student Respondent:

As per the methodology, respective parents/guardians are also to be selected along with sample respondents. Since, with limitation on part of the researcher to have meeting with mother and father because of livelihood engagement other options are also contacted.

Table 5.1: Selected Guardian and Relationship with Respondent

Sl. No.	Age of Respondents	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**Father**	56 (70)	41 (52)	97 (61)	70 (87)	47 (59)	117 (73)	214 (67)
2	**Mother**	24 (30)	37 (46)	61 (38)	10 (13)	26 (32)	36 (22)	97 (30)
3	**Grand Father**	0 (0)	1 (1)	1 (0.5)	0 (0)	3 (4)	3 (2)	4 (1)

4	**Grand Mother**	0 (0)	1 (1)	1 (0.5)	0 (0)	4 (5)	4 (3)	5 (2)
Total		80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

Table 5.1, shows 67 percent fathers of sample respondents have been contacted for availing information pertaining to MDM scheme in the study area. In the absence of father, mothers (30 percent), Grand-father (1 percent) and Grand-mother (1 percent) have been contacted. The section-wise analysis shows similar pattern in both the less than average and more than average blocks. In Bangiriposi and G. B. Nagar block, cent percent parents have been contacted. So, the overall coverage in both the sections is expected to provide clear picture of MDM performance.

5.1.2. Age-wise Classification of Guardians of Sample Respondents

The age-wise classifications of the guardians of sample respondents have been made to highlight the inclusion of different age group under study. The age-group of the guardians were classified into three dimensions namely, lower age group (22 – 35 years), middle age group (35 – 50 years) and higher age group (above 50).

5.2. Age-wise Distribution of Guardians

Sl. No.	Age of Guardians	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**Lower Age Group**	32 (40)	44 (55)	76 (47)	28 (35)	47 (59)	75 (47)	151 (47)
2	**Middle Age Group**	48 (60)	33 (41)	81 (51)	50 (62)	27 (34)	77 (48)	158 (50)
3	**Higher Age Group**	0 (0)	3 (4)	3 (2)	2 (3)	6 (7)	8 (5)	11 (3)
Total		80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

The study found 50 percent of guardians selected are from middle age group followed by lower age group (47 percent) and higher age group (3 percent). The section-wise classification also shows the similar pattern in both selected less than average and more than average blocks. Further, more than 50 percent of selected guardians of

higher age group are either grandmother or grandfather. Among the selected guardians, 68 percent of respondents are male while 32 percent are female. The age-wise composition also shows higher presence of mother respondents in lower age group (51 percent) while lowest in middle age group (13 percent).

5.1.3. Economic Status of Guardians

Studies shows enrollment of students depends mostly upon economic status of family. Further, students progression and enrollment in higher studies is also linked with economic background of family. In table 5.3, it has been observed that 93 percent of respondents belong to below poverty line while only 7 percent students are from APL families.

Table 5.3: Economic Status of Guardians of Sample Respondents

Sl. No.	Economic Status	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	APL	10 (13)	5 (6)	15 (10)	3 (4)	5 (6)	8 (5)	23 (7)
2	BPL	70 (88)	75 (94)	145 (90)	77 (96)	75 (94)	152 (95)	297 (93)
Total		80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

The sectional analysis shows in more than average blocks 90 percent of respondents are from BPL category while that in less than average blocks is 95 percent. The block wise description shows higher enrollment of BPL respondent wards in G.B.Nagar (96 percent) while lowest in Bangiriposi block (88 percent).

5.1.4. Educational Status of Guardians of Sample Respondents

The educational status of guardians plays an important role in building children nature, character and education. Several studies show higher positive correlation between parents education and education of their wards. Being among the backward and tribal dominated district of Odisha, education attainment of parents/guardians will provide the clear picture about the sincerity and punctuality of selected respondents. Table 5.4, shows 57 percent of parents/guardians have studied upto primary education i.e. class I to V, followed by guardians/ parents studied secondary

level (29 percent), higher secondary (3 percent) and Graduation and above (only 2 percent). Further, 9 percent of guardians/parents of sample respondents are illiterate.

Table 5.4: Educational Status of Guardians/Parents

Sl. No.	Educational Qualification	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**Illiterate**	11 (14)	3 (4)	14 (9)	3 (4)	11 (14)	14 (9)	28 (9)
2	**Primary**	40 (50)	40 (50)	80 (50)	62 (78)	41 (51)	103 (64)	183 (57)
3	**Secondary**	25 (31)	29 (36)	54 (34)	15 (19)	24 (30)	39 (24)	93 (29)
4	**Higher Secondary**	3 (4)	5 (6)	8 (5)	0 (0)	3 (4)	3 (2)	11 (3)
5	**Graduation and above**	1 (1)	3 (4)	4 (3)	0 (0)	1 (1)	1 (1)	5 (2)
Total		80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

The section-wise classification shows in both more than average and less than average blocks equal pattern have been observed i.e. higher concentration of guardians/parents of sample respondents studied primary education followed by secondary, higher secondary, graduation and above. Further, the percentage of respondents whose guardians/parents are illiterate is equal in both sections i.e. (9 percent).

5.1.5. Major Occupation of Parents/Guardians of Sample Respondents

The sincerity and dedication of parents towards children education also depends upon the occupation of parents/guardians. Attempts have been made to show the major occupation of parents/guardians of respondents in the study area. The study found 55 percent of respondents are engaged in cultivation activities (leased and owned) followed by daily labour (23 percent), self-employed (12 percent) and others (6 percent).

Table 5.5: Major Occupation of Guardians/Parents of Sample Respondents

Sl. No.	Occupation of Parents	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**Cultivation**	43 (54)	43 (54)	86 (54)	54 (68)	35 (43)	89 (56)	175 (55)
2	**Daily Labour**	16 (20)	10 (13)	26 (16)	17 (21)	32 (40)	49 (31)	75 (23)
3	**Service**	7 (9)	6 (8)	13 (8)	0 (0)	0 (0)	0 (0)	13 (4)
4	**Self-Employed**	8 (10)	15 (19)	23 (14)	8 (10)	6 (8)	14 (9)	37 (12)
5	**Others**	6 (8)	6 (8)	12 (8)	1 (1)	7 (9)	8 (5)	20 (6)
Total		80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

***Other** activities include shop, seasonal business, SHGs workers etc.*

The section wise analysis shows in similar engagements of parents in both less than average and more than average blocks i.e. 56 percent and 54 percent of parents are engaged as cultivations. Further, the engagement of parents as daily labour is higher in less than average blocks by16 percent compared to more than average blocks. The engagements of parents in service sector are only found in more than average blocks.

The intensive analysis between level of education and major occupation of parents shows higher engagement of primary level educated parents/guardians as cultivator and daily labour. Parents having higher secondary and above are engaged in services or self- employed businesses while parents having secondary education are mainly cultivators. Various studies shows significant positive correlation between parents education and children reading and writing skills but in the current study negative relationship is observed i.e. -0.047 and -0.032 reading and writing skills respectively. This may be due to non-involvement of parents in children guidance at home due to livelihood support or lack of active involvement of students at school.

5.1.6. Income wise Classification of Parents/Guardians

The classification of parents has been done on the basis of income to highlight the need and importance of MDM programme on their daily life. Since the programme

was introduced to meet the desired classroom hunger and nutritional status among children, therefore the income of parents of the respondents stands major factor. The average monthly income of parents/guardians of respondents in less than average blocks is Rs. 3110 while that of more than average blocks is Rs. 3638. There was significant difference in monthly income of guardians/parents between less than and more than average blocks. The F ratio computed via one way ANOVA is 12.530 and significant at 1 percent level.

Table 5.6: Income – wise Classification of Parents/Guardians of Respondents

Sl. No.	Parents Income	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1.	**Average Monthly Income**	3645	3632	3638	3271	2950	3110	3374
2.	**Standard Deviation**	1476	1649	1560	931	1160	1061	1358

Source: Field Survey

The higher average monthly income of parents/guardians is observed in Bangiriposi block (Rs. 3645) while lowest in Shamakhunta (Rs. 2950). The caste-wise analysis shows higher income of general caste parents i.e. 4211 while lowest of ST parents/guardians (Rs. 3048) per month.

SECTION II

5.2.1. Opinions on Sending children to School

A large number of studies have shown positive growth in children enrollment at schools after introduction of MDM programme. Same attempt have been made with different dimension i.e. understanding parents view in enrollment of children at schools in the study area. Table 5.7, shows 68 percent of parents/guardians send their wards to school due to MDM facility while 32 percent parents/guardians send their wards for other reasons such as learning, development and engagement/nursing due to non-availability of family members at home.

Table 5.7: Sending Ward to School due to MDM

Sl. No.	Sending ward due to MDM	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**Yes**	46 (57)	56 (70)	102 (64)	60 (75)	57 (74)	117 (74)	219 (68)
2	**No**	34 (43)	24 (30)	58 (36)	20 (25)	23 (26)	43 (26)	101 (32)
Total		80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

The section-wise analysis shows in more than average blocks 64 percent of parents/guardians send their wards to school due to facility of MDM while in less than average blocks 73 percent guardians/parents follow same trend. The independent sample t test shows the mean number of parents/guardians sending their ward for MDM is significantly higher in less than average block as compared to more than average blocks at 0.05 percent level ($t_{315.540} = -1.935 < 0.05$).

The caste wise classification shows 78 percent of ST parents send their ward to school for MDM while in case of general category parents it is only 44 percent. Further, the economic status classification shows 72 percent of parents of BPL category send their ward to school for MDM while that in case of APL category it is only 17 percent.

