རྒྱལ་གཞུང་རྩིས་ཞིབ་དབང་འཛིན།

Performance Audit Report on School Feeding Programme

MAY 2017

PERFORMANCE AUDIT REPORT
ON
SCHOOL FEEDING PROGRAMME
MAY 2017

DISCLAIMER NOTE

The audit was conducted in accordance with the Performance Audit Guidelines. The review was confined to documents and data obtained regarding School Feeding Programme. The audit was based on the audit objectives and criteria determined in the audit plan and program prepared by the RAA and the findings are based on the information and documents made available by the audited agencies.

This is also to certify that the auditors during the audit had neither yielded to pressure, nor dispensed any favour or resorted to any unethical means that would be considered as violation of the Royal Audit Authority's Oath of Good Conduct, Ethics and Secrecy.

རྒྱལ་གཞུང་རྩིས་ཞིབ་དབང་བཙན།
ROYAL AUDIT AUTHORITY
Bhutan Integrity House
Reporting on Economy, Efficiency & Effectiveness in the use of Public Resources

RAA/TAD-SFP/2017/*1389* **Date: May 8, 2017**

Hon'ble Secretary
Ministry of Education
Thimphu

Subject: Report on Performance Audit of School Feeding Programme (SFP)

Sir,

Enclosed herewith please find a copy of the report on the ***Performance audit of School Feeding Programme (SFP)*** which is fully funded by the Royal Government of Bhutan (RGoB). The audit was conducted in line with the mandates of the Royal Audit Authority as enshrined in the Constitution of Kingdom of Bhutan and Audit Act of Bhutan 2006, and following the auditing procedures outlined in the Performance Audit Guidelines 2011.

The overall audit objective of the audit was to ascertain economy, efficiency, and effectiveness in SFP with a focus on nutrition. The audit aimed to ascertain whether the SFP helped in improving nutrition and reducing nutrient deficiencies in school children. Further, the audit aimed to assess whether there were interventions and initiatives instituted by the relevant authority to improve nutritional status of schoolchildren.

The Draft Report was issued on 1st March 2017 to Department of School Education (DSE) for factual confirmation and comments and also copies were sent to 16 sampled schools included for field visits. The responses received from the DSE have been incorporated and appended as **"Appendix I"**.

This final report has been prepared based on our reviews of available documents, analysis of data, and discussions with relevant officials of the DSE, Food Corporation of Bhutan Limited (FCBL) and 16 schools. The report highlights achievements and best practices as well as discusses shortcomings and lapses noted by the RAA. The SFP has supported schools in providing meals to schoolchildren. In the process, it has helped to eliminate short-term hunger amongst schoolchildren thereby improving concentration and performance. Furthermore, SFP indirectly supported in achieving **Sustainable Development Goal 1 & 2** i.e. *"End Poverty in all its forms everywhere'* and *'End hunger, achieve food security and improved nutrition and promote sustainable agriculture"* respectively. In order to improve SFP, the Ministry of Education developed School Feeding Management Handbook. Centralized procurement system was also introduced and with this system, the Department of School Education (DSE) was able standardize school feeding with same ration scale and food basket and also achieved economy of scale.

While acknowledging the initiatives of the Ministry, the RAA also observed shortcomings where further improvements are desirable. These deficiencies are discussed in detail in *'Part 3.2, Chapter 3' of* the report and some significant findings are highlighted below:

i. There was lack of standard dietary requirements for schoolchildren and the daily nutrient intakes as per the standard ration scale developed by the Ministry of Education was found to be inadequate in meeting the Recommended Daily

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Allowance of nutrients (a standard used by the RAA for nutritional content analysis);

ii. There was lack of systematic monitoring system to review and ascertain the micronutrient deficiencies among schoolchildren in the country;

iii. There was lack of strong quality control system in the school feeding commodity supply chain;

iv. The schools had developed 'Just one option' menu, which did not include a wide variety of foods;

v. Monotonous menu was repeated throughout the year discouraging children from eating and thus, reducing intake of nutrients. Moreover, frequency of meat served in schools was found to be less;

vi. Unpalatable and unappetizing preparation of foods discouraging schoolchildren to eat the required quantity of food;

vii. Commodity Reports submitted by schools to the Ministry were not used effectively for preparing Food Release Note for the supply of food items; and

viii. Storage facilities particularly for perishable items were inadequate in schools.

The report also contains a set of recommendations under '*Chapter 4*', which are intended to foster efficiency and effectiveness in School Feeding Programme to increase nutrient intakes of schoolchildren, to alleviate malnutrition and diseases/outbreaks due to nutrition deficiency.

In line with the directives of the Parliament, the RAA has instituted a system to fix the accountability on the officials responsible to implement recommendations provided in the Performance Audit Reports. Therefore, we would request the Ministry to identify supervisors who should be responsible for implementation of each recommendation and submit duly completed and signed Accountability Statement (attached) to the RAA. In the event of non-submission of the Accountability Statement, the RAA shall fix the responsibility on the Head of the Agency. The RAA will follow up implementation of the recommendations based on the Accountability Statement and failure to comply will result in taking appropriate actions, which may include suspending audit clearances to the accountable official(s).

The RAA would appreciate receiving actions taken as well as an Action Plan Report for the implementation of audit recommendations with definite timeframe on or before **7th August 2017** along with the signed Accountability Statement.

The RAA acknowledges the kind co-operation and assistance extended to the audit team by the officials and staff of the Department of School Education, Dzongdags, Dungpas and Principals of visited schools, which facilitated the smooth completion of the audit.

Yours sincerely,

(Tshering Kezang)
Auditor General of Bhutan

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Copy to:

1. The Hon'ble Lyonchen, Royal Government of Bhutan, Thimphu for kind information;
2. The Hon'ble Dasho Zimpon, Office of the Gyalpoi Zimpon, Thimphu for kind information;
3. The Hon'ble Speaker, National Assembly of Bhutan, Gyalyong Tshogkhang for kind information;
4. The Hon'ble Chairperson, National Council of Bhutan, Thimphu for kind information;
5. The Hon'ble Chair, Public Accounts Committee, Parliament of Bhutan, Gyalyong Tshogkhang for kind information;
6. The Director General, Department of School Education, Ministry of Education, Thimphu;
7. The Principal, Chapcha Middle Secondary School, Chukha;
8. The Principal, Chungkha Primary School, Chukha;
9. The Principal, Daga Higher Secondary School, Dagana;
10. The Principal, Dungkar Primary School, Lhuentse;
11. The Principal, Minjey Middle Secondary School, Lhuentse;
12. The Principal, Mongar Higher Secondary School, Mongar;
13. The Principal, Kengkhar Lower Secondary School, Mongar;
14. The Principal, Pemagatshel Middle Secondary School, Pemagatshel;
15. The Principal, Tsebar Lower Secondary School, Pemagatshel;
16. The Principal, Martshala Middle Secondary School, Samdrupjongkhar;
17. The Principal, Karmaling Middle Secondary School, Samdrupjongkhar;
18. The Principal, Denchukha Primary School, Samtse;
19. The Principal, Bidung Lower Secondary School, Tashigang;
20. The Principal, Wamrong Lower Secondary School, Tashigang;
21. The Principal, Gomphu Lower Secondary School, Zhemgang;
22. The Principal, Yebilaptsa Middle Secondary School, Zhemgang; and
23. Office copy

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ACCOUNTABILITY STATEMENT

PERFORMANCE AUDIT OF SCHOOL FEEDING PROGRAMME

NO.	RECOMMENDATIONS	Personal Accountability		Supervisory Accountability	
		Name & Design.	EID No.	Name & Design.	EID No.
1	Standard Dietary Requirement for schoolchildren should be developed				
2.	Need to institute mechanism to monitor nutritional status of schoolchildren				
3.	Strong quality control system must be instituted in School Feeding Management				
4.	Supply of fortified rice to schools				
5.	Food Commodity Report should be used effectively for preparing Food Release Note				
6.	Need for proper storage facilities for food items				
7.	FCBL should ensure that best before or expiry dates are indicated on food commodities supplied to schools				
8.	School cooks should be trained in preparation of proper foods				
9.	Schools should carry out periodic reconciliation of stocks				
10.	Proper segregation of duties should be instituted in school mess management				
11.	Effective use of bulk electric cookers should be made				
12.	Nutrition Education should be provided to schoolchildren				
13.	Feedback system should be instituted in schools				

(s/d)

Secretary
Ministry of Education

TITLE SHEET

a)	Title of the Report	:	Report on Performance Audit of School Feeding Programme
b)	Audit Identification Number	:	14421
c)	Audited Entities	:	Department of School Education, Ministry of Education
d)	Schedule of Audit	:	September 12, 2016 to November 30, 2016
e)	Audit Team	:	Sonam Delma, Dy. Chief ICT Officer, Team Leader
		:	Kinley Tshering, Sr. Audit Officer, Team Member;
			Kinley Zam, ICT Officer, Team Member.
f)	Supervising Officer	:	Chandra Bdr. Gurung, Assistant Auditor General, Thematic Audit Division.
g)	Head of Department	:	Chimi Dorji, Deputy Auditor General, Department of Performance & Commercial Audits

LIST OF ACRONYMS

BAFRA	Bhutan Agriculture and Food Regulatory Authority
DSE	Department of School Education
DPH	Department of Public Health
FCBL	Food Corporation of Bhutan Ltd.
FCT	Food Composition Table
FRN	Food Release Note
GHI	Global Health Index
MoE	Ministry of Education
MoU	Memorandum of Understanding
PN	Peripheral Neuropathy
RDA	Recommended Dietary Allowance
RGoB	Royal Government of Bhutan
SAFED	School Agriculture, Feeding and Environment Division
SAP	School Agriculture Programme
SDGs	Sustainable Development Goals
SFP	School Feeding Programme
SFM	School Feeding Management
SFPMH	School Feeding Programme Management Handbook
WFP	World Food Programme

TABLE OF CONTENTS

EXECUTIVE SUMMARY

About the Report

As mandated by the Constitution of the Kingdom of Bhutan and Audit Act of Bhutan 2006, the Royal Audit Authority (RAA) carried out the Performance Audit of School Feeding Programme (SFP). The overall objective of the audit was to ascertain the economy, efficiency, and effectiveness in the management of school feeding with a specific focus on nutrition.

The SFP is a collaborative initiative between the WFP and the Royal Government of Bhutan (RGoB) that started 40 years ago[1]with an aim to increase enrollment and attendance rates and also to improve the short term nutritional status of school going children. Since 2014, WFP has been gradually handing over the responsibility of school feedings to the Ministry of Education and by end of 2018, RGoB has to fully take over 50,000 beneficiaries. Therefore, the audit covered only RGoB fully funded schools for two financial periods (2014-2015 and 2015-2016) and did not include WFP funded as well as Central schools in the scope.

Further, the findings contained in this report are based on field visits made to 16 feeding schools sampled for audit from seven Dzongkhags.