5.2.2. Health Issues after Consumption of MDM

According to Tamang. Lahriatpuii and Rajpal (2017), several cases have been reported about death and illness of students after taking MDM at school. There is no doubt about massive potentiality of the programme but on the dark side it suffers from quality assurance almost in all states and Union territories of India. The CAG found severe deficiencies in MDM preparation in Punjab with unhygienic cooking environment and inferior quality of raw materials. Table 5.8, shows parents/guardians view on health related problem among children after eating MDM. The study found complain from only 4 percent samples that too from less than average blocks i.e. G.B. Nagar and Shamakhunta. The reported issues are vomiting, stomach pain and diarrhea. Since majority of students are consuming daily meals

provided by school and the percentage of parents reported the issues are not matching with views of other parents.

Table 5.8: Health related Problems of Children

Sl. No.	Health related issue	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**Yes**	0 (0)	0 (0)	0 (0)	3 (4)	13 (16)	16 (8)	16 (4)
2	**No**	80 (100)	80 (100)	160 (100)	77 (96)	67 (84)	144 (92)	304 (96)
Total		80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

The section-wise analysis shows better performance of schools of more than average where none of parents have reported health issues of students after taking MDM in both selected blocks. The intensive study shows the parents/guardians reporting health issues belong to BPL category with higher concentration of Schedule Tribes (69 percent).

5.2.3. Satisfaction level of the Quantity of MDM:

Many economist and educationalist suggested increase in existing quantity as well as inclusion of more items under gamut of MDM like fruits, milk, etc. The views of parents are opted about their position towards quantity of MDM in table 5.9. It has been observed that 86 percent of parents/guardians are satisfied with the quantity of items provided under MDM while 14 percent have recommended increase in quantity.

Table 5.9: Parents Satisfaction with MDM Quantity

Sl. No.	Satisfied with MDM	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	**Yes**	66 (83)	70 (88)	136 (85)	72 (90)	67 (84)	139 (87)	275 (86)
2	**No**	14 (17)	10 (12)	24 (15)	8 (10)	13 (16)	21 (13)	45 (14)
Total		80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

The section-wise analysis shows similar and closest response from parents/guardians of the respondents in both more than average and less than average blocks. The economic status wise classification shows only 13 percent BPL parents/guardians of respondents are not satisfied with the quantity provided under MDM while in case of APL 30 percent of parents/guardians are not satisfied. As per Odisha Sun times, Mayubhanj stands among top 50 backward districts of the country with major the occupation of farming and daily labour. The higher incidence of poverty is observed among tribals as compared to other castes. Similarly, the poor parents are satisfied what their children are getting under because of lack of financial status and capacity.

5.2.4. Parent Teacher Association (PTA) in MDM Management

Attempt has been to highlight the information among parents/guardians about Mid-day meal operation and management at school level. Basic objective of investigator was to avail information about PTA and its intervention in school activities. Table 5.10, shows 71 percent of parents/guardians does not hold any information about PTA and its activities while 29 percent have reported the information as well as its existence at schools.

Table 5.10: PTA Information for MDM Management

Sl. No.	PTA to manage MDM	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Yes	22 (28)	33 (41)	55 (34)	33 (41)	5 (6)	38 (24)	93 (29)
2	Don't Know	58 (72)	47 (59)	105 (66)	47 (59)	75 (94)	122 (76)	227 (71)
Total		80 (100)	80 (100)	160 (100)	80 (100)	80 (100)	160 (100)	320 (100)

Source: Field Survey

The section-wise analysis shows in more than average blocks 34 percent of parents/guardians are aware of PTA and its engagements in school activities while in case of less than average blocks the engagement/information/discussion with parents/guardians are restricted to only 24 percent. Information among parents is higher in Suliapada and Gopabandhunagar (G.B. nagar) have been observed (i.e. 41 percent respectively) while lowest in Shamakhunta block (6 percent). The economic status classification shows higher engagement/information among BPL families

about PTA i.e. 29 percent as compared to APL (26 percent). The reasons are very clear as the students enrollment of BPL families are higher in the study area as compared to APL.

Further, it's a mandate rule of government of Odisha to have engagement of different caste and status of parents in PTA. The caste-wise analysis shows higher engagement/information of STs (32 percent) followed by OBCs (29 percent) and SC (25 percent). This clearly reflects the inculcation of different sections as per government of Odisha norms.

In order to understand where there exist any significant difference in parents/guardians engagement/information pertaining to PTA in less than average and more than average block independent sample t test is used.

Table 5.11: Group Statistics

	Block status	N	Mean	Std. Deviation	Std. Error Mean
PTA to manage	More than average	160	.34	.476	.038
	less than average	160	.24	.427	.034

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
PTA	Equal variances assumed	17.50	0.00	2.101	318	0.03	.106	.051	.007	.206
	Equal variances not assumed			2.101	314.239	0.03	.106	.051	.007	.206

Source: Field survey

Table 5.11 shows that there exist significant differences in the average information/engagement among parents/guardians of more than and less than average blocks ($t_{314.239} = 2.101 < 0.05$). The information/engagements of parents/guardians for more than average blocks is higher by .106 compared to parents/guardians of less than average blocks.

CHAPTER VI

MID-DAY MEAL PROGRAMME – TEACHERS IMPACT AND JUDGEMENT

In Odisha, the responsibility of execution of Mid-day meal programme at grassroots level rest with school authority who are compiled to do additional task of managing the process from stock maintenance to preparation and distribution of meal. As per the available information through OPEPA, each primary school in Mayurbhanj comprise on an average of 3 teachers with an average of 35 students. The average teacher-student ratio in the study area is 1: 13 which is quite satisfactory as compared to state average i.e. 1:23. Even the enrollment of students each school is also significant in district i.e. 35 students per school as compared to 56 students at state level.

The teachers availability per school as per 2015-16 OPEPA data shows 2 teachers per primary school while that in Mayurbhanj is 3 teachers each primary school. This chapter aims at providing information pertaining to disruption in teaching activities caused after implementation of MDM programme in the school. Further, special focus been made to highlight teachers composition, education qualification and views on benefits reap by students after introduction of programme.

SECTION I

The section I shows the comparative status of teachers composition and eligibility in both less than and more than average blocks.

6.1.1. Composition of Teacher Respondents in Mayurbhanj

The study clarifies the detail information about the teachers who have significantly contributed to the current study. Table 6.1, shows in the study area, 66 percent of teacher respondents are female while only 34 percent are male. The section-wise

classification shows in less than average blocks the female teachers respondents are high (69 percent) as compared to more than average blocks (63 percent).

Table 6.1: Gender-wise Classification of Teachers

Sl. No.	Gender of Respondents	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Male	2 (25)	4 (50)	6 (37)	4 (50)	1 (12)	5 (31)	11 (34)
2	Female	6 (75)	4 (50)	10 (63)	4 (50)	7 (88)	11 (69)	21 (66)
Total		8 (100)	8 (100)	16 (100)	8 (100)	8 (100)	16 (100)	32 (100)

Source: Field Survey

The block-wise classification shows the female teacher respondents is highest in Shamakhunta block (88 percent) followed by Bangiriposi (75 percent).

6.1.2. Educational Qualification of Teacher Respondents

After analyzing the gender-wise classification of respondent teachers attempt have been made to highlight their educational status. Table 6.2, shows in Mayurbhanj, 53 percent of teachers are graduate followed by higher secondary and matriculation (22 percent each). Further, only 3 percent teachers are having post graduate degree.

Table 6.2: Qualification of Teacher Respondents

Sl. No.	Qualification of Respondents	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Matriculation	3 (37)	1 (12)	4 (25)	1 (12.5)	2 (25)	3 (19)	7 (22)
2	Higher Secondary	2 (25)	2 (25)	4 (25)	1 (12.5)	2 (25)	3 (19)	7 (22)
3	Graduate	2 (25)	5 (63)	7 (44)	6 (75)	4 (50)	10 (62)	17 (53)
4	Post Graduate	1 (13)	0 (0)	1 (6)	0 (0)	0 (0)	0 (0)	1 (3)
Total		8 (100)	8 (100)	16 (100)	8 (100)	8 (100)	16 (100)	32 (100)

Source: Field Survey

The intensive analysis found in both the categories of blocks maximum number of

teachers are graduate but higher concentration is observed in less than average blocks where 62 percent of teachers are graduate whereas in more than average blocks it was 44 percent of teachers who hold graduate degree. Further, only one respondent that too from Bangiriposi block hold post graduate degree. The teachers completed only matriculation and up to higher secondary is higher in more than average block as compared to less than average blocks but the ratio stands same i.e. existence of equal proportion of teachers completed up to matriculation and higher secondary.

The gender-wise classification of educational qualification of teacher respondents shows in table 6.3, the male-female teachers educational qualification is significantly better among male teachers as compared to female teachers as 100 percent of male teachers have studied from H.S. to Post Graduate while that among female teachers 34 percent of respondents are matriculate.

Table 6.3: Qualification of Teacher Respondents Gender-wise

Sl. No.	Qualification of Respondents	More than Average						Less than Average						Total	
		Bangiriposi		Suliapada		Total		G.B.Nagar		Shamakhunta		Total			
		M	F	M	F	M	F	M	F	M	F	M	F	M	F
1	Matriculation	0	3	0	1	0	4	0	1	0	2	0	3	0	7
2	Higher Secondary	1	1	0	2	1	3	0	1	1	1	1	2	2	5
3	Graduate	1	1	4	1	5	2	4	2	0	4	4	6	9	8
4	Post Graduate	0	1	0	0	1	0	0	0	0	0	0	0	1	0
Total		2	6	4	4	7	9	4	4	1	7	5	11	12	20

Source: Field Survey

The section-wise classification shows same pattern but different composition. As it has been observed in less than average blocks the female teachers having graduate degree is higher (54 percent) as compared to more than average blocks where male teachers concentration is higher i.e. 71 percent.