Positive initiatives or achievements

The SFP has supported schools in providing meals to schoolchildren. In the process, it has helped to eliminate short-term hunger amongst schoolchildren thereby improving concentration and performance. Furthermore, SFP indirectly supported in achieving **SDG 1 & 2** i.e. '*End Poverty in all its forms everywhere*' and '*End hunger, achieve food security and improved nutrition and promote sustainable agriculture*' respectively.

The Ministry of Education (MoE) introduced centralized procurement of nine non-perishable items viz. rice, pulses, chickpeas, oil, milk powder, soya chunks, salt, tea leaves, and sugar. With the system, the Department of School Education (DSE) was able to standardize school feeding with same ration scale and food basket and also achieved economy of scale. The system also benefitted far flung schools for getting commodities on time and easing the burden of procurement on school management to certain extent. Furthermore, the Ministry developed a handbook on School Feeding Management in order to improve and provide guidance on managing SFP.

Deficiencies and shortcomings

Apart from positive developments and initiatives, the RAA also observed deficiencies and shortcomings, which need further improvement. Some notable shortcomings impeding the effective and efficient management of school feeding are briefly discussed below:

1. There was no standard dietary requirement prescribed for school going children, without which, the schools cannot ensure that the daily nutrient intakes as per the standard ration scale developed by the Ministry of Education meet dietary needs of the schoolchildren;
2. There was lack of systematic monitoring system to review and ascertain the micronutrient deficiencies among schoolchildren in the country. Due to which, required interventions or appropriate actions by authorities cannot be taken if there are micronutrients deficiencies;

[1] School Feeding Management Book for Bhutan, 2015, Department of School Education, Ministry of Education

3. There was lack of strong quality control system in the school feeding commodity supply chain. As a consequence, food items supplied to schools were reported to be infested or damaged within short span of time;
4. The schools had developed 'Just one option' menu, which did not include a wide variety of foods. Further, monotonous menu was repeated throughout the year discouraging children from eating and thus, reducing intake of nutrients. Inadequate nutrient intakes could result in hidden hunger or nutrient deficiency. Moreover, frequency of meat served in schools was also found to be less;
5. Food prepared in visited schools looked unpalatable and unappetizing discouraging schoolchildren to eat right portion and thus resulting in less intake of nutrients.
6. Food Commodity Reports submitted by schools to the Ministry were not used effectively for preparing Food Release Note for the supply of food items. This has resulted in ordering surplus or short quantities of food items required by the schools. Surplus orders would lead to spoilage and wastage of resources. Short orders would result in depriving schoolchildren of getting adequate quantity of nutrients; and
7. The Storage facilities particularly for perishable items were inadequate leading to spoilage of vegetables with less shelf-lives thereby resulting in wastage as well as depriving schoolchildren of getting good diets or nutrition.

Recommendations

Based on audit findings, the RAA provides a series of recommendation in **Chapter 3** that are intended to enhance efficiency and effectiveness of SFP so as to improve nutritional status of schoolchildren. Some important recommendations are summarised as follows:

i. The Standard Dietary Requirements for schoolchildren should be developed and adopted as a benchmark to measure dietary intakes of school going children. Further, ration scale and menu should be assessed to see whether they meet RDA;
ii. Effective mechanism for monitoring nutritional status should be implemented so that appropriate preventive measures can be taken in case of micronutrient deficiencies or hidden hunger;
iii. The School management should improve existing menu to include a wide variety of foods. Further, repetition of menu should be minimized in order to increase food intakes by the schoolchildren;
iv. In order ensure good quality of food commodities supplied to schools, the Department should institute strong quality control system in school feeding by involving BAFRA as an independent assessor;
v. The Department should ensure that all school have adequate storage facilities to store food items; and
vi. In order to provide accurate and correct estimation of quantities of food items required by schools, the Department should make effective use of 'Food Commodity Reports' submitted by schools.

Conclusion

Notwithstanding the positive contributions of SFP and the initiatives of the Department of Education, the RAA, while carrying out nutritional content analysis, observed that there is lack of standard dietary requirement prescribed for schoolchildren. Due to which, the schools cannot ensure that nutrient intakes meet the requirements. Furthermore, systematic monitoring system was lacking to review and ascertain the micronutrient deficiencies among schoolchildren in the country. School menus did not include variety of foods and the menu cycle was repeated day in and out throughout the academic year. In addition, lack of strong

quality control system in school feeding management and lack of appropriate storage facilities in schools were also noted.

The Department of School Education's initiative of engaging in-house Nutritionist in nutrition planning and proposal for signing MoU with BAFRA for quality control will certainly go a long-way in improving SFP as well as improving the nutritional condition of schoolchildren. Introduction of fortified rice on pilot basis by WFP in some schools is also expected to address the nutrient deficiencies to certain extent. Nevertheless, there is a need for development of minimum dietary requirement standard for students besides instituting strong monitoring and inspection mechanism to ensure that all schools comply with the standard.

CHAPTER 1: ABOUT THE AUDIT

1.1. Mandate

The RAA conducted the audit of SFP as mandated by the Constitution of the Kingdom of Bhutan and Audit Act of Bhutan 2006 under the following Article and Section:

a. Article 25 (1) of the Constitution of the Kingdom of Bhutan and Section 3 of the Audit Act of Bhutan 2006 provide, "There shall be a Royal Audit Authority to audit and report on the economy, efficiency, and effectiveness in the use of public resources"; and

b. Section 38 (b) of the Audit Act of Bhutan 2006, under the 'functions of the RAA' states that, the Authority shall, "Conduct Performance Audit to ascertain and report on the economy, efficiency and effectiveness of the operations of agencies audited".

1.2. Objectives of the audit

The audit was carried out with an overall objective of ascertaining economy, efficiency, and effectiveness in RGoB fully funded SFP. In order to meet the overall objective, the audit was focused on the following secondary objectives:

a. To ascertain whether the SFP helped in improving nutrition and reducing malnutrition in schoolchildren;
b. To ascertain whether school meals meet the nutritional requirements of school going children;
c. To assess whether school meals are planned and prepared giving due diligence to the nutritional requirements of schoolchildren;
d. To assess the level of interventions and initiatives to improve schoolchildren nutrition;
e. To assess whether proper quality assurance is in place in order ensure quality of food items procured for school meals; and
f. To assess whether food commodities are stored properly.

1.3. Audit scope and limitations

Schools with SFP fully funded by RGoB were selected as samples for audit including autonomous schools. WFP funded and Central schools were excluded from the sample of schools. Further, feeding schools with high population of students and history of nutrition deficiency related diseases outbreaks were included in the sample. Seven Dzongkhags (Chukha, Lhuentse, Monggar, Pemagatshel, Samdrupjongkhar, Trashigang, Dagana and Zhemgang) were also selected for field visits. A group of doctors carried out a study in these Dzongkhags from February to November 2014 with history of peripheral neuropathy (PN) outbreaks due to high prevalence of Thiamine (Vitamin B1) deficiency in school children.

The findings and opinions discussed in this report are based on field visits made to sampled schools and the information made available to the RAA by the DSE, FCBL, and 16 schools.

The following were the schools selected for field visits:

Sl. No.	School	Dzongkhag	Sl. No.	School	Dzongkhag
1.	Chapcha MSS	Chukha	9.	Tsebar LSS	Pemagatshel
2.	Chungkha PS	Chukha	10.	Martsala MSS	Samdrupjongkhar
3.	Daga HSS	Dagana	11.	Karmaling MSS	Samdrupjongkhar
4.	Dungkhar PS	Lhuntse	12.	Denchukha LSS	Samtse
5.	Minjey LSS	Lhuntse	13.	Bidung LSS	Trashigang
6.	Mongar HSS	Mongar	14.	Wamrong LSS	Trashigang
7.	Kengkhar LSS	Mongar	15.	Gomphu LSS	Zhemgang
8.	Pemagatshel MSS	Pemagatshel	16.	Yebilaptsa MSS	Zhemgang

Table 1.1: Showing the list of schools selected for audit

1.4. Audit Methodology

The RAA applied various methods and approaches but not restricted to the following:

a. Literature review of nutrition related papers;
b. Analytical Review of any statistical data provided by the agencies;
c. Interview of key/relevant officials to collect ground information related to school feeding programme;
d. Documentary review of manual, guidelines, rules & regulations; and
e. Field visits to a selected sample of schools.

CHAPTER 2: INTRODUCTION

2.1. Background

Education is considered as one of important factors for eradicating poverty and thus, the world is striving hard to provide free and quality education to children regardless of their economic backgrounds. Bhutan is also not an exception and has also considered education as one of important factors for achieving our development philosophy, "Gross National Happiness" as well as for reducing poverty. It has given priority to education sector ever since the inception of economic development plans in 1961. Bhutan started with 11 schools[2] and over the time the number of schools increased to 539 schools and the number of students also increased from 400 to 172,857 students as of 2015[3].

Schools now play a major role in shaping the health behaviors of children and adolescents as they spend a large portion of their time at school. Healthy and nutritious food should be a high priority on every school agenda because of the positive impact on child physical health, cognition development, and subsequent enhanced learning abilities. Studies have shown that balanced diet has a direct effect on child's ability to learn better[4] while improving child well-being at the same time[5]. It can be understood that improved nutritional quality of diet can make children's health better, which ultimately supports in improving academic performance. Additionally, nutritional diets will also curb in causing malnutrition, stunting, thinness, deficiency, etc. Furthermore, good nutrition also fosters mental, social and physical wellbeing, contributing to increased self-esteem and a positive body image.

Recognizing the importance of schools in playing a vital role in contributing to children's health, growth and other developments, the Royal Government of Bhutan started SFPin 1976 to support schools in providing meals to school children with full support from World Food Programme (WFP).

2.2. School Feeding Programme (SFP)

The SFP is a collaborative initiative between the WFP and the RGoB that was started 40 years ago[6]with an aim to increase enrollment and attendance rates and also to improve the short term nutritional status of school going children. Apart from these, the programme also aims to encourage children to attain school education, alleviate short-term hunger, and improve the health and learning capacity of the students.

WFP has been supporting Bhutan since 1976 and was providing school meals across the country with the following purposes:

- to combat malnutrition,
- increase enrollment, and

[2]Operational Guidelines for Central Schools, Ministry of Education, Dec 2014

[3]Annual Education Statistics 2015, Ministry of Education

[4]Long and Short-term Benefits of Healthy School Food across the School Day, School Food Trust, 2008.

[5]Food and nutrition policy for school: A tool for the development of school nutrition programmes in the European Region, World Health Organization, 2006.