6.1.3. Availability of Trained Teachers

As per the government notification it is mandatory to hold the teacher training degree i.e. either C.TET or B.Ed. for every teacher working in government, government aided and private schools of Odisha. The study found 84 percent of teachers holds C.TET while 16 percent respondents hold B.Ed. degree. Since the major essential qualification for pursuing B.Ed. is completion of Graduation the comparative analysis shows 63 percent of teachers completed graduation have completed B.Ed. degree.

Table 6.4: Teachers Training Course Qualified

Sl. No.	Trained Teachers	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	C.TET	7 (87)	7 (87)	14 (87)	6 (75)	7 (87)	13 (81)	27 (84)
2	B.Ed	1 (13)	1 (13)	2 (13)	2 (25)	1 (13)	3 (19)	5 (16)
Total		8 (100)	8 (100)	16 (100)	8 (100)	8 (100)	16 (100)	32 (100)

Source: Field Survey

The gender-wise classification shows higher female teachers holding B.Ed. degree as compared to male teachers in the study area. The block wise distribution shows higher engagement of B.Ed teachers in G.B. Nagar block while lower but equal position in other blocks (i.e. 13 percent each).

6.1.4. School Information and Enrollment Details

Table 6.5, shows the information pertaining to selected school from each representative teacher respondent in the study area. The average number of teachers per school in the selected study area is 3.5 as against 3 teachers per school at district level and 2 teachers per school at state level.

The section-wise analysis shows in both more than average and less than average blocks the average number of teachers per school is same i.e. 3.5 teachers each school.

Table 6.5: School Details

Sl. No.	School information	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Average number of Teachers	4	3	3.5	3	4	3.5	3.5
2	Average number of students	129	110	120	66	92	79	99
3	Average year of Formation	47	55	51	51	52	50	50
4	Average experience of Teachers	17	20	18.5	25	20	22.5	20
5	Student - Teacher ratio	1:30	1:29	1:29	1:20	1:24	1:22	1:26

Source: Field Survey

The average number of students enrolled in selected schools are 99 as compared to district average of 35 students each school and state average of 56 students per school. The higher enrollment of students per school is observed in Bangiriposi block (129 students) while lowest in G.B.Nagar block but still stands over and above of state and district average. There exist significant differences in student enrollment per school between more than and less than average blocks.

Sometimes, the year of formation of school significantly affects the enrollment of students, teachers composition and experience. Majorly experienced teachers are allotted to old schools as compared to new ones for better administration, quality and control. The schools selected for evaluation have completed 50 years on an average with equal status in both less than average and more than average blocks. The average experience of teacher respondents is 20 years in which the teachers from more than average blocks holds lower experience (18 years) as compared to less than average blocks (22 years). Thus it may be concluded from above information that majorly the MDM activities in schools are carried out by experienced faculties.

Finally, the comparative status of teacher-students ratio has been made to show the

quality enhancement and dedication of teachers for development of students in the study area. The study found teacher-student ratio in the study area 1:26 which is higher than the district average i.e. 1: 13 as well asless than state average i.e. 1:23. The worst condition is observed in more than average blocks (1: 29) as compared to less than average blocks (1: 22).

SECTION II

6.2.1. Teachers Views/Opinions on MDM

Attempts have been made to avail information and perception of teachers about impact of MDM programme in the study area. Since, the major objective of the programme is to increase enrollment and attendance of students at school.

Table 6.6: Teachers view about Impact of MDM (In percentage)

Sl. No.	Impact of MDM	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Increasing enrollment	100	100	100	88	100	94	97
2	Reduction in Dropout	75	75	75	62	88	75	75
3	Increase in attendance	100	100	100	88	100	94	97
4	Disrupts Teaching	37	37	38	12	37	25	31
5	Continuation of MDM	100	100	100	100	100	100	100

Source: Field Survey

Therefore, pertinent questions relating to student development are discussed in Table 6.6. The study found 97 percent of teacher respondents have reported MDM programme has increased student enrollment in schools under consideration. The section-wise analysis shows cent teachers believe MDM programme has increased student enrollment in more than average blocks while that in less than average blocks i.e. 94 percent. Further, 100 percent teachers of all blocks (except G.B. Nagar) believe MDM increases student enrollment in their respective schools. Further, the respondents

who don't believe MDM has increased students enrollment in study area are female with education qualification of matriculation.

The reduction in dropout is pertinent factor clarifying the role of MDM in increasing classroom concentration. Since majority of children's are from poor background with less educated parents, the total responsibility of development of students rest with school teachers. Further, cases have been reported where students are promoted to upper classes without having basic knowledge of previous standard. This is basically due to fulfill the nutritional requirement of all students irrespective of knowledge and understanding upto certain age. Though from education point of view this process is not sustainable in long run but as part of healthy living MDM definitely proves good health among children. Even 75 percent of teachers in the study area have reported reduction in dropout after introduction of MDM. The section-wise analysis also shows similar status i.e. 75 percent of teachers believes MDM programme has reduced dropout in their schools/area.

The third pertinent objective of MDM programme was to increase classroom retention of students by increasing their attendance. 94 percent of sample respondents have reported increase in attendance of students after introduction of MDM programme in the study area. The section-wise analysis shows in more than average blocks 100 percent of teachers have reported MDM programme increases classroom attendance while that in less than average blocks 12 percent respondents of G.B.Nagar are not of view that MDM has increased attendance of students in classroom.

Many studies reported interruption in teaching activities due to engagement of teachers in MDM programme. Since allotment of food to students is daily stuff and the management requires buffer stock so that the programme could run without interruption. Since it has been already observed through earlier tables that each school comprises 3 teachers with whom the responsibility of conduction of regular classes from I to V. The shortfall is itself visible and the additional task of MDM requires allotment of regular

teacher which again disrupt teaching activities. In the study area,31 percent of teacher respondents feel interruption in teaching due to MDM programme with higher concentration in more than average blocks i.e. 38 percent and lower concentration in less than average block (25 percent). Lowest number of teachers from G.B. Nagar Block has reported MDM programme creates disruption in teaching activities.

Though there exist several issues and challenges with MDM programme operation and management yet cent of teachers of all selected blocks have suggested continuation of MDM programme in the study area. The major reason quoted by them are meeting hunger requirements of poor children, education for better livelihood and making substitute to reduce food burden among parents.

6.2.2. Infrastructure Availability and Support at School

The information pertaining to infrastructure and support available at school for implementation of MDM programme are utmost important. In this regard, the current study tends to evaluate the regularity in basic support and infrastructure development at schools for MDM implementation in the study area. The 11 point mechanism was developed to evaluate the supportive structure.

Table 6.7: Available Infrastructure and Support at School (In percentage)

Sl. No.	Infrastructure availability	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Student satisfied with quantity	87	87	87	100	87	94	91
2	Regular supply of grains	87	100	94	100	100	100	97
3	Regularity in cooking cost	100	87	94	100	87	94	94
4	MDM inspection	100	100	100	100	100	100	100
5	Reporting issues to higher level	87	100	94	100	100	100	97

6	Training related to MDM	37	75	56	100	100	100	78
7	Iron and Vitamin tablets	100	80	90	100	100	100	95
8	Co-operation from officials	62	62	62	87	100	93	78
9	Drinking Water availability	75	87	81	75	100	87	84
10	Electricity facility	50	37	44	25	25	25	35
11	Toilet Facility	87	100	94	100	87	94	94

Source: Field Survey

1. Satisfied with the Quantity: The student satisfaction pertaining to quantity stands most as the need requirements of food vary from person to person. In the study area 91 percent of teacher respondent have reported quantity provided under MDM programme is sufficient while the student comparative analysis (with table 4.2.4.) shows 93 percent of student respondents are satisfied with quantity. Thus from both end quantity availability is justified and proved significant. In more than average blocks,88 percent of the teachers whereas in less than average blocks 94 percent of teachers believe that students are satisfied with the quantity provided under MDM. In GB Nagar 100 percent of teachers and in rest of the blocks (Bangriposi, Suliapada and Samakhunta) 87 percent of teachers believes that students are satisfied with the amount of food provided.

2. Regularity in Supply of Food Grains: When enquired by the teacher about regularity in supply of food grains, 97 percent of teacher respondents are satisfied with the supply of food grains. The section-wise analysis shows in less than average blocks100 percent stated that supply of food grain is regular while in more than average blocks 94 percent of the teachers reported the supply of food grain is regular. Thus, it can be concluded that in the study area there is regular supply of food grain which stands necessary for smooth functioning of programme.

3. Regularity of Cooking Cost: In both the less than average blocks and more than

average blocks 94 percent of teachers stated that supply of cooking cost is regular. In Bangriposi and GB Nagar 100 percent of teachers and in Suliapada and Samakhunta 87 percent of teachers stated that supply of cooking costs is regular.

4. MDM Inspection: The regular inspection is necessary to assess the quality and restrict irregularity in implementation of programme in the study area. The study found cent percent inspection by designated authority from time to time. Intensive analysis shows the staffs of block level/project management unit made monthly visits in 75 percent schools of Bangiriposi block followed by G.B. Nagar (63 percent), Suliapada and Shamakhunta i.e. 50 percent respectively.