[6] School Feeding Management Book for Bhutan, 2015, Department of School Education, Ministry of Education

- reduce gender and economic inequality[7]

School meals have the following benefits[8]:

- **Safety Nets**: School meals help families to educate their children and protect their food security in times of crisis breaking the cycle of hunger and poverty in most vulnerable areas.
- **Nutrition:** School meals are often the only regular and nutritious meal a child receives. Without them, hunger and micronutrient deficiencies can cause irreversible damage to their growing bodies. When school meals are combined with deworming and micronutrient fortification, especially when tailored to specific nutritional needs - such as those for adolescent girls - that investment is multiplied.
- **Education:** A daily school meal provides a strong incentive to send children to school and keep them there. It allows children to focus on their studies rather than their stomachs and helps to increase school enrollment and attendance, decrease drop-out rates, and improve cognitive abilities.
- **Local Agriculture:** As often as possible, food is bought locally, which benefits local farmers and the whole community while enhancing the sustainability of the programme.

Since 2014, WFP has been gradually handing over the responsibility of providing school meals to the Ministry of Education and will completely handover all its beneficiaries by end of 2018 as shown in the following table.

WFP School Feeding Progamme Phase out Plan		
Year	Number of Heads to feed	Offload annually
2015	25,000	
2016	22,000	3,000
2017	17,000	5,000
2018	12,000	5,000

Table 2.1: showing phase out plan of WFP (Source: School feeding management handbook for Bhutan, MoE and FCBL)

In 2015, the RGoB supported 25,000 children with school meals while WFP concurrently provided food assistance directly to another 25,000 children[9]. However, by beginning of 2019, the Government needs to feed 50,000 school children.

[7] https://www.wfp.org/countries/bhutan, World Food Programme

[8] https://www.wfp.org/school-meals, World Food Programme

[9] School Feeding Management Handbook for Bhutan, Ministry of Education

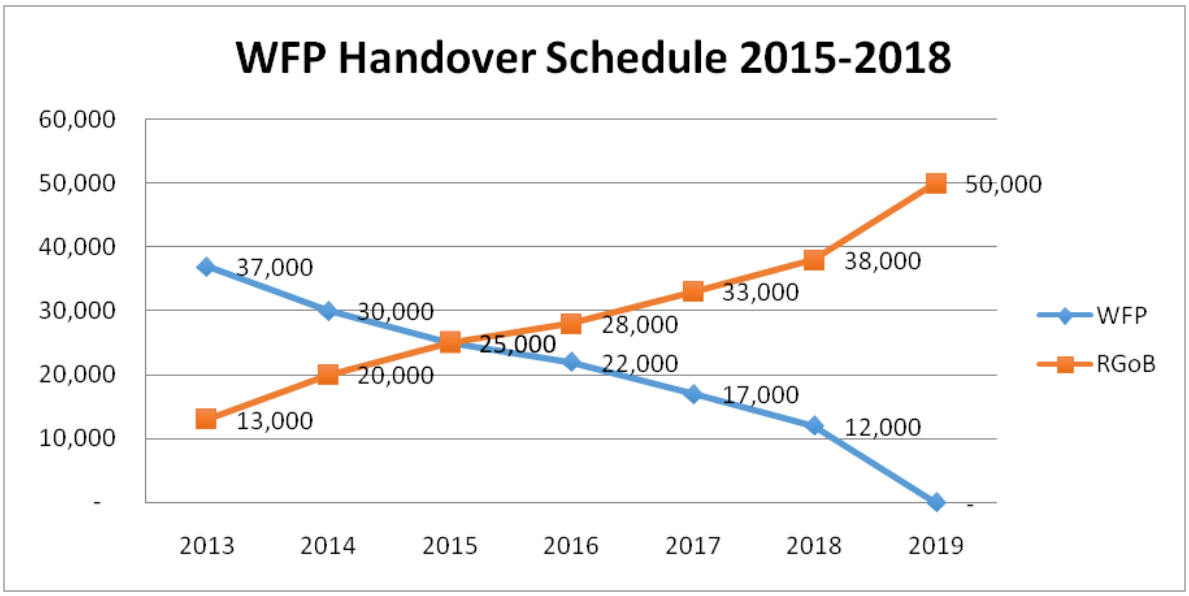

Figure 2.1: showing WFP Handover Schedule 2015-18 (Source: School feeding management handbook for Bhutan, MoE)

2.3. Budget and Expenditure of School Feeding Program of RGoB

Since July 2014, the government implemented the centralized procurement system of food items for schools, where 60 percent of the students' stipend (Nu 1,000) was released to Food Corporation of Bhutan Ltd. (FCBL) to supply nine non-perishable food items (rice, oil, pulses, chickpeas, soya meat, milk powder, sugar, salt, and tealeaves). The remaining 40 percent was released to their respective schools for procurement and supply of perishable foods.

The budget and expenditure for the RGoB funded school feeding programme in 61 schools for two financial years is given in the following table.

FY	Object Code Name	Budget	Expenditure
2014-15	Stipends	172,927,000.00	136,506,846.13
	Op. Exp – Transportation	14,006,000.00	14,005,409.74
2015-16	Stipends	192,906,000.00	134,792,342.35
	Op. Exp – Transportation	19,454,000.00	10,381,001.66
	Total	399,293,000.00	295,685,599.88

Table 2.2: Showing budget and expenditure for RGoB funded School Feeding Programme for 2014-15 and 2015-16 (Source: PEMS)

From the *Table 2.2*, it can be seen that the expenditure for 2015-16 has decreased compared to that of 2014-15 when it should have been increasing with the increase of number of students taken over by RGoB from WFP.

The following tables (*Table 2.3 and 2.4*) show the supply of 9 items from FCBL for 2014 and 2015. The supply of 9 essential items from FCBL amounted to Nu. 72.18 millions in 2014 and Nu. 166.48 millions in 2015.

Sl. No	Items	2nd Quarter			3rd Quarter			Total		Remarks
		Qty (MT)	Rate/MT	Value (Mill)	Qty (MT)	Rate/MT	Value (Mill)	Qty (MT)	Amount (Mill)	
1	*Rice*	956.76	23960.0	22.92	584.05	22240.0	12.99	1540.81	35.91	In 2014 FCBL has supplied nine items for 2nd and 3rd quarters only for 81 Schools with 21946 numbers of students under RGoB Schools Feeding Program
2	*Soya Chunk*	35.91	61800.0	2.22	27.06	61700.0	1.67	62.97	3.89	
3	*Chick Peas(Blck hana)*	27.64	39700.0	1.10	17.30	34920.0	0.60	44.94	1.70	
4	*Split Motor Dal*	127.57	38500.0	4.91	78.13	33860.0	2.65	205.69	7.56	
5	*Oil*	95.68	70000.0	6.70	70.94	64400.0	4.57	166.61	11.27	
6	Salt	10.63	6070.0	0.06	23.69	7770.0	0.18	34.32	0.25	
7	Tea Leaf	6.38	130000.0	0.83	3.86	120000.0	0.46	10.24	1.29	
8	Sugar	21.26	37080.0	0.79	12.85	35430.0	0.46	34.11	1.24	
9	Milk powder	21.26	256805.3	5.46	13.33	270900.0	3.61	34.59	9.07	
	Total	**1303.08**		**44.99**	**831.20**		**27.19**	**2134.28**	**72.18**	

Table 2.3: Showing supply of 9 items under RGoB School feeding programme for the year 2014 (Source: FCBL)

Sl No	Items	Jan - Jun		Jul - Sept		Oct - Dec		TOTAL		Remarks
		Qty (MT)	Amount (Mill)	Qty (MT)	Amont (Mill)	Qty (MT)	A (Mill)	Qty (MT)	Amount (Mill)	
1	*Rice*	1855.24	35.34	1007.13	21.11	1046.89	21.94	3909.26	78.39	In 2015 FCBL has to supply nine items for 105 Schools with 30175 numbers of students under RGoB Schools Feeding Program
2	*Soya Chunk*	32.98	1.44	17.90	0.86	18.61	0.90	69.50	3.20	
3	*C/Pea*	53.60	2.10	29.09	1.25	30.24	1.30	112.93	4.66	
4	*Yellow Split Pea*	247.37	7.93	134.28	4.74	139.58	4.92	521.23	17.60	
5	*Oil*	185.52	13.86	100.71	8.28	104.69	8.60	390.93	30.74	
6	Salt	61.84	0.46	33.57	0.27	34.90	0.28	130.31	1.01	
7	T/Leaf	8.25	0.91	4.48	0.54	4.65	0.56	17.37	2.01	
8	Sugar	41.23	1.24	22.38	0.74	23.26	0.77	86.87	2.76	
9	M/Powder	41.23	11.77	22.38	7.03	23.26	7.31	86.87	26.11	
	Total	**2527.25**	**75.06**	**1371.94**	**44.82**	**1426.09**	**46.59**	**5325.28**	**166.48**	
Number of School in 2015:		29HSS, 40MSS, 34LSS,1PS,1Inst (105) comprising of 15263 boys and 14912 girls								
Sl. No. 1-5 in the table above in italics were some of the items that FCBL was directed to focus by the 67th *Lhengye Zhungtshog*										

Table 2.4: Showing supply of 9 items under RGoB School feeding programme for the year 2015 (Source: FCBL)

2.4. Feeding schools and beneficiaries

As of July 2016, there are 110 feeding schools which are fully funded by RGoB, out of which 49 are Central schools as shown in *Figure 2.2*.

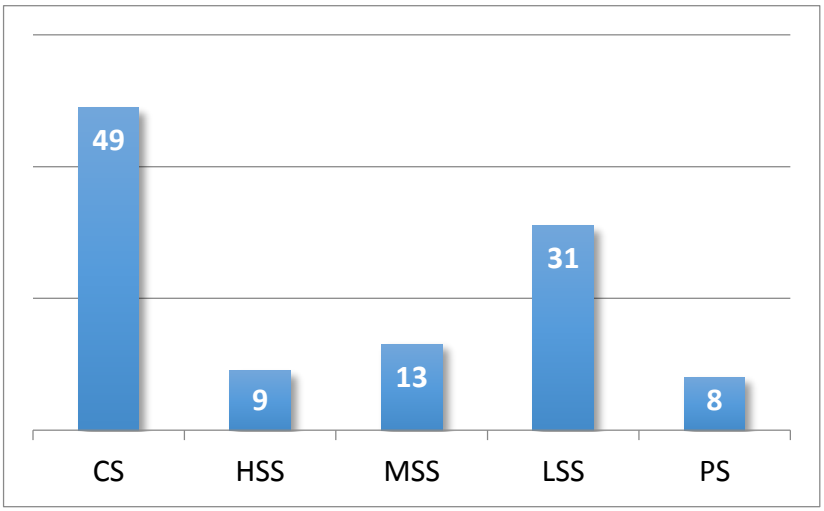

Figure 2.2: showing RGoB funded feeding schools in 2016 (Source: DSE, MoE)

The 61 RGoB funded feeding schools and its 13644 students are represented Dzongkhag-wise in the *Figure 2.3*.

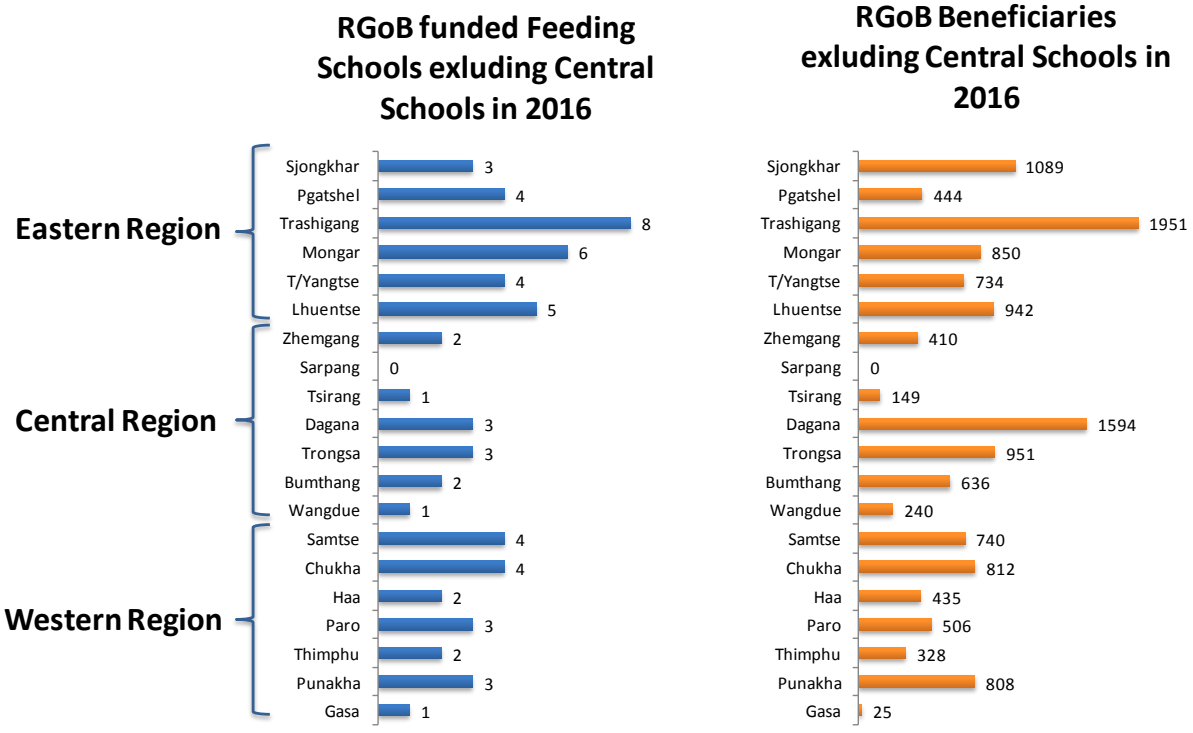

Figure 2.3: showing RGoB funded Feeding Schools and Stipend Boarders 2016 (Source: DSE, MoE)

As apparent from the *Figure 2.3*, the highest number of feeding schools and students are in Trashigang and the lowest is in Gasa. Incidentally, there are no feeding schools in Sarpang Dzongkhag because the feeding schools were converted to central schools.

CHAPTER 3: AUDIT FINDINGS

This chapter is divided into two parts. **Part 3.1** highlights the achievements made by the Department of School Education in providing school meals and improving nutritional values of the meals and also best practices observed in selected sample schools. **Part 3.2** discusses deficiencies and shortcomings noted by the Royal Audit Authority.

3.1. Achievements and Good practices

The Department of School Education (DSE) has made substantial achievement in providing school meals in 110 schools (as of 2016) through SFP, which was initiated in collaboration with WFP. Since 2014, WFP has been gradually handing over the responsibility of providing school meals to the Ministry of Education and will completely handover all its beneficiaries by 2018. Thus, from 2018, RGoB has to support meals in all boarding schools.

SFP is playing a major role not only in physical development but also mental development of school going children. It also indirectly helps those economically deprived children in having access to education and at the same time preventing short-term hunger. SFP helps in providing improved nutritional meals to school children, which in turn improves the performance by increasing concentration and attendance in classes as proved in many studies. Although SFP does not directly link to **Sustainable Development Goals**, it somehow supports in achieving **SDG 1 & 2** i.e. '*End Poverty in all its forms everywhere*' and '*End hunger, achieve food security and improved nutrition and promote sustainable agriculture*' respectively.

Apart from these positive contributions by SFP, there are also best practices practiced in schools and achievements made by the DSE while implementing SFP. Some of these are highlighted below:

a) The Department developed School Feeding Management Handbook to provide guidance on managing SFP by setting minimum standards and best practices;
b) In order to improve the nutrition of meals in schools and to inculcate the value of education beyond classrooms and also to become self-sufficient, the School Agriculture Programme (SAP) was introduced in most of the boarding schools in partnership with the Ministry of Agriculture and Forests;
c) Initiated the supplementation programme of ***Iron, De-worming, Vitamin A*** in schools in collaboration with the Ministry of Health;
d) Meals were made mandatory in schools by the school management;
e) Kengkhar Lower Secondary School, Tsebar Lower Secondary School, Karmaling Middle Secondary School, and Bidung Lower Secondary School adopted 'Zero Waste or Clean Plate Policy', which encourages students to take only the amount they can consume and inhibits plate wastage;
f) Yebilaptsa Middle Secondary School bought refrigerator to store vegetables with savings from variety shows;
g) Schools have encouraged local produce and have benefitted local communities through procurement of vegetables from local farmer cooperatives; and
h) Schools had provided therapeutic diet for students suffering from ulcer disease.

3.2. Deficiencies and shortcomings

Besides good practices prevailing in the schools and achievements made by the Department in improving the school feeding programme, the RAA also noted deficiencies and shortcomings, as highlighted below, which require further improvement.

3.2.1. Nutrition

Nutrition is very essential for physical health and intellectual development of every individual as studies have shown that poor nutrition can negatively impact the health status and productivity. Good nutrition and health are powerful influential factors for child's learning and performance. According to the facts and figures given by United Nations[10], one in nine people in the global population are undernourished and one in four of the world's children are stunted and also 3.1 million children die every year due to poor nutrition. Thus, in order to reduce long term impacts of nutritional deficiencies, it is important to improve nutritional status of children using various means and strategies.

While assessing the effectiveness of SFP in improving the nutritional status of schoolchildren in feeding schools funded by RGoB, the following deficiencies were observed:

3.2.1.1. Absence of standard dietary requirement for schoolchildren

Vitamins and minerals are vital micronutrients for healthy body and mind. Therefore, it is essential to assess whether students are getting adequate amount of nutrients. This can be done by checking whether the daily intake of nutrients meets the Recommended Dietary Allowance (RDA). However, there was no such standard developed or adopted for SFP in Bhutan. Thus, the minimum nutrient requirement for schoolchildren is not defined.

The RAA also carried out the nutritional content analysis of food basket provided in schools (shown in *Table 3.1)* to ascertain whether the daily nutrient intake by the schoolchildren meets the recommended daily requirement of children and adolescents in different age groups. For analysis purpose, the RAA applied the RDA from **Food and Nutrition Board, Institutes of Medicine, National Academies**, which is a standard for nutrients requirement.

The RAA could not carry out the actual dietary recall due to lack of data and expertise in this area. Thus, the quantities used in analysis were totally based on the ration scale standard developed by the Ministry of Education except vegetables, which was calculated based on the quantities consumed in seven schools out 16 sample schools selected for review where complete information was available. Meat item was not considered for the analysis because it was not provided regularly. *The results of this content analysis may therefore not be representative to all schools particularly due to availability or otherwise of vegetables in different places in different seasons.*

[10] http://www.un.org/sustainabledevelopment/hunger/

Food Commodities	Qty. (g)	Energy (Kcal)	Fat (g)	Iodine (µg)	Iron (mg)	Protein (g)	Riboflavin (mg)	Thiamine (mg)	Vit A (µg)	Vit B12 (µg)	Vit B6(mg)	Vit B9 -Folic Acid (mg)	Vit C (mg)	Zinc (mg)
Rice	100[11]	332	0.4		0.8	6.7	0.03	0.11	0		0.3	11.8	0	1.3
	450[12]	1494	1.8	0	3.6	30.15	0.135	0.495	0	0	1.35	53.1	0	5.85
Pulses	100	338	1		9	28.1	0.25	0.48	12	0	0.54	0	4.4	4.78
	60	202.8	0.6	0	5.4	16.86	0.15	0.288	7.2	0	0.324	0	2.64	2.868
Oils	100	900	100	11	0	0	0	0	0	0	0	0	0	0
	45	405	45	4.95	0	0	0	0	0	0	0	0	0	0
Chickpeas	100	364	6	0	6.2	19.3	0.21	0.48	20	0	0.54	0	4	3.43
	13	47.32	0.78	0	0.806	2.509	0.0273	0.0624	2.6	0	0.0702	0	0.52	0.4459
Cheese	100	378	29.2	28.1	0.5	27.5	0.36	0.02	284.6	1.79	0.08	10.3	0.14	3.76
	3	11.34	0.876	0.843	0.015	0.825	0.0108	0.0006	8.538	0.0537	0.0024	0.309	0.0042	0.1128
Sugar	100	392	0	0	0.3		0	0	0	0	0	0	0	0.1
	10	39.2	0	0	0.03	0	0	0	0	0	0	0	0	0.01
Salt	100	0	0	6	0	0	0	0	0	0	0	0	0	0
	15	0	0	0.9	0	0	0	0	0	0	0	0	0	0
Soya Chunk	100	407	19.1	0	6.9	36.9	0.52	0.99	2	0	0.38	217.7	0	4.3
	17	69.19	3.247	0	1.173	6.273	0.0884	0.1683	0.34	0	0.0646	37.009	0	0.731
Vegetables	100	19	0.2	0	1	0.8	0.13	0.05	119	0	0.11	40.8	25.71	0.49
	298.49	56.71	0.60	0	2.98	2.39	0.39	0.15	355.20	0.00	0.33	121.78	76.74	1.46
Milk Powder	100	70	3.8	0	0	1.8	0	0	0	0.02	42	10.5	0	0.42
	10	7	0.38	0	0	0.18	0	0	0	0.002	4.2	1.05	0	0.042
Total intakes (regular meal without meat):		**2332.563**	**53.280**	**6.693**	**14.009**	**59.185**	**0.800**	**1.164**	**373.881**	**0.056**	**6.340**	**213.252**	**79.906**	**11.522**

Table 3.1: Showing nutritional content analysis of food basket (ration scale) provided in schools

[11] The nutrients value are taken from WFP Food Composition Table (FCT)

[12] Qty taken from **Standard Ration Scale** and nutrients values calculated using FCT values