5. Vitamin-iron Tablet Frequency: According to the government norms for MDM, along with the food containing calories and protein, adequate quantities of micronutrients like iron, folic acid and Vitamin A etc. are also to be provided so to develop the health and immunity of the students. From the samples collected in 100 percent schools the vitamin and iron tablets are given on regular basis to students. In Bangriposi the vitamin and iron tablets are given on weekly basis (50 percent) and monthly (50 percent) while in Suliapada 100 percent weekly supply. Whereas in G.B. Nagar 50 percent weekly and 50 percent monthly and in Samakhunta62 percent weekly and 38 percent monthly basis the vitamin and iron tablet are given to the students.

6. Sources of Drinking water: From the sample collected, 81 percent of schools in more than average blocks have water drinking facility, as compared to 87 percent of schools in less than average blocks. The source of drinking water via tap is only available in Suliapada block (13 percent) while Handpump in Bangriposi (87.5 percent) of schools, Suliapada (87.5 percent), GB Nagar (100 percent) and Samakhunta (87.5 percent). Well is also the source of drinking water in 13 percent of schools in Bangriposi and Shamakhunta respectively.

7. Electricity Facility: Electricity facility is an essential parameter for assessing the quality infrastructure at schools of Mayurbhanj. Since MDM preparation requires certain infrastructural support, the availability of electricity will not only help in providing good and hygienic food but also safety to students. In Mayurbhanj, only 35

percent primary schools have electricity facility. The section-wise analysis shows in more than average blocks 44 percent schools have electricity availability while in less than average blocks 25 percent schools have electricity facilities. There exists severe crisis in basic infrastructure at schools of Mayurbhanj as the independent sample t test shows no significant differences between selected sections.

8. Toilet Facility: Toilet use is essential to the survival and hygienic development of all children in India and around world. The exposure to human waste causes disease such as diarrhea and other diseases. Thus the Government of India took the responsibility to provide toilet at each schools under the RTE Act, 2009. From the data collected it was found that 94 percent of schools in Mayurbhanj have toilet facility. The section-wise analysis shows in both less than average and more than average blocks the status of school having toilet facility are equal i.e. (94 percent). Further, classifications for toilet availability have been done with respect to type of toilet i.e. separate and common. The study found highest availability of common toilets in Suliapada block where 50 percent of children including both boys and girls share same toilet. Separate toilets for boys and girls are available in all blocks with higher concentration in G.B. nagar (87 percent) while equal position in other three blocks i.e. 50 percent respectively. Further, 13 percent of schools in Shamakhunta and Bangiriposi blocks reported availability of toilets but not in working condition.

6.2.3. MDM Infrastructure at Schools in Mayurbhanj

The infrastructure required to support execution of MDM programme includes in its gamut three basic requirements i.e. kitchen shed for cooking, storage facility for food grains and utensils for preparation and serving prepared food.

Table 6.8: Infrastructure Facility at School

Sl. No.	Infrastructure	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
	Kitchen Shed	88	88	88	100	75	88	88

Source: Field Survey

Maintaining hygiene while cooking is very important as any negligence will have adverse impact on the health of the students. For cooking food at school government approves certain infrastructure support fund and among which kitchen shed is most important. Similar position is observed in Mayurbhanj as 88 percent schools have reported to have kitchen shed facility at their campus. The section-wise analysis shows similar status while the schools of G.B.Nagar have cent percent availability of kitchen shed. The intensive analysis found the 65 percent of all weather (Pucca) kitchen shed in the study area was constructed under SSA with higher number of construction in Bangiriposi (87 percent) while lowest in Shamakhunta (25 percent). The other funding includes state MDM programme, individual and NGO donation and other state/panchayat schemes.

CHAPTER VII

MDM EXECUTION PROCESS AND COOKS STATUS

The Mid-day meal programme has been executed in Mayurbhanj keeping in view the geographical location, economic status and availability of resources. In the initial stage the cooking activities are carried out in lease with approved vendors/local caterers. After the massive development of WSHG programme in Odisha with intervention of Mission Shakti, government deregulate the vender activities in twin major areas i.e. cooking of MDM at schools and fair price shop. The government of Odisha has provided opportunities to local WSHGs to manage and regulate these activities. Each WSHG consist of 10 – 12 members and the responsibility of cooking rotate among them in specified duration i.e. weekly, fortnightly and monthly. The operation and Management of MDM programme in Odisha is closely monitored by different agencies at different levels as specified below.

STATE LEVEL	State Project Management Unit (SPMU) DEE, Controlling Officer
DISTRICT LEVEL	District Magistrate &Collector
BLOCK LEVEL	Block Development Officer
SCHOOL LEVEL	School Management Committee

This chapter tends to analyse the views of cook with respect to MDM activities management and execution. Further, special focus been made to show the socio-economic status and issues in operation of programme.

7.1. Marital Status of the Cooks

In the study area, the cooking of MDM at schools is carried by female staffs. Table 7.1, shows out of 32 female cooks available under study 84 percent are married while 16 percent cooks are widow.

Table 7.1: Marital Status of School Cooks in Mayurbhanj

Sl. No.	Gender of Respondents	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Married	7 (87)	6 (75)	13 (81)	7 (87)	7 (87)	14 (87)	16 (84)
2	Widow	1 (13)	2 (25)	3 (19)	1 (13)	1 (13)	2 (13)	2 (16)
Total		8 (100)	8 (100)	16 (100)	8 (100)	8 (100)	16 (100)	32 (100)

Source: Field Survey

This clearly reflects the objective of school to develop sustainability by having regularity in attendance of cook and providing financial benefits. The personal interaction with cooks highlighted the non-inclusion of unmarried members as they might get married to other village. Further, the inclusion of WSHGs in MDM activities provides option to school for avoid irregularity i.e. by providing substitute staffs in case of non-availability of appointed member. The section-wise analysis also shows similar pattern in both less than average and more than average blocks. The block-wise comparative analysis also shows similar pattern in all selected blocks.

7.2. Caste-wise Classification of Cooks in Mayurbhanj

Since the majority of population in Mayurbhanj comprised of ST population and the activities of MDM are carried out by WSHGs, therefore it is expected to have major share of ST population among cooking allotment in the study area. Table 7.2, shows the composition of STs and OBCs women members are higher among engaged cooks in the study area. The lowest women members engaged in cooking activities at school are from SC community. Further, general category cooks also shares considerable pattern as compared to other categories. The block-wise analysis shows equal position of OBCs and STs in Bangiriposi (38 percent) and Suliapada block (25 percent) while in other blocks ST cooks are higher.

Table 7.2.: Caste-wise distribution of Cooks

Sl. No.	Caste of Respondents	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Scheduled Tribes	3 (38)	2 (25)	5 (31)	3 (38)	3 (38)	6 (38)	11 (34)
2	Scheduled Caste	1 (12)	0 (0)	1 (6)	1 (12)	1 (12)	2 (12)	3 (10)
3	General	1 (12)	2 (25)	3 (19)	3 (18)	1 (12)	4 (25)	7 (22)
4	OBCs	3 (38)	4 (50)	7 (44)	1 (12)	3 (18)	4 (25)	11 (34)
Total		8 (100)	8 (100)	16 (100)	8 (100)	8 (100)	16 (100)	32 (100)

Source: Field Survey

7.3. Economic Status of Cook in Selected Schools:

The economic status of cooks in table 7.3, shows 97 percent of cooks preparing food at schools belong to BPL category while only 3 percent are from APL category. The section-wise analysis shows in more than average blocks all respondents belong to BPL category while in less than average blocks, one cook of G.B nagar block is from APL category.

Table 7.3.: Economic Status of Cooks in Mayurbhanj

Sl. No.	Economic Status	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	BPL	8 (100)	8 (100)	16 (100)	7 (87)	8 (100)	15 (94)	31 (97)
2	APL	0 (0)	0 (0)	0 (0)	1 (13)	0 (0)	1 (6)	1 (3)
Total		8 (100)	8 (100)	16 (100)	8 (100)	8 (100)	16 (100)	32 (100)

Source: Field Survey

Further, the APL respondent of G.B nagar block belongs to ST category and is married. As per the norms of government, the engagement of women in cooking activities are temporary in nature and is done keeping in view their social need and dedication with prior permission of apex authorities. Further, all selected cooks are from Hindu religion.

7.4. Appointing Authority for Cooking Staff

According to the Government of Odisha norms, the flexibility is appointment of cooking and helper staffs at schools are provided so as to maintain the quality with cost-efficiency. Though the government has suggested to provide preferences to WSHG members of the local area so as to promote grassroots engagements and transparency. Table 7.4, shows the appointments of cook in the study area are made via four different agencies depending upon their suitability.

Table 7.4: Appointing Authority of Cooking Staff

Sl. No.	Appointing Authority	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Gram Panchayat	2 (25)	0 (0)	2 (12.5)	4 (50)	0 (0)	4 (25)	6 (19)
2	Village Education Committee	4 (50)	4 (50)	8 (50)	3 (37.5)	3 (37.5)	6 (37.5)	14 (44)
3	Head Master	2 (25)	0 (0)	2 (12.5)	0 (0)	0 (0)	0 (0)	2 (6)
4	School Management Committee	0 (0)	4 (50)	4 (25)	1 (12.5)	5 (62.5)	6 (37.5)	10 (31)
Total		8 (100)	8 (100)	16 (100)	8 (100)	8 (100)	16 (100)	32 (100)

Source: Field Survey

The study shows 44 percent the cooks are appointed by village education committee followed by School Management Committee (31 percent), gram panchayat (19 percent) and head master (6 percent). Further, among the workers working as cook 47 percent have got appointment because of their engagement as WSHG members. The section-wise analysis shows in more than average blocks highest appointments are made by village education committee (50 percent), School management committee (25 percent), Gram Panachayat and Head master of school (25 percent respectively). Further, as per the discussion the helper are appointed for providing assistance to cook in all selected schools.