	Energy (Kcal)	Fat (g)	Iodine (µg)	Iron (mg)	Protein (g)	Riboflavin(mg)	Thiamine (mg)	Vit A (µg)	Vit B12 (µg)	Vit B6(mg)	Vit B9 -Folic Acid (mg)	Vit C (mg)	Zinc (mg)
Total intakes (regular meal without meat):	**2332.563**	**53.280**	**6.693**	**14.009**	**59.185**	**0.800**	**1.164**	**373.881**	**0.056**	**6.340**	**213.252**	**79.906**	**11.522**
RDA for children (4-8 yrs)	**2100**	**25-35**	**90**	**11**	**19**	**0.6**	**0.6**	**400**	**1.2**	**0.6**	**200**	**25**	**3**
MALES													
9-13 yrs (RDA) **	**2100**	**25-35**	**120**	**8**	**34**	**0.9**	**0.9**	**600**	**1.8**	**1**	**300**	**45**	**8**
14-18yrs (RDA)	**2100**	**25-35**	**150**	**11**	**52**	**1.3**	**1.2**	**900**	**2.4**	**1.3**	**400**	**75**	**11**
19-30yrs (RDA)	**2100**	**20-35**	**150**	**8**	**56**	**1.3**	**1.2**	**900**	**2.4**	**1.3**	**400**	**90**	**11**
FEMALES													
9-13 yrs (RDA)	**2100**	**25-35**	**120**	**8**	**34**	**0.9**	**0.9**	**600**	**1.8**	**1**	**300**	**45**	**8**
14-18yrs (RDA)	**2100**	**25-35**	**150**	**15**	**46**	**1**	**1**	**700**	**2.4**	**1.2**	**400**	**65**	**9**
19-30yrs (RDA)	**2100**	**20-35**	**150**	**18**	**46**	**1.1**	**1.1**	**700**	**2.4**	**1.3**	**400**	**75**	**8**

*Table 3.2: Showing the result of nutritional content analysis carried out in Table 3.1. **RDA for different age groups used from Food and Nutrition Board, Institutes of Medicine, National Academies*

Apparently, *Table 3.2*, the result of the analysis, shows that in case of energy, the daily nutrient intake meets the requirement irrespective of age groups (**shown in green colour**). This could be because our diets are mostly staple food i.e. rice. On the other hand, the analysis also showed that daily nutrient intakes of ***Iodine***, ***Vitamin A***, and ***B12*** were relatively less than the recommended requirement in all age groups (**shown in red colour**). Similarly, the intakes of ***Riboflavin*** and ***Folic Acid*** (***Vitamin B9***) met the daily requirement of children aged between 4 to 8 years but did not meet the requirement of those children of age more than 8 years. In case of ***Thiamine***, the requirement was not met for boys with age group 14 years and above and for girls with age group of 19 years and above. Since anaemia is mostly common amongst girls, it is crucial for girls to take diet that contains more ***Iron*** nutrients. In contrary, the content analysis revealed that the daily intake of ***Iron*** did not meet the recommended requirement of girls with age group of 14 years and above.

Inadequate nutrients could result in malnutrition and micronutrient deficiencies amongst schoolchildren. Malnutrition and micronutrient deficiencies could have long lasting and adverse impacts on health status, productivity, and social aspects of schoolchildren.

Furthermore, lack of standard for dietary requirement would impede schools in providing school meals that meet dietary needs of the schoolchildren.

The DSE responded that the Ration Scale and Standard Menu were worked out by the nutritionist of the Ministry of Health in absence of qualified nutritionist in the Department. The Department also mentioned that while preparing Ration Scale and Standard Menu, the nutritionist had considered food items that contain certain essential micro and macronutrients needed for a balanced diet. Thus, the Standard Menu prescribed by the Division meets the Recommended Daily Allowances (RDA). However, the Department also explained that actual menus adapted by school may not meet the RDA given that school authorities do not have the expertise.

Further, the Department mentioned that in absence of a qualified nutritionist, proper nutritional requirements in the foods served to schoolchildren could not be determined. However, the Department now has a nutritionist from February 2017, which they are hoping to improve in the dietary intakes by the schoolchildren. Moreover, the Department also stated that a study on dietary assessment is currently underway with technical assistance from WFP.

The RAA appreciates the initiatives undertaken by the Department to prepare Standard Menu that meets the nutrients needed for a balanced diet and also to initiate study on dietary assessment. Nevertheless, the Department should take a lead role in ensuring that schools' menu also meet the nutrients requirement of the schoolchildren considering the importance of essential micro and macronutrients for their growth and productivity.

3.2.1.2. Lack of mechanism to monitor nutritional status of schoolchildren in schools

> "*Like under nutrition, micronutrient deficiency or hidden hunger is a violation of a child's right to a standard of living adequate for the child's physical and mental development*" – Olivier De Schutter, former UN special rapporteur on the right to food, 2013.

Nutritional deficiency is also known as hidden hunger and it is commonly caused due to poor diets or inadequate intake of food (Global Hunger Index 2014). According to GHI, diets based mostly on staple crops such as maize, rice, wheat, that give a large amount of energy as compared to other essential vitamins and minerals, often result in hidden hunger. Poor health and micronutrient deficiency among schoolchildren inhibit them from reaching their physical and intellectual potential. Thus, having access to wide range of nutritious foods such as animal-source foods (meats, fish, eggs, and diary), fruits, vegetables is very crucial to meet adequate nutrition. Further, it is also important to study and monitor the nutritional status of the schoolchildren so that appropriate actions can be taken if there is prevalence of micronutrient deficiency.

There is, however, no systematic monitoring system in place to review and ascertain the micronutrient deficiencies among schoolchildren in the country. In absence thereof, required interventions cannot be made by the authorities thereby affecting physiological and cognitive development of the children. Lack of periodic monitoring could be one of contributing factors of PN outbreaks in the schools.

Further, the RAA noted health check-ups being carried out in schools on regular intervals to calculate BMI and BMI reports were either submitted to the DSE or Dzongkhag Education Officer in the individual Dzongkhag Administration. Although the BMI reports give some indications of malnutrition, there were no interventions from the authorities concerned but some schools took initiative in providing extra eggs or milk to those students, who were suffering from thinness or severe thinness according to BMI reports.

3.2.1.3. Absence of effective preventive measures against Peripheral Neuropathy outbreaks

> "*Malnutrition and Micronutrient Deficiencies are causes and a consequence of poverty*"-**Asian Development Bank**

Several cases of Peripheral Neuropathy (caused by micronutrient deficiency) outbreaks have been reported in various districts of Bhutan (these outbreaks mostly occurred in schools -Department of Public Health) since 1998. These outbreaks were suspected to be caused by nutrient deficiencies. Even in 2016, the RAA observed students with PN cases admitted in Haa BHU besides the case reported by media in DechenTshemo Central School. Following the outbreak in Orong Higher Secondary School, a study was carried by the Department of Public Health to find the prevalence of thiamine and cobalamin deficiencies in boarding schools from Dzongkhags, where there were outbreaks of PN. The study was done on students aged between 9 to 22 years in seven dzongkhags of Chukha, Lhuentse, Mongar, Pemagatshel, Samdrupjongkhar, Trongsa and Zhemgang[13]. The study found high prevalence of thiamine and cobalamin deficiencies in schoolchildren in those Dzongkhags where the

[13] Prevalence of Thiamin and Cobalamin deficiency in boarding schoolchildren from districts of Bhutan with previous history of peripheral neuropathy outbreaks (Department of Public Health, MoH)

study was performed. The study also provided recommendations to various agencies to address nutritional deficiencies in schoolchildren.

Despite repetitive outbreaks of PN, the RAA noted that effective preventive measures were not found initiated by the agency concerned to prevent PN outbreaks. Moreover, the recommendations such as fortification of food with micronutrients, increasing variety and amounts of animal-sourced proteins, legumes, fruits & vegetables, provided by the study team were not implemented by the agency concerned to improve nutritional status. Frequent outbreaks of PN in schools could be due to lack of monitoring of nutritional status of schoolchildren.

The DSE explained that in order to combat the incidence of PN, the School Health and Nutrition Division had prescribed the inclusion of soya chunks in the menu since soya chunks have high 'Thiamine' content that prevents PN. However, most of the students found it unpalatable and refused to eat. The Division then introduced boiled rice in the menu, which is considered as a suitable substitute to soya. Since the acceptance of boiled rice was there amongst schoolchildren, it is now mixed with raw rice at the ratio of 50:50. The Division expressed that the best source of thiamine is pork but unfortunately very few students consume as most of them have turned vegetarian.

Further, the Department mentioned that beginning of 2017, the Division has piloted supply of fortified rice in all the WFP schools and soon the initiative will be rolled out to all feeding schools supported by the RGoB if found effective.

The RAA appreciates a series of measures undertaken by the Department to combat the outbreaks of Peripheral Neuropathy in schools. The RAA also acknowledges the initiative taken to supply fortified rice in all WFP schools as well as planning to roll out in RGoB feeding schools, which would address in minimizing the outbreaks of micronutrient deficiencies in schools. Nevertheless, the Department should monitor nutritional status of the schoolchildren so as to prevent occurrence of such cases.

3.2.1.4. Ineffective menu planning

Although healthy school meals on their own cannot tackle nutrition related diseases, they do contribute in improving the nutrition and health of schoolchildren. School going children are adolescents that need plenty of energy and nutrients for proper physical and mental growth. Thus, it is very crucial to ensure that they eat a wide variety of foods that provide good amount of energy and nutrients.

The present school meal plate comprises of rice, mixed vegetable curry, and lentils especially for lunches and dinners. Breakfast normally consists of fried rice with tea and sometimes rice and chickpeas.

In order to improve nutritional condition particularly in schoolchildren, it is vital for schools specifically boarding schools to make proper menu planning and include a variety of foods that provide good nutrients and balanced diets as good nutrition and health support learning and educational performance of children[14].The draft Bhutan Dietary Guidelines[15] for school children also recommends consuming a wide variety of foods from four major groups – starchy food, fruits and vegetables, meat and alternatives, milk and dairy products. Even Ministry of

[14] School Feeding Programs and Development –Are We Framing the Question Correctly– Harold Adlerman and Donald Bundy, 2011

[15]Draft Bhutan Dietary Guidelines for Schoolchildren 2015, Department of Public Health, Ministry of Health

Education has also prepared a minimum standard recommended menu to be used by feedings schools. The recommended menu comprises of a variety of foods including 2 times meat and egg in a week.

Yet, during the field visit to 16 sample schools, the RAA noted the following inadequacies in menu planning:

i. Limited variety of foods included in school menu – "Just one option"

The schools that the RAA visited did not follow the recommended menu but they have developed their own menus. Some of the schools management cited insufficient stipend as one of the reasons for not using the recommended menu. Others indicated unavailability of variety of vegetables in some schools located away from markets.

The school diet plate in schools consisted of "Just one Option" menu throughout the year and it did not include several options with a variety of foods. Moreover, fruits were rarely on the menu. It comprises of rice, mixed vegetable curry, and lentils especially for lunches and dinners. Breakfast was normally served fried rice with tea and sometimes rice and chickpeas. Meat (mostly beef and chicken) was served once in a week in those schools which are not far away from the markets while it was served once in a month in the schools which are away from the markets. Although school menus did provide vegetables during lunches and dinners, it was observed that most vegetables served were potatoes as discussed in *Para 3.2.1.5*.

While Bhutan Dietary Guidelines 2011 specifies requirement for well-balanced diet comprising more variety of foods, actual implementation of the same in the schools is lacking. Not having a variety of foods on the menu can lead to less intake of food by the schoolchildren because of monotonous meals repeated throughout the year, which in turn will affect nutritional intakes whereby impacting the physical and cognitive development of the children.

ii. Nutritional content analysis not carried for school menus

School menu should be prepared in such a way that it satisfies the nutritional requirement of schoolchildren. Moreover, school menu should be assessed for nutritional content to ensure that schoolchildren are provided with nutritionally balanced meals. Nevertheless, it was observed that school menus had not been prepared taking into account the nutritional requirements for children and more so nutritional content analysis of school menu has never been carried out. As a consequence, there is no validated information on whether schoolchildren are getting adequate or required nutrients thereby limiting opportunities to improve the food contents of school menu.

Absence of nutritional values or **Food Composition Table** (FCT) for Bhutanese foods and ***non-existence of minimum or recommended nutrient requirements*** have also aggregated in impeding effective preparation of menu as well as carrying out nutritional content analysis.

iii. Repeated menu throughout the year

In order to encourage more food intake amongst schoolchildren, it is very essential for school management to plan and set a menu cycle that does not repeat menu for a certain time period. However, during the field visits to 16 sample

schools, the RAA found that all school menus followed a one week cycle menu, which was repeated throughout the year.

Frequent repetition of menus could result in providing a low food variety and discouraging children from taking adequate portion due to food fatigue. This in turn could outcome in less intake of required nutrients.

iv. Less frequency of meats provided in schools

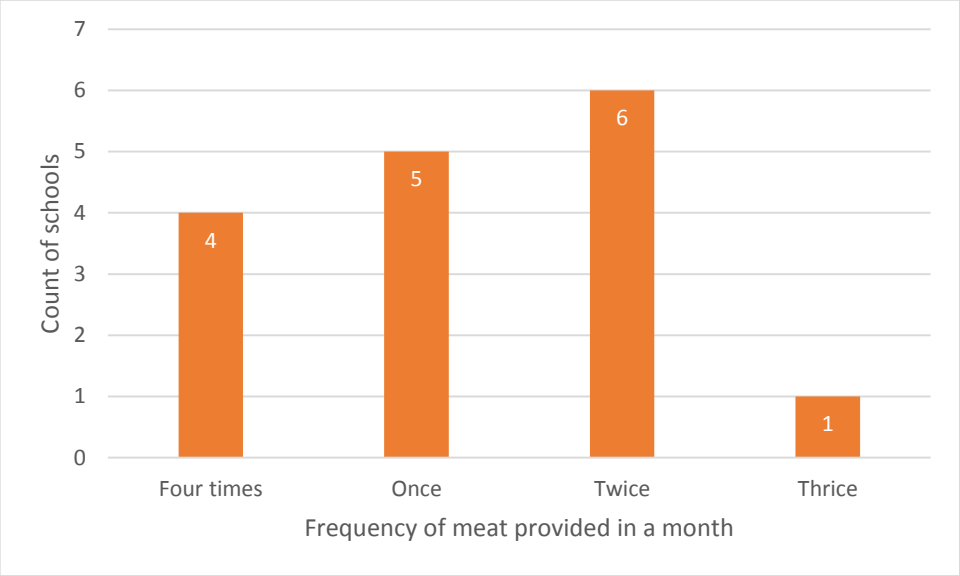

Figure 3.1: Bar Chart showing the frequency of meats provided in schools

Meat and its substitutes (soya beans or tofu) are good source of protein, fat, vitamin, and minerals according to Bhutan Food Based Dietary Guideline 2011 and the guideline also suggests taking 2-3 servings every day from this group. On contrary, during the field to 16 schools, the RAA observed that there was less frequency of meats served in schools (shown in the Figure 3.1). As seen from the chart, only four out of 16 schools provided meat four times in a month, which was mixed with vegetables. Similarly, one school served meat thrice in a month, six schools served twice, and five schools provided once in a month. In regards to less frequency of meat item being served in the schools, School Principals indicated that stipend for buying perishable items is not sufficient to accommodate more frequencies of meat. Moreover, they also mentioned that because of religious beliefs and other reasons, the trend of turning into vegetarian has become popular in schools especially amongst girls, which is a growing concern.

The Department initiated to substitute meats by supplying soya chunks but this initiative was found to be ineffective in serving the purpose because the RAA, while discussing with the students, noted that most of students were not very fond of soya chucks. This is also evident by quantities of damaged soya chunks reported in Food Commodity Reports (discussed in *3.2.2.3)*. Not taking meat or its substitutes could result in not getting adequate animal-source protein and vitamins that are required for physical growth and to overcome certain nutrient deficiencies.

3.2.1.5. Vegetables provided in schools vis-à-vis nutritional content of these vegetables

Vegetables are considered as one of the sources of nutritious food to meet good nutrition and so, it is essential to include different variety of vegetables in the school meals. While visiting selected sample schools, the RAA observed that the most common vegetables provided were potatoes, cabbage, radish, and pumpkins apart from chillies. This was corroborated by the data collected from the schools on vegetables to calculate the average consumption of vegetables by individual student. The analysis indicated that on an average, each student consumed 298.49grams of vegetables daily as shown in *Table 3.3.,* out of which, 160.75g was represented by potatoes.

Sl. No	Vegetable	Qty (g)	Percentage
1.	Potatoes	160.75	53.85%
2.	Beans	7.77	2.60%
3.	Chillies	9.79	3.28%
4.	Pumpkin	16.56	5.55%
5.	Radish	11.03	3.70%
7.	Saag (Spinach)	7.59	2.54%
8.	Squash	10.11	3.39%
9.	Tomatoes	5.48	3.98%
10.	Cauliflower	5.27	3.83%
11.	Onion	10.15	7.37%
12.	Cabbage	32.84	11%
13.	Others	21.15	7.09%
Total avg. vegetable consumed per student per day (g)		298.49	

Table 3.3: Showing different types of vegetables and quantities consumed by a student in a day

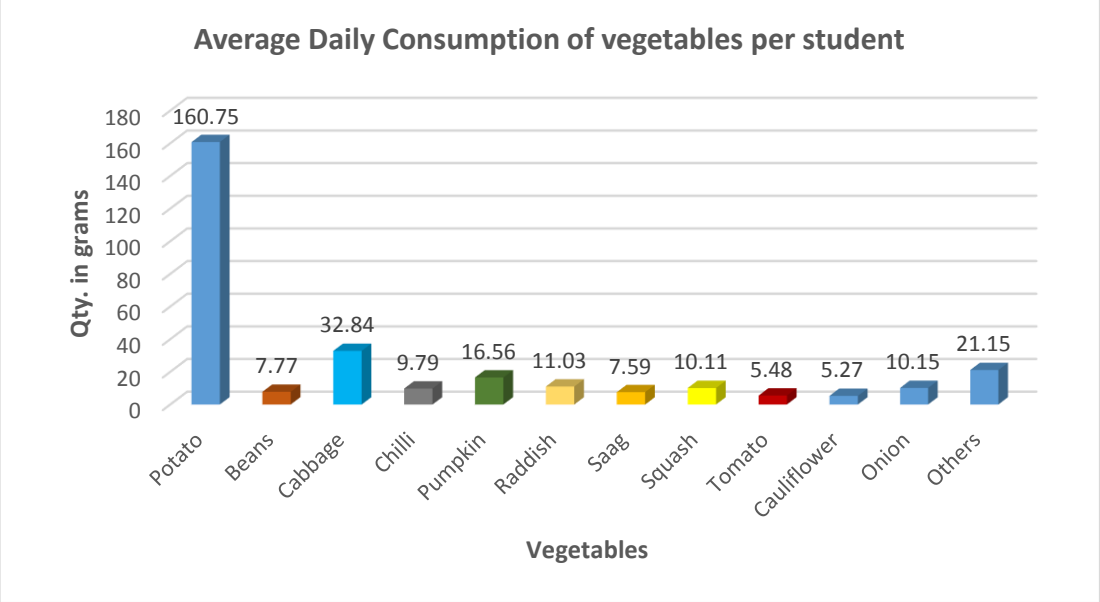

Figure 3.2: Bar Chart showing average daily consumption of different vegetables per student

The RAA also made an attempt to ascertain the nutrient compositions of vegetables provided in the schools as indicated in the *Table 3.4* so as to compare the vegetables consumed with the nutrient contents of those vegetables.

From *Table 3.*4, it can be seen that potato contains very limited micronutrients but more energy and macronutrients particularly carbs as opposed to other vegetables such as spinach, beans, and cauliflower. On the other hand, it may be transpired from the *Table 3.3* and *Figure 3.2* that potato constituted 53.85% of average daily vegetable consumption by a student whereas spinach and beans constituted only 2.54% and 2.60% respectively. Thus, appropriate balancing of daily vegetable composition may be necessary to maintain the required level of nutrients.

There is a need for review of adequacy of vegetables provided in the schools for appropriate interventions.

Vegetable	Energy (Kcal)	Protein (g)	Fat (g)	Carb (g)	Vit A (mcg)	Vit B6 (mg)	Vit C (mg)	Thiamin (mg)	Riboflavin (mg)	Folate (mcg)	Iron (mg)	Zinc (mg)
Beans	29	2.4	0.1	2.5	19	0.063	9.6	0.08	0.09	62	0.9	0.37
Cabbage	24	1.5	0.3	2.6	5	0.156	16.1	0.06	0.05	43	0.5	0.40
Chilli	45	2.8	0.1	5.9	10	0.230	102.3	0.03	0.05	10	1.6	1.97
Potato	66	1.2	0.2	14.0	2	0.277	19.1	0.08	0.09	18	0.5	0.79
Pumpkin	18	1.4	0.3	1.3	369	0.061	21.1	0.07	0.06	16	0.7	0.11
Radish	18	0.9	0.1	2.5		0.072	17.3	0.43		25	0.4	0.38
Spinach	26	3.0	0.5	0.9	409	0.195	21.2	0.03	0.09	194	2.2	0.90
Tomato	16	1.1	0.2	1.4	9	0.049	12.3	0.04	0.04	15	0.2	0.41
Cauli-flower	27	2.6	0.3	2.5	1	0.184	71.7	0.03	0.03	57	0.8	0.41
Onion	59	1.4	0.1	12.2	2	0.168	4.5	0.05	0.14	19	0.9	0.41

Note: The nutrient compositional data of vegetables is taken from FCT of Bangladesh, University of Dhaka, First Edition, June 2013

Table 3.4: Showing nutrient contents of different vegetables provided in schools.