In less than average blocks no appointment has been made by headmaster. The major authorities for appointing cooking staffs are village education committee and school

management committee sharing 37.5 percent respectively. Further, 25 percent of the cooks are appointed by gram panchayat governing members. The appointments of WSHG members in cooking activities is higher in more than average blocks (56 percent) as compared to less than average blocks (37 percent).

7.5. Infrastructure Support for Cooking

The attempt has been made in this sub-section to highlight the infrastructure support including man power for carryon cooking activities at school.

7.5.1. Availability of Kitchen Shed

The study found pathetic condition of cooking place at school with black patches at wall. Since in majority of the schools the foods are prepared by wood (as available at cheaper rate due to Simlipal national forest) the black smoke and lack of exhausting facility makes the room dirty and less visible.

Table 7.5.: Availability of Kitchen Shed

Sl. No.	Kitchen Shed	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Constructed Kitchen	8 (100)	6 (75)	14 (87.5)	8 (100)	7 (87.5)	15 (94)	29 (91)
2	Temporary shed	0 (0)	2 (25)	2 (12.5)	0 (0)	0 (0)	0 (0)	2 (6)
3	Open space	0 (0)	0 (0)	0 (0)	0 (0)	1 (12.5)	1 (6)	1 (3)
Total		8 (100)	8 (100)	16 (100)	8 (100)	8 (100)	16 (100)	32 (100)

Source: Field Survey

Further, the light facility is also not sufficient. During visit to many schools during data collection it has been further observed that the cooking staffs are preparing food in other than the defined place. The study found better status of schools in Mayurbhanj as 91 percent of schools are having permanent shed for cooking meals while 6 percent schools prepares food at temporary shed and 3 percent uses open space.

The section-wise analysis shows better position of less than average blocks as 94 percent of its schools are having permanent shed facility as compared to more than

average blocks where 87.5 percent schools are having permanent shed facility for cooking. Even the temporary shed which is being used by schools of Suliapada block are having asbestos roof which cannot be utilized during monsoon season. The school of Shamakhunta block which prepares food at open justifies the reason as delay in fund allocation/tender process.

7.5.2. Regular Availability of Fuel

The responsibility of providing fuels for preparation of the food is with school authority. The school principal/headmaster hires local people/dealer for making availability of the same. Even cases were seen where the cook themselves bring the fuel by collecting it from forest/nearby areas and prepare the food so as to make certain financial gain. The study found 91 percent of schools use firewood for cooking of MDM while rest uses kerosene stove and LPG. Further, block wise analysis shows cent percent use of firewood in Suliapada and Shamakhunta blocks. Table 7.6 shows 97 percent of the cooks have reported regular availability of fuel for preparation of food while 3 percent cooks of Sulipada block reports irregularity in supply of fuel. The section-wise analysis shows cent percent satisfaction on part of cooks relating to regular availability of fuel from less than average blocks while 94 percent among cooks of more than average blocks.

Table 7.6: Regular Availability of Fuel

Sl. No.	Fuel Availability	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Regular	8 (100)	7 (87.5)	15 (94)	8 (100)	8 (100)	16 (100)	31 (97)
2	Irregular	0 (0)	1 (12.5)	1 (6)	0 (0)	0 (0)	0 (0)	1 (3)
Total		8 (100)	8 (100)	16 (100)	8 (100)	8 (100)	16 (100)	32 (100)

Source: Field Survey

Even the reported from of irregularity in fuel supply is from the schools using kerosene and LPG and not from schools using firewood.

7.5.3. Food Cooking Amount

An attempt has been made to check whether the supplied food is utilized by the children as par the allotment or not. The cross questioning is done with cooks whether the amount of food cooked every day is same or not.

Table 7.7: Quantity of Food Prepare Every day

Sl. No.	Cooking Amount	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Not same	5 (62)	2 (25)	7 (44)	8 (100)	7 (87)	15 (94)	22 (69)
2	Same	3 (38)	6 (75)	9 (56)	0 (0)	1 (13)	1 (6)	10 (31)
Total		8 (100)	8 (100)	16 (100)	8 (100)	8 (100)	16 (100)	32 (100)

Source: Field Survey

Table 7.7, shows 69 percent of cooks have reported difference in quantity of food prepared on daily basis while 31 percent have reported same quantity every day. This gives scope for corruption and mismanagement of resources for self-benefits. The reported reasons are non-availability of time with allotted teacher and lack of instrument for measurement of quantity. The section-wise analysis shows the condition is worst in more than average blocks where 56 percent of cooks prepare equal quantity of meal on daily basis as compared to less than average blocks (6 percent). The irregularity in operation of MDM is observed in all selected blocks but the position is worst in Suliapada where 75 percent school prepares equal amount of food every day.

7.5.4. Occurrence of Food Shortage

The raw foods are supplied to schools as per the requisition and number of students. Further, several cases have been reported by various schools about degrade quality and less quantity compared to allotment. The schools usually get rice from FCI while other items required are purchased by principal/headmaster or SMC. The deficiency in purchase quantity of soyabean, eggs, pulses etc. was always matter of concern for policy makers. In this regard attempt has been made in table number 7.8, to check the occurrence of shortage of foods in the study area.

Table 7.8: Occurrence of Food Shortage

Sl. No.	Food Shortage	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Rarely	0 (0)	4 (50)	4 (25)	2 (25)	3 (37)	5 (31)	9 (28)
2	Everyday	1 (12.5)	0 (0)	1 (6)	0 (0)	0 (0)	0 (0)	1 (3)
3	Never	7 (87.5)	4 (50)	11 (69)	6 (75)	5 (63)	11 (69)	22 (69)
Total		8 (100)	8 (100)	16 (100)	8 (100)	8 (100)	16 (100)	32 (100)

Source: Field Survey

The study found 69 percent of cook states no shortage of food occurs during MDM distribution at schools followed by cooks reported occasional/rare occurrence (28 percent) and everyday shortage (3 percent). The section-wise analysis shows equal status as no food shortage is reported at 69 percent schools of both more than average and less than average blocks. Further, the schools face food shortage rarely/occasionally is highest in Suliapada (50 percent), Shamakhunta (37 percent) and G.B nagar (25 percent). Even 12.5 percent schools of Bangiriposi block have reported shortage of food every day. The reported reasons as specified are difference in allotment and actual disbursement, repetitive demand and inaccuracy during cooking. Further, as per the researcher observation the food shortage usually occurs in vegetables and supportive course such as eggs, soybean curry and dalma.

7.6. Teachers Involvement in Cooking Process

In table 7.9, attempt has been made to show the assistance provided by teachers in performing cooking activities at school. The study found 85 percent of teachers does not involve in any cooking activities while teachers engaged regularly and occasionally in cooking process at school are 9 percent and 6 percent respectively.

Table 7.9: Teachers involvement in Cooking

Sl. No.	Teachers Involvement	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	Never	8 (100)	5 (63)	13 (81)	7 (87)	7 (87)	14 (87)	27 (85)

2	Yes	0 (0)	1 (12)	1 (6)	1 (13)	1 (13)	2 (13)	3 (9)
3	Sometimes	0 (0)	2 (25)	2 (13)	0 (0)	0 (0)	0 (0)	2 (6)
Total		8 (100)	8 (100)	16 (100)	8 (100)	8 (100)	16 (100)	32 (100)

Source: Field Survey

The section-wise analysis found both in more than average and less than average blocks higher proportion of teachers are not involved in cooking related activities. The proportion is highest in less than average blocks (87 percent) as compared to more than average blocks 81 percent. Even in schools of Bangiriposi block cent percent of cooks reported non participation of teachers in cooking of food while the share in lowest in Suliapada block where in 33 percent schools teachers takes participation in cooking activities.

The participation of teachers in cooking activities involves both positive as well as negative benefits. On negative side it hampers the teaching activities while on positive side it promotes healthy culture through hygienic preparation, good quality and regular inspection.

7.7. Problems faced by Cooks in the Study Area

The study makes insight of MDM programme in Mayurbhanj through highlighting the problems faced by cooks in operation of MDM activity. The study found 34 percent of respondents reported low remuneration/salary which stand fixed of Rs. 1000 per month followed by delay in disbursement (25 percent),

Table 7.10: Problems of Cooks in the Study Area

Sl. No.	Problems	More than Average			Less than Average			Total
		Bangiriposi	Suliapada	Total	G.B.Nagar	Shamakhunta	Total	
1	No problem	1 (12.5)	0 (0)	1 (6)	1 (12.5)	3 (37.5)	4 (25)	5 (16)
2	Salary not in time	0 (0)	3 (37.5)	3 (19)	4 (50)	1 (12.5)	5 (31)	8 (25)
3	Low Salary	6	3	9	1	1	2	11

		(75)	(37.5)	(56)	(12.5)	(12.5)	(12)	(34)
4	Smoke	1 (12.5)	2 (25)	3 (19)	2 (25)	2 (25)	4 (25)	7 (22)
5	No kitchen	0 (0)	0 (0)	0 (0)	0 (0)	1 (12.5)	1 (6)	1 (3)
Total		8 (100)	8 (100)	16 (100)	8 (100)	8 (100)	16 (100)	32 (100)

Source: Field Survey

Smoke due to use of firewood (22 percent) and non- availability of Kitchen (3 percent). The section-wise analysis shows in more than average blocks low salary (56 percent) for the rigorous work stands as a major issue as they are paid on an average Rs. 38 per day with an expected average 26 days per month. The other problems in more than average blocks are salary not in time (19 percent) and smoke (19 percent). Further, 6 percent of cooks have reported no problem in operation of MDM activities in the study area.