3.2.2. Centralised School Feeding Programme Management

The centralised procurement system was initiated in 2014 following the WFP model in the provision and delivery of SFP. The procurement is only carried out for non-perishable nine items and it was introduced mainly to improve the quality of food items, attain higher economies of scale, timely delivery of food to schools, ensure uniform nutritional quality, and ease burden of procurement on school management.

In order to implement central procurement system, the MoE signed a Memorandum of Understanding (MoU) on 23rd March 2015 with the FCBL for provision of those aforementioned food commodities to beneficiary schools funded by RGoB. The Royal Government approved a stipend of Nu. 1000 per student per month to all boarding schools fully funded by RGoB. Under the MoU, the Ministry agreed to pay 60 percent of the total stipend per student for the supply of these items excluding transportation charges.

Notwithstanding the advantages of centralized procurement, the RAA noted some deficiencies in the supply chain process of Centralised School Feeding Programme which are discussed below:

3.2.2.1. Lack of Strong Quality Control System

For school students to have adequate nutrition intake, every food commodities supplied to various schools must be of good quality. And the supply of good quality food can be ensured only with the existence of an appropriate quality assessment mechanism in the food supply chain.

Since one of the objectives of centralised procurement is to improve the quality of food, the RAA ascertained the existence and effectiveness of food quality control mechanism in food supply chain and noted following deficiencies:

I. Non-involvement of third-party experts like BAFRA for quality assessment of food commodities.

The FCBL is one of the key players involved in SFP. Upon the review of supply chain process in SFP, the RAA observed that FCBL has been assigned with multiple responsibilities including **procurement** food commodities from international suppliers, **storage** and **distribution** of the supplies to various schools. Further, it was noted that third-party experts like BAFRA was not involved for **quality assessment** of food commodities in the supply chain process rather the same responsibility was given to FCBL. In fact, the School Agriculture, Feeding and Environment Division under DSE is responsible for monitoring the quality and safety of food commodities before dispatching to schools in coordination with BAFRA as per the SFMH.

Assigning multiple responsibilities to FCBL indicated absence of check and balance in the system. In other words, undertaking all three important responsibilities (***procurement, distribution and quality assessment***) by the same player i.e. FCBL in the supply chain particularly quality assessment is indicative of weak control mechanism. Due to non-involvement of third party for quality assessment of food commodities and with the practice of self-assessment by FCBL had resulted in supply of food commodities specifically yellow split peas and rice to schools, which get spoiled with a few weeks. Feeding schoolchildren with spoiled food would result in health issues and poor intake of nutrition.

Figure 3.3: Split-peas packed in May 2016 for 3rd quarter supplied in 4th quarter on 05/10/2016.

Figure 3.3 shows the pictorial evidence of an instance where yellow split peas packed in May 2016 for 3rd quarter which was actually delivered to a school on 05/10/2016 for 4th

quarter for consumption in October 2016 to December 2016. As may be comprehended, the stock received was already four months old (from the month of packing) when it reached the school and the supply was for three subsequent months that followed.

The Department responded that a member from BAFRA is in the Technical Committee of School Feeding but the two Departments are yet to sign a Memorandum of Understanding (MoU). With the MoU in place, the BAFRA officers are expected to visit and inspect the school kitchens as a matter of routine function.

The RAA acknowledges the need of signing of MoU between the BAFRA and the Department and at the same time, not only BAFRA but also officials from the Department should also visit schools to inspect actual implementation of policies of SFP in the schools.

II. Lack of proper assessment of quality of food commodities by school management

The RAA also assessed the quality control during the delivery process by visiting 16 sample feeding schools and noted lack of practice of checking quality of food commodities by the schools when receiving deliveries from FCBL, although the MoU clearly stipulates schools to inspect commodities for damages and infestations. Since the school management did not have capacity or any means to check the quality of food commodities delivered, they only verified physical quantities through manual counting. Absence of practice of assessing quality of deliveries in schools has led to accepting poor quality food items infested by rice weevils particularly yellow split peas (dal). Such food items cannot be consumed but have to be disposed causing financial implication on the Government.Further, the school management accepted almost all the supplies made by FCBL due to lack of capacity to carry out quality assessment.

For instance, both Monggar Higher Secondary School (MHSS) and Kengkhar Lower Secondary School (KLSS) had received some damaged or spoiled stock of pulses (dal), which were infested by rice weevil, during the month of June and July 2016. In MHSS, the RAA found that the mess team has separated infested food items from other food items but in KLSS, the pulses were stored in the same storage place and this in turn has infected other food items as well.

Figure 3.4: Yellow Split-peas and rice grains infested by weevils in some of visited schools.

3.2.2.2. Food commodity reports not assessed effectively by the Department for subsequent quarterly food releases

'Food Commodity Reports' on a half-yearly basis are submitted to DSE by School Mess Committees. Food Commodity Reports are then compiled and used by DSE to prepare Food Release Notes (FRN), which contain estimates of food commodities required by

various schools. These FRNs are issued to FCBL for the supply of commodities to schools. In order to have accurate estimation of food commodities required, it is important to review the commodity reports thoroughly so that problems associated with excess and shortage of food commodities do not arise in schools.

The RAA compared three Food Commodity Reports with six subsequent FRNs of 16 selected schools and observed that most of the food commodities released to these schools were in excess of the requirement of the school. Furthermore, instances of issuance of food commodities in short of requirement were also observed. A summary of the comparison and excess/short release of food commodities are shown in *Table 3.5*

S/n	Schools	Differences (+) : Food releases more than required (-) : Food releases less than required								
		Rice (Kg)	Pulses (Kg)	Oil (Kg)	Chick Peas (Kg)	Milk Powder (Kg)	Salt (Kg)	Sugar (Kg)	Soya Chunk (Kg)	Tea Leaf (Kg)
2nd FCR 2014 vs. 1st FRN 2015										
1	Chapcha MSS	947	217	225	352	50	47	54	-133	-37
2	Daga HSS	1447	237	150	54	33	56	-1	-518	-61
3	Minjey MSS	536	181	24	185	6	72	127	-16	3
4	Mongar HSS	1916	265	155	280	43	60	43	-101	-39
5	Kengkhar LSS	-9	12	-6	7	0	0	0	-132	-15
6	Pemagatshel MSS	20	6	70	92	68	34	1	-241	-28
7	Tsebar LSS	-7	22	9	-23	-1	0	-1	-157	-18
8	Karmaling HSS	2480	12	122	6	60	87	7	-416	20
9	Martshala MSS	925	76	133	245	21	29	3	-10	-29
10	Denchukha LSS	3	-5	0	9	0	0	0	-130	-15
11	Bidung LSS	1015	122	116	42	40	34	57	-306	-28
12	Wamrong LSS	-19	14	-7	-5	0	0	0	-239	-27
13	Yebilaptsa MSS	1463	195	157	71	30	55	35	-337	-34
14	Gomphu LSS	2811	433	311	64	65	87	68	178	-10
1st FCR 2015 vs. 2nd & 3rd FRN 2015										
1	**Chapcha MSS**	**11668**	1518	1048	95	231	374	227	-440	-8
2	Daga HSS	4325	546	437	88	95	136	129	-438	35
3	Minjey MSS	6136	784	576	198	137	204	137	-203	5
4	Mongar HSS	9309	1274	919	299	206	311	206	236	30
5	Kengkhar LSS	1349	10	15	145	42	0	42	-5	1
6	**Pemagatshel MSS**	**-8567**	-1122	-415	-66	-129	-261	-191	-399	-69
7	Tsebar LSS	2570	333	227	134	56	83	56	-102	-5
8	Karmaling HSS	896	111	-92	36	52	30	19	-335	-7
23	Martshala MSS	96	-1	-71	-37	2	-7	12	-336	-43
24	Denchukha LSS	-2166	-279	8	-107	-1	1	1	-136	-14
25	Bidung LSS	39	31	-3	-70	2	1	2	-247	-28

26	Wamrong LSS	103	21	-89	123	2	3	2	-285	-32
27	Yebilaptsa MSS	5126	700	464	154	111	127	87	-283	-22
28	Gomphu LSS	-34	-57	0	8	-1	5	3	-58	-13
2nd FCR 2015 vs. 1st & 2nd FRN 2016										
29	Chapcha MSS	10	41	0	156	0	103	0	-525	-22
30	Chungkha PS	5326	731	13	189	0	0	0	-181	-21
31	Daga HSS	46	5	0	17	0	0	0	-507	-57
32	Minjey MSS	14	41	11	19	0	0	0	-281	-33
33	Dungkar PS	11	46	19	27	0	0	0	-105	-12
34	Mongar HSS	1	39	9	48	0	0	0	-431	-49
35	Kengkhar LSS	41	19	11	32	0	0	0	-142	-17
36	Pemagatshel MSS	-8552	-1141	-846	-237	-191	-287	-191	-472	-74
37	Tsebar LSS	33	22	12	120	0	0	0	-48	-11
38	Karmaling HSS	17	39	14	16	0	0	0	-413	-45
39	Martshala MSS	-5217	-703	-561	-159	-116	-206	-116	-526	-79
40	Denchukha LSS	1	16	18	8	0	0	0	-131	-15
41	Bidung LSS	17	45	0	36	0	0	0	-208	-24
42	Wamrong LSS	1	28	13	143	0	3	0	-247	-28
43	Yebilaptsa MSS	34	34	16	11	0	0	0	-335	-39
44	Gomphu LSS	46	31	19	39	0	0	0	-156	-18

Table 3.5: Showing the analysis of Food Commodity Reports and Food Release Notes

As may be understood from *Table 3.5*, rice issued to Chapcha MSS (S/n 11) was in excess of requirement by 11668 kg. Similarly, in case of Pemagatshel MSS (S/n 20), rice issued was in short of requirement by 8567kgs. This was evident from the records of Pemagatshel MSS wherein rice during 2015 was borrowed from Central School. Such instances are prevalent in all the three half-years that was compared. However, in case of Soya chunks, maximum schools received less than their requirements in all three terms.

From the review and analysis, it can be deduced that Food Commodity Reports submitted by schools were not used effectively to estimate the food commodities required by them which has resulted in over/under estimation and supply of food commodities to various schools. This has further resulted in aggravation of already constrained storage facilities and spoilage/wastage of the excess quantities. On the other hand, those schools which are in short of food commodities have to ration the food commodities thereby depriving the students of food commodities, which in turn decreases nutrition intake in those schools.

The Department, in their response, indicated that the School Health and Nutrition Division is using the Food Commodity Report submitted by the schools for preparing the FRN. They explained that upon the closure of the schools, the schools submit stock balance and projection of student enrolment in the following year. These stocks are adjusted in the supply for the 1st quarter of the year. Since the schools are unsure of the enrolment strength in the coming academic session, the schools tend to project on higher side, which results in inflated supplies in the 1st quarter. However, in the 2nd quarter, the food is released based on the actual number of students admitted.