While on the other hand in less than average blocks, the major reported problem are salary not in time (31 percent), smoke problem (25 percent) and low salary (12 percent). Further, 25 percent of samples reported no issue in operation of MDM activities. The caste-wise analysis shows among ST low salary is major problem (37 percent), SC (salary not time), OBC (low salary) and General (smoke while cooking).

7.8. Conclusion

The Cook and helper acts as major facilitator as the quality control and maintenance of hygiene rest with them. Since majority of cook belong to BPL category so their dependence for regular activity/income of MDM increases. In spite of having permanent kitchen facility, the cook prefers to prepare food at open so as to avoid inconvenience of smoke and conjunction. Further, the conditions of majority of kitchen are not up to mark due to unavailability of proper exhauster facility and faulty/low quality construction. The cook reported the major problem of low salary, irregularity in disbursement of salary and essential goods and smoke while cooking. To maintain status and quality of food, majority of cook suggested involvement of SHG federations in MDM.

CHAPTER VIII

MAJOR FINDINGS, SUMMARY AND POLICY RECOMMENDATION

The Mid-day meal programme was implemented in 1995 as a nutritional intervention programme. In the year 2004, as per the direction of Hon'ble Supreme court, cooked mid-day meal were provided to all students of all the government schools, government sponsored schools, EGS and AIE centers. Initially, the programme was been implemented by the department of Women and Child Development (WCD) and later it was transferred to the Department of School and Mass Education in August 2011. The programme at the state level aims at providing nutritional support to primary school children in addition of increasing enrollments and reducing drop-out. It further tries to retain students in class after meal. The gamut of MDM has been extended both vertically and horizontally in selected districts under the clutches of severe poverty, backwardness and regular natural calamities. Different authorities are allotted at different levels so as to facilitate uninterrupted flow of fund and intermediaries. This chapter is divided into four sections classifying Major findings of the study, Hypotheses testing, Suggestion and Policy Recommendations, and Limitation and further scope of the study.

SECTION I

This section shows major finding of the study category-wise i.e. highlighting findings from different stake holders of MDM programme at India and Odisha. Attempts have been made to spotlight the finding of each stake holders into two categories i.e. empirical and general observation findings.

8.1.1. Major Empirical Findings of MDM programme in India:

- As the matter of enrolment concerned, in 2011-12 there were 2.99 lakhs students enrolled in primary education which has increased to 12.54 lakh in the year 2015-16 thereby showing an annual average increase of 79.6 percent per annum. From the period 2011 to 2016, the cumulative growth of 318 percent has been observed. The annual growth shows sharp decline of 14 percent in enrolment in 2012-13 as compared to 2011-12.
- Over the years (1950 – 2011) the number of primary schools has shown the average growth of 24.5 percent per annum as against the enrollment growth 40.4 percent. Currently there exists an average of 1056 schools per district catering the needs of 2 lakhs primary students.
- The girls enrollment increases by 111 times in the year 1960 – 61, but as regards to its share in total enrollment concern its shows growth of 4.5 percent compared to previous decade. It shows an increased by 31.7 million enrollment annually with the average growth rate of 54.5 percent per annum.
- As the matter of Dropout concern study shows declining trend from 64.9 percent in 1950-51 to 20.7 percent in 2010 – 11 registering an average decline of 7.3 percent per annum. Massive decline in dropout is observed in between 1980 – 90 and 2000 – 2010 registering an absolute decline by 16.1 percent and 20 percent respectively.
- The ST's enrollment over the last 10 years under study has increased at the rate of 11 percent per annum. The share of ST girls enrollment in overall girls enrollment falls from 10.7 percent in 2005 – 06 to 10.6 percent in 2015 – 16.
- As the matter of SC children is concerned, study found the constant share of SC children i.e. in between 19 – 20 percent of overall enrollment. The SC girls enrollment has increased from 44.7 percent in 2005 – 06 to 48.2 percent in 2015 – 16 registering higher growth as compared to ST and overall enrollment.
- In 2011 – 12, the average budget allocation per head was Rs. 984.81 as compared to the average fund release of Rs. 939.46. An average of Rs. 45 per head was

not utilized against sanctioned in the said period. The budgetary allocation have shown declining trend to 10.7 percent (2013 -14), 0 percent growth (2014 – 15) and -30 percent in 2015 – 16. On the other hand, the release of funds has also shown a decline from Rs. 9901.91 crores in 2011 – 12 to Rs. 5669.99 crores in 2017 – 18 registering an annual decline of 7.1 percent per annum.

8.1.2. Empirical findings of MDM programme in Odisha

- In the year 2010 – 11, the number of primary schools has increased by 844 with higher concentration in Kalahandi block (209 new schools), Mayurbhanj (126), Kandhamal (125) and Rayagada (99). The major thing to be noted here is that maximum new schools are introduced in tribal dominated districts with enrollment of students in absolute sense was higher in Ganjam (3.86 lakhs) followed by Mayurbhanj (2.97 lakhs), Balasore (2.55 lakhs) and Keonjhar (2.20 lakhs) while lowest in Deogarh (0.35 lakh), Boudh (0.50 lakh), Jharsuguda (0.51 lakh) and Sonepur (0.57 lakh).
- In 2014 – 15, a severe decline in girls enrollment per school compared to 2008 – 09 was observed in Ganjam (19), Khorda (17), Bhadrak (15), Jagatsinghpur (13) and Deograh (12) while lowest in Keonjhar (0.18), Bargarh (1.06) and Kandhamal (3.88).
- In 2014 – 15, the enrollment of ST children has increased in 21 districts of Odisha by 4.5 percent while decline is observed in 9 districts by 2.36 percent compared to 2008 – 09. The average number of ST students per school was reported highest in Nawarangpur (84), Malkangiri (74), Mayurbhanj (74), Keonjhar (71), Sundergarh (68) and Koraput (65) while lowest in Puri (1) , Jagatsinghpur (2), Kendrapara (2), Bhadrak (6) and Ganjam (8).
- The SC children enrollment in primary education in various district of Odisha ranges from 5 to 26 percent of total enrollment. According to 2014 – 15 data, the highest SC enrollment is observed in Sonepur (26 percent) followed by Bargarh (23 percent), Jajpur (23 percent), Boudh (22 percent), Malkangiri (21 percent) and Kendrapara (21 percent) while lowest in Gajapati (5 percent), Mayurbhanj (6 percent),

Keonjhar (10 percent) and Sundergarh (11 percent).

- In the year 2011 – 12, a total of 9910 students have dropout from all districts of Odisha with higher concentration in Mayurbhanj (1811) Rayagada (1495), Koraput (1028), Keonjhar (860) and Deogarh (807) while lowest in Puri (0), Malkangiri (0), Cuttack (0) and Boudh (1). A positive relationship between ST dominated districts with districts having higher dropout is observed.

8.1.3. Major Empirical Findings of Children Respondents

- Maximum respondents are 6, 8 and 9 years old students (19 percent respectively) followed by respondents of 10 years old (18 percent), 7 years old (17 percent) and 11 years old (5 percent).
- The gender wise classification of respondents show higher concentration of female respondents in both in more than average (56 percent) and less than average blocks (55 percent).
- The study shows higher concentration of ST sample respondents i.e. 56 percent followed by OBC (27 percent), General (12 percent) and SC (5 percent). The district profile also shows same pattern i.e. maximum concentration of ST population followed by OBC.
- 61 percent of the respondents in the study area do not consumed food before coming to school followed by 11 percent children who consumes food sometimes before arriving school. In less than average blocks 71 percent of the respondents stated that they do not consume food before coming to school whereas in more than average blocks the percentage was 51 percent.
- Minimum standard is followed to fulfill the nutritional requirements i.e. giving mixture of carbohydrates with protein and vitamins. The common menu of Rice with Dalma, Rice with Soyabean and Rice with egg curry are followed on repeated basis i.e. twice in a week on alternative days.
- The caste wise classification of respondents regarding intake of food before coming to school through dummy multiple regression analysis shows the respondents of

general caste are in better position in terms of intake of food before coming to school as compared to Scheduled caste, ST and OBC which are reduced to 0.437, 0.444 and 0.477 respectively and are significant at 0.05 percent level.

- In Mayurbhanj, 66 percent sample respondents like egg curry in their menu while 46 percent have caste their preference for soyabean. The major reasons for likeness of these foods are non-reachability or regular access.
- 93 percent of sample respondents have reported sufficient quantity of food in their meal while 7 percent are dissatisfied with quantity of MDM.
- 89 percent of students are comfortable in taking MDM at school with other students while 2 percent straightly have concluded problem.
- The study found regularity of 94 percent sample respondents in attending school and only 6 percent are irregular. In more than average blocks, 95 percent of respondents attend schools regularly whereas in less than average blocks regularity is 92 percent.
- The academic performance of the students in their previous academic session shows 40 percent of sample respondents have achieved A grade followed by respondents achieved grade B (34 percent) and grade C (6 percent). No statistical significant difference between mean grades of sample respondent between different castes is observed.

8.1.3.1. General observation of Children Respondents

- Field observations show consumption of MDM food by School teaching and non-teaching staff including cook.
- The regularity in MDM operation exists but as regard to quality respondents hesitations are observed.
- The foods preparation is carried out under unhygienic condition and utensils cleaning are done by students themselves.
- Availability of hand wash/soap is absent in majority of schools. Students wash hand by water regularly before taking food.
- Students quality about learning and understanding (in terms of reading and

writing skills) is poor in both more than and less than average blocks.

8.1.4. Major Empirical Findings of Parents Respondents

- 93 percent of the parent respondents are from below poverty line families while only 7 percent students are from APL families.
- 57 percent of parents/guardians have studied upto primary education i.e. class I to V, followed by guardians/ parents studied secondary level (29 percent), higher secondary (3 percent) and Graduation and above (only 2 percent). Further, 9 percent of guardians/parents of sample respondents are illiterate.
- The study found 55 percent of respondents are engaged in cultivation activities (leased and owned) followed by daily labour (23 percent), self-employed (12 percent) and others (6 percent).
- The average monthly income of parents/guardians of respondents in less than average blocks is Rs. 3110 while that of more than average blocks is Rs. 3638. There was significant difference in monthly income of guardians/parents between less than and more than average blocks. The F ratio computed via one way ANOVA is 12.530 and is significant at 1 percent level.
- 68 percent of parents/guardians send their wards to school due to MDM facility while 32 percent parents/guardians send their wards for other reasons such as learning, development and engagement/nursing due to non-availability of family members at home.
- The independent sample t test shows the mean number of parents/guardians sending their ward for MDM is significantly higher in less than average block as compared to more than average blocks at 0.05 percent level ($t_{315.540} = -1.935 < 0.05$).
- Only 4 percent samples that too from less than average blocks i.e. G.B.nagar and Shamakhunta have reported the issues of vomiting, stomach pain and diarrhea after taking MDM. Since majority of the students are consuming daily meals provided by school, the percentage of parents who reported the issues are not significant with views of other parents.

- 86 percent of parents/guardians are satisfied with the quantity of items provided under MDM while 14 percent have recommended increase in quantity.
- 71 percent of parents/guardians do not hold any information about PTA and its activities while 29 percent have reported the information as well as its existence at schools.

8.1.4.1 General Observation of Parents/Guardian Respondents

- Though the parents are satisfied with the quantity but severe dissatisfaction is observed with the matter of quality and variety.
- Parents don't have time to interfere in the activities of MDM. Further, due to less knowledge and backwardness they usually accept the current working condition.
- Higher existence of poverty and fear of not getting meal by mentioning any justified reason forces the parents to remain silent.
- Higher dominance of parents belonging to APL and higher class has been observed in managing MDM in maximum schools.

8.1.5. Major Empirical Findings of Teacher Respondents

- 66 percent of teacher respondents are female while only 34 percent are male. The section-wise classification shows in less than average blocks the female teachers respondents are high (69 percent) as compared to more than average blocks (63 percent).
- In Mayurbhanj, 53 percent of teachers are graduate followed by higher secondary and matriculation (22 percent each). Further, only 3 percent teachers are having post graduate degree.
- The comparison among male-female teachers educational qualification is significantly better among Male as compared to female teachers as 100 percent of male teachers have studied from H.S. to Post Graduate while that among female teachers 34 percent of respondents are matriculate.
- The study found 84 percent of teachers holds C.TET while 16 percent respondents hold B.Ed. degree. Since the major essential qualification for pursuing

B.Ed. is completion of Graduation the comparative analysis shows 63 percent of teachers completed graduation have also completed B.Ed. degree.

- The average number of teachers per school in the selected study area is 3.5 as against 3 teachers per school at district level and 2 teachers per school at state level.
- Teacher-students ratio in the study area 1:26 which is higher than the district average i.e. 1: 13 as well as less than state average i.e. 1:23. The worst condition is observed in more than average blocks (1: 29) as compared to less than average blocks (1: 22).
- 97 percent of teacher respondents have reported MDM programme has increased student enrollment in schools under consideration. The section-wise analysis shows cent teachers believe MDM programme has increased student enrollment in more than average blocks while that in less than average blocks i.e. 94 percent.
- 91 percent of teacher respondent have reported quantity provided under MDM programme is sufficient.
- 97 percent of teacher respondents are satisfied with the supply of food grains. The section-wise analysis shows in less than average blocks100 percent stated that supply of food grain is regular while in more than average blocks 94 percent of the teachers reported regular supply of food grain.
- In 100 percent schools the vitamin and iron tablets are given on regular basis to students.
- 81 percent of schools in more than average blocks have safe drinking facility, as compared to 87 percent of schools in less than average blocks. The source of drinking water via tap is only available in Suliapada block (13 percent) while Hand pump in Bangriposi (87.5 percent) of schools, Suliapada (87.5 percent), GB Nagar (100 percent) and Samakhunta (87.5 percent). Well is also the source of drinking water in 13 percent of schools in Bangriposi and Shamakhunta respectively.

8.1.6. Major Empirical and General Findings of Cooks

- Helper exists in all schools selected under study.

- The cooks are provided a fixed monthly remuneration of Rs. 1000 per month.
- No food shortage occurs in 69 percent of schools of both less than average and less than average blocks.
- 91 percent of schools in Mayurbhanj use firewood as fuel for preparing food with cent percent concentration at Shamakhunta and Suliapada block.
- Cooks often bring cooking fuel i.e. fire wood basically by collecting it from nearby forest so as to gain financial benefits.
- Even after having permanent kitchen shed at 91 percent of schools, maximum schools often prepare food at open space. Further, the condition of 69 percent of kitchen are not clean with black patches at wall due to use of firewood.
- Even the lights provided in schools are not sufficient for inside cooking activities.
- Further, the roofs of 78 percent schools are damp with higher concentration in less than average block (81 percent).
- Irregularity in the supply of fuel is found in Suliapada block which basically uses kerosene/LPG stove for preparation of food.
- 31 percent of cook in Mayurbhanj have reported preparation of same quantity of food everyday which create question on teachers dedication and sincerity towards MDM activities.
- Cases of regular extraction of food from children meal by cook, helper and teachers were observed in the study area.
- In maximum schools no regularity is observed in maintaining record of allotment of food grains to cook because of lack of time with allotted teacher and unavailability of measuring instrument with 75 percent of schools with higher concentration in more than average blocks (81 percent).
- There exist regular share of food for cook and helper in MDM in Odisha.
- The leftover foods are carried by cook/helper to their respective home which justify that sufficient amount of food are not allotted to children in the study area.

SECTION II: TESTING OF HYPOTHESES

The study made an attempt to check the following hypotheses keeping in view the objectives of the study.

i. The average BMI of students from blocks less than average school and blocks more than average school are same.

To identify the average BMI of students differ in blocks less than average and more than average independent sample t test was fitted.

Table 8.1: Independent sample t test for BMI

Group Statistics					
	Blockstatus	N	Mean	Std. Deviation	Std. Error Mean
BMI	more than average	160	15.47	1.027	.081
	less than average	160	15.21	.940	.074

Independent Samples Test										
Levene's Test for Equality of Variances				t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
BMI	Equal variances assumed	3.934	.048	2.342	318	.020	.258	.110	.041	.474
	Equal variances not assumed			2.342	315.536	.020	.258	.110	.041	.474

The study found that the average BMI of sample respondents for blocks more than average schools is 15.47 as compared to samples respondents of blocks less than average schools (i.e. 15.21) which is statistically significant at 0.05 percent. Thus we

reject the null hypothesis that the average BMI of students from blocks less than average school and blocks more than average school are same.

ii. The mid-day meal programme has equal impact on the BMI of both Male and Female students of primary schools in the study area.

Table 8.2: Independent sample T Test for Male-Female

Group Statistics					
	Gender ofthestudent	N	Mean	Std. Deviation	Std. Error Mean
BMI	Male	141	15.30	.987	.083
	Female	179	15.37	.997	.074

Independent Samples Test										
Levene's Test for Equality of Variances				t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
BMI	Equal variances assumed	.002	.961	-.579	318	.563	-.065	.112	-.284	.155
	Equal variances not Assumed			-.579	302.046	.563	-.065	.112	-.284	.155

The study found that the average BMI of male sample respondents is 15.30 as compared to female samples respondents 15.37 which isnot statistically significant at 0.05 percent. Thus, we accept the null hypothesis that the MDM programme has equal impact on BMI of both male and female students of primary schools in the study area.

iii. The average BMI of students from different caste are equal.

The dummy regression is used to analyse the BMI status of MDM programme on respondents belong to different caste is shown in table 8.3.

Table 8.3: Dummy Regression to check the average BMI of respondents

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.084[a]	.007	-.002	.989

a. Predictors: (Constant), OBC, SC, ST

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.182	3	.727	.744	.527[b]
	Residual	309.002	316	.978		
	Total	311.184	319			

a. Dependent Variable: BMI

b. Predictors: (Constant), OBC, SC, ST

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.504	.156		99.160	.000
	ST	-.212	.173	-.107	-1.226	.221
	SC	-.358	.293	-.079	-1.223	.222
	OBC	-.129	.189	-.058	-.680	.497

a. Dependent Variable: BMI

The multiple regression analysis shows the students belong to general caste are having higher average BMI as compared to OBC (-0.129), ST (-.212) and SC (-.358) but not significant at 0.05 percent level. Thus we accept the hypothesis, the average BMI of students from different caste are equal.

iv. There exist a significant correlation between the decision to send their ward in school for MDM with income and levels of education of parents.

The correlation coefficient shows the decision to send their ward to school for MDM is

negatively correlated with monthly income (-.432) and level of education of parents (-.414) which significant at 0.01 percent level.

Table 8.4: Correlation Coefficient for Decision to send their ward

Correlations				
		Do you send your children to school because meals are provided	Monthly income	Level of education
Do you send your children to school because meals are provided	Pearson Correlation	1	-.432**	-.414**
	Sig. (2-tailed)		.000	.000
	N	320	320	320
Monthly income	Pearson Correlation	-.432**	1	.624**
	Sig. (2-tailed)	.000		.000
	N	320	320	320
Level of education	Pearson Correlation	-.414**	.624**	1
	Sig. (2-tailed)	.000	.000	
	N	320	320	320
**. Correlation is significant at the 0.01 level (2-tailed).				

Further, significant positive correlation has been observed between level of education of parents and their monthly income (.624) which is statistically significant at 0.01 percent level. This clearly specify that as the parents level of education and monthly income increases their dependency upon sending children to for MDM decreases.

v. The engagement/information pertaining to PTA among parents/guardians is equal in both the blocks.

In order to understand where there exist any significant difference in parents/guardians engagement/information pertaining to PTA in less than average and more than average block independent sample t test is used.

Table 8.5: Engagement of Parents in PTA

	Block status	N	Mean	Std. Deviation	Std. Error Mean
PTA to manage	More than average	160	.34	.476	.038
	less than average	160	.24	.427	.034

Independent Samples Test										
Levene's Test for Equality of Variances				t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
PTA	Equal variances assumed	17.50	0.00	2.101	318	0.03	.106	.051	.007	.206
	Equal variances not assumed			2.101	314.239	0.03	.106	.051	.007	.206

Table 8.5, shows that there exist significant differences in the average information/engagement among parents/guardians of more than and less than average blocks ($t_{314.239} = 2.101 < 0.05$). The information/engagements of parents/guardians for more than average blocks is higher by .106 compared to parents/guardians of less than average blocks.

SECTION III: SUGGESTION AND POLICY RECOMMENDATION

This chapter tries to suggest policy recommendation based on empirical and general findings of the study. Further, additional measures is been recommended for effective implementation of the programme in the study area.

8.3.1 Suggestions for Parents/Guardians:

- Being as the major stake holders of the programme, the students and their parents should be imparted training about their rights of MDM. The toll free number should be given to each parent during admission/renewal (every year) to report problems/issues pertaining to MDM and behavior of teachers in schools. Further, identity of children/parents should be kept confidential so as to avoid inconvenience to them.
- Since majority of the parents are less educated, the teachers should take

responsibility of imparting information among them about the type of food to be provided to their children at home.

- Training/information about Kitchen gardening should also be promoted by teachers among parents especially mothers.
- Since majority of the parents are engaged in fulfilling daily needs of the family so their active participation in PTA hinders. In this regard, the local WSHGs and their federations should come forward and should take responsibility of maintaining quality of MDM programme.
- PTA should comprise of teachers, WSHG leaders/representatives, selected parents on rotational basis and highly educated member/parents of village.
- Majority of parents belong to BPL category therefore the families having children less than 10 years of age should be provided additional items under ration/fair price shop scheme.
- Since, the large section of parents send their ward to school because of MDM programme, same theme could be used for higher learning or skill development among dropout/school leaving students so as to earn livelihood.

8.3.2. Suggestions for Children:

- Students should comply the norms thereby wash their hands and plates regularly with disinfectants.
- Since maximum children comes to school without taking food from home, provision of snacks should be arranged in 50:50 partnerships from government and parents. A nominal fee of Rs. 3 per head per day will be enough to cater the needs.
- Students should be guided more about learning, understanding and hygienic living instead of just meal.
- Students scoring less than B grade should be taken special care and parent involvement/guidance should be arranged with discussion.

8.3.3. Infrastructural Development Suggestions

- Improvement in kitchen is required with cleaning activities in supervision of allotted teacher at least once in a week.
- Fire wood should be replaced by LPG so as to avoid accidents and health related issues both of cooks and children.
- Renovation/construction works of kitchen should be carried out with observation under WSHG federation/local authorities so as to maintain quality.
- Students should not be given the burden of cleaning plates and a separate fund should be allotted by the government for such activities.
- Quality of food could be improved by making self-sacrifice of taking meal by cooks, teachers and staffs.
- Storage facility should be developed at panchayat level to keep all necessary intermediaries such as LPG cylinder, grains, quality oil, masala, vegetables; eggs etc. which could be supplied at weekly basis to schools which will reduce burden of school staffs.
- Surprise inspection in schools could be made at regular so as to check the quality and corruption at each level.
- Separate toilets for boys and girls should be allocated in every school with regular cleaning and maintenance by supporting staffs available at school.

SECTION IV: LIMITATION AND SCOPE FOR FURTHER RESEARCH

8.4.1. Limitation of the Study

The study is subject to following limitation

i. The study is executed only over 4 blocks as compared to available 26 blocks of Mayurbhanj.

ii. The study was restricted to 320 students, 320 parents and 32 teachers and 32 cook respondents which could be increased further for better understanding of area specific problems.

iii. Further, the comparative study could be made between tribal dominated and non-dominated blocks to understand better scenario.

iv. Due to limitation of fund and time, the researcher could not be able to trace views of pass out students regarding MDM at primary schools.

v. Respondents might have not revealed true information pertaining to availability of food, results/grade, and daily requirements.

vi. Like any other research using sampling method, this study is also subject to sampling error.

8.4.2. Scope for further Research

i. The study is limited to 4 panchayats of each selected blocks while in order to have better understanding of the problems of MDM intensive study is further required with more panchayats under consideration.

ii. Being among the tribal dominated district a comparative picture could be analysed taking into consideration tribal dominated and non-dominated blocks.

iii. A comparative research about effective teaching and quality maintenance could also be made between meal prepared at school and prepared by external agency in Odisha.

8.4.3. Conclusion

The mid-day meal programme has significantly helped in improving the enrollment and retention of students in the study area. In particular the programme has brought equal impact among the children of disadvantage groups through fulfilling the basic problem of classroom hunger and burden over family. According to the parent respondents due to existence of chronic poverty and dependency on agriculture and allied activities, the mid-day meal scheme had significantly reduced the burden of nutritional requirements of children to the greater extent.

Despite of advantage of achieving the objective of universalization of primary education, the programme had made vital advancements in other arenas such as increase in attendance, decrease in dropout and child labour, imparting knowledge of health and hygiene, importance of education and building communal harmony in the study area. Barring few exceptions, all the schools in the study area are struggling in maintaining the balance between teaching-learning and mid-day meal activities. In additional the programme has shown improvement in female enrollment as compared to male in all selected blocks of the study area. It has successfully helped in reducing the gap between different hierarchies in terms of academic results and BMI compared to general caste. In many schools the teachers are guided by local political party leaders/influential person which further generate a gap related to caste, culture and status among students.

The programme has also developed employment opportunities and sense of right among the rural population in the study area. The involvement of WSHGs and the PTA had created large scope for quality enhancement of food, income generating activities by procuring supply of raw material, cooking remuneration, cleaning staffs remuneration, firewood, vegetables etc.

However, there exist several possibilities for complete success of programme in the study area. Adequate and timely supply of raw materials, increase in allocation of fund, provision for breakfast, adequate and timely supply of ingredients, provision of better and quality infrastructure, supply of disinfectant and cleaning materials, effective

supervision and accountability, creating awareness among parents for active involvement and autonomy/special fund for development of tribal dominated districts will definitely improve overall performance of the programme.

List of Abbreviation

AIE	Alternative and Innovative Education
ANOVA	Analysis of Variance
APL	Above Poverty Line
B.Ed.	Bachelor of Education
BMI	Body Mass Index
BPL	Below Poverty Line
CAB	Clinical, Anthropometric and Biochemical
CAG	Comptroller and Auditor General
CTET	Central Teacher Eligibility Test
DEE	Directorate of Elementary Education
DPEP	District Primary Education Programmes
EBB	Educationally Backward Block
EGS	Education Guarantee Scheme
FCI	Food Corporation of India
GDP	Gross Domestic Product
GHI	Global Hunger Index
ICMR	Indian Council of Medical Research
ICDS	Integrated Child Development Services
IDA	Iron Deficiency Anaemia
IDD	Iodine Deficiency Disorder
ISHI	Indian State Hunger Index

IQ	Intelligence Quotient
KGBV	Kasturba Gandhi Balika Vidyalaya
MDM	Mid-Day Meal
MDG	Million Development Goals
NCHS	National Centre for Health Statistics
NFHS	National Family Health Survey
NIN	National Institute of Nutrition
NP-EGEL	National Programme for Education of Girls at Elementary Level
NPE	National Policy on Education
NRHM	National Rural Health Mission
OB	Operation Blackboard
OBC	Other Backward Caste
OPEPA	Odisha Primary Education Programme Authority
PDS	Public Distribution System
PEM	Protein Energy Malnutrition
PHC	Public Health Concern
PTA	Parent Teacher Association
RDA	Required Dietary Allowance
RTE	Right to Education Act
SC	Scheduled Caste
SEBC	Socially and Educationally Backward Caste
SMC	School Management Committee
SPMU	State Project Management Unit

ST	Scheduled Tribes
SSA	Sarva Siksha Abhiyan
TGR	Terminal Graduate Registration
UEE	Universalization of Elementary Education

UNDP	United Nations Development Project
UNICEF	United Nations International Children's Emergency Fund
VAD	Vitamin A Deficiency
WHO	World Health Organisation

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