Further, the Department mentioned that the tendering process also causes the delay in the adjustments in FRN.

The RAA acknowledges and agrees with the Department of using Food Commodity Reports for preparing FRNs by the School Health and Nutrition Division. Nevertheless, the comparison between the commodity reports and FRNs carried out by the RAA showed instances of huge variations in required quantities and quantities ordered. While there could be some variations in the orders due to change in student strengths in the schools but there should not be huge variations as indicated in the above analysis.

The RAA further carried out analysis on quantities of food commodities required by the 16 schools based on standard ration scale for one quarter i.e. from 1st October to 18th December 2016 and compared with the quantities supplied as per the DSE's records. The analysis is appended as *Annexure 'D'*. The comparison also showed instances of excess supplies in case of food items such as rice, pulses, oil, chick peas, salt, sugar, and milk powder. The quantities of required food items were computed without considering the opening balances of the previous quarter. The instances of excessive could be more if opening balances were taken into account. Thus, it is important that the Department issues release orders based on more realistic assessment of requirements of the schools in order to avoid excessive supplies that could result in spoilage and wastage.

3.2.2.3. Damaged food commodities reported by schools

The RAA reviewed the commodity reports made available to the team for the period of three terms i.e. from July 2014 to December 2015 and noted that in all three terms, there were several instances of damaged food items (supplied by FCBL) reported to the Department of School Education by several feeding schools. The summarized quantities of damaged food items and corresponding amounts are shown in *Table 3.6* below and the detailed is given *Annexure 'A'* and rates are given in *Annexure 'C'*:

		Rice	Pulses	Chick Peas	Oil	Soya Chunks	Tea	Milk Powder	Salt	Sugar
2014 (July to Dec)	Qty (Kg)	3,500.00	4,169.00	529.00	100.00	2,749.00	30.00			
	Rate (Nu.)	26.83	42.44	43.74	85.37	71.36	145.86			
	Amount (Nu.)	**93,903.07**	**176,941.17**	**23,139.14**	**8,537.00**	**196,160.94**	**4,375.71**	-	-	-
2015 (Feb to June)	Qty (Kg)	1,805.00	7,659.00	907.00	52.00	1,040.00	3.00	34.00	10.00	
	Rate (Nu.)	22.42	37.66	46.38	87.56	51.61	129.64	336.44	9.15	
	Amount (Nu.)	**40,459.50**	**288,427.57**	**42,069.86**	**4,553.01**	**53,671.81**	**388.91**	**11,438.88**	**91.54**	-
2015 (July to Dec	Qty (Kg)	1,275.00	8,003.00	2,083.00	15.00	2,412.00		20.00	5.00	10.00
	Rate (Nu.)	22.04	39.69	63.07	83.92	58.97	-	319.89	8.80	32.69
	Amount (Nu.)	**28,099.22**	**317,623.77**	**131,381.77**	**1,258.84**	**142,232.03**	-	**6,397.87**	**43.99**	**326.93**
Total Qty (Kg)		**6,580.00**	**19,831.00**	**3,519.00**	**167.00**	**6,201.00**	**33.00**	**54.00**	**15.00**	**10.00**
Total Amount (Nu.)		**162,461.78**	**782,992.52**	**196,590.78**	**14,348.85**	**392,064.78**	**4,764.62**	**17,836.75**	**135.53**	**326.93**

Table 3.6: Showing of summary of damaged food items according to three terms commodity reports

It is apparent from *Table 3.6* that pulses, rice, soya chunks, and chickpeas are the main food items, which get damaged often in schools. From July 2014 to December 2015, a total of **36.4MT** of food commodities were damaged causing a loss of **Nu. 1.571** million to the Government. Out 36.4MT, **19.8MT** was constituted by pulses, **6.5 MT** by rice**, 6.2MT** by soya chunks, and **3.5 MT** by chickpeas.

This can be deduced that there were excess supplies of rice, pulses, and soya chunks and not nutritious food such as meat and egg, which has resulted in wastage through food damages. This was also a concern raised by School Principals.

In addition, during the field visits to schools, the RAA also noted the following instances:

1. In Pema Gatshel Higher Secondary School, a total of 1650Kg of rice was damaged by rats during 2015 and 2016;
2. Similarly, in Karmaling Middle Secondary School, 295Kg of pulses and 105Kg soya chunk were spoiled during 2014;
3. 750Kg pulses were spoiled in Chungkha Primary School whereby the schoolchildren were not served dal for months from September to October 2016;
4. 700Kg of pulses in Dagana Higher Secondary School; and
5. 345Kg of chickpeas got damaged in Denchukha Lower Secondary School and so, the school could not provide chickpeas to students for two months.

These aforementioned instances were due to lack of quality assessments by the Department and lack of appropriate storage facilities at schools. Despite repeated instances of damaged food items being reported, neither the Department nor the individual schools have taken any corrective measures to curb such instances. Damaged food commodities not only have financial implication to the Government but also negatively effects nutritional intakes of schoolchildren.

3.2.3. School Mess Management

For School Feeding Program to be successful, mess management at schools should be effective. School management should enforce controls to ensure safe custody of the food commodities, proper records of inventory should be maintained and cleanliness in preparation should be maintained at all times.

3.2.3.1. Inadequacies in the evaluation of bids for vegetables and other perishable items

In most of the schools visited, vegetables are procured by way of competitive bidding. This is done with the objective of maximizing the utilization of Nu.400.00 per month per student allotted for vegetables.

The contracts in most schools, as would a man of ordinary prudence, are awarded to 'the lowest bidder'. However, the methods to determine the lowest bidder were not free of flaws. The flaw can be understood from an analysis below:

For example, there are three vendors bidding for the contract and that each one of them has quoted their rates for various items. The bid evaluation committee derives the lowest bid by adding-up the rates of various items according to vendors, and the bidder with the lowest total is evaluated as the lowest bidder and hence awards the contract to the vendor concerned. In the table below, bidder one being the lowest bidder (sum of the rates of three items Nu.125.00 is the lowest) was awarded the contract.

Scenario 1: Determination of lowest bidder without weights.

S/n	Bidders → / Items ↓	Unit	Bid 1	Bid 2	Bid 3
1	Potatoes	kg	35.00	30.00	25.00
2	Cabbage	kg	30.00	25.00	20.00
3	Garlic	kg	60.00	80.00	85.00
Totals			**125.00**	**135.00**	**130.00**
Lowest Bid			↑		

In the above scenario, the evaluation committee does not take into account the quantities (weights) of items to be procured in a year. Ignoring the weights, bidder one is awarded the contract for supply.

However, taking the weights of items (say annual consumption of potato is 100 kg, cabbage 50 kg and garlic 15 kg), the evaluation would have following changes. Instead of the first, the third bidder would have the lowest bid with financial implication of Nu.4,775.00. Whereas, procuring from the first bidder would have financial implication of Nu.5,900.00 which is in fact the highest of the three bids. The school would incur an additional cost of Nu.1,125.00 for the same quantities of vegetables if it is procured from the first bidder instead of the third.

Scenario 2: Determination of lowest bidder taking weights.

S/n	Bidders → / Items ↓	Unit	Bid 1	Bid 2	Bid 3	Weights (Qty. in kgs) (W)	Weight embedded bids		
							Bid 1 X W	Bid 2 X W	Bid 2 X W
1	Potatoes	kg	35.00	30.00	25.00	100.00	3,500.00	3,000.00	2,500.00
2	Cabbage	kg	30.00	25.00	20.00	50.00	1,500.00	1,250.00	1,000.00
3	Garlic	kg	60.00	80.00	85.00	15.00	900.00	1,200.00	1,275.00
Totals			**125.00**	**135.00**	**130.00**		**5,900.00**	**5,450.00**	**4,775.00**
Lowest Bid									↑

The evaluation committee, by not taking the weights of the items, has recommended procurement from the bidder with highest financial implication. This has resulted in erroneous evaluation of the lowest bidder and rendered the procurement of vegetables and related items uneconomical.

Therefore, understanding the implications of the current evaluation methods, management should take into account the weights (annual quantities) required by the school during a year. The annual quantities can be estimated taking the annual consumptions of past years. Embedding weights to the individual rates would lead to getting maximum from Nu.400.00 allotted per student per month.

3.2.3.2. Lack of well-defined and proper segregation of duties

For the store management to be effective and for the school mess to function smoothly, the duties of officials involved should be properly segregated and are well-defined. The

control process must be such that one activity should have mechanism to have check and balance over the other.

The three primary activities requiring proper segregation are:

1) Procurement and receipts mess items (perishable) from suppliers/vendors;

2) Storage of mess items; and

3) Issuance of mess items for preparation.

Mess committees in most of the schools included the principal, warden, matron, two teachers, student representatives and head cook. While most of the schools have formed mess committees and the number of officials in the committees were adequate, the duties/responsibilities of the members are however not segregated and defined.

Currently in most schools, the principal, warden and matron do not have direct responsibility related to mess management other than signing the expense bills for submission to accounts concerned for payment. In most schools, the two teachers have multiple responsibilities of procurement, receipt, storage and issuance of mess items. They are also responsible for maintaining the books (stock registers) of the flows of mess items.

Due to non-segregation of duties and lack of well-defined responsibilities, proper check and balance on the each member's duties is generally lacking and there is high risk of misuse and mismanagement of stocks. Consequently, the management has to validate the receipts and issues recorded in the books and verify it for payment without any reasonable assurance with regard to the actual receipts and issues of the mess items. It is therefore important that the duties of the mess committees be segregated properly and defined in order to institute strong check and balance and also to reduce the risk of misuse of stocks.

3.2.3.3. Ineffective use of bulk electric cooker

In order to reduce negative impact on the environment from the use of fire woods for cooking in the schools and also to improve cleanliness and hygiene in the kitchen, the Ministry of Education distributed bulk electric cookers to all Middle and Higher Secondary boarding schools.

Nonetheless, during the field visits to selected schools, the RAA observed that these electric cookers were lying idle and not used for cooking in almost all schools except in Karmaling Middle Secondary School, where the cookers were used optimally. The schools management informed that they could not use the electric cookers because of frequent break downs, safety and energy efficiency issues.

Figure 3.5: Electric Cookers lying idle in school kitchens

Not using electric cookers in feeding or boarding schools had resulted in using fuel wood as an alternative source, which in turn had incurred a total expenses of **Nu. 3.953** million in 14 visited lower, middle, and higher secondary schools during last two financial years 2014-2015 and 2015-2016 (as shown in Figure 3.2.). This amount could be huge if fuel wood expenses in all 110 feeding schools have been taken into account.

On the other hand, apart from a huge financial implication, the use fuel woods also has enormous negative impact on the forest, which would consequently effect the sustainability of our pristine natural environment.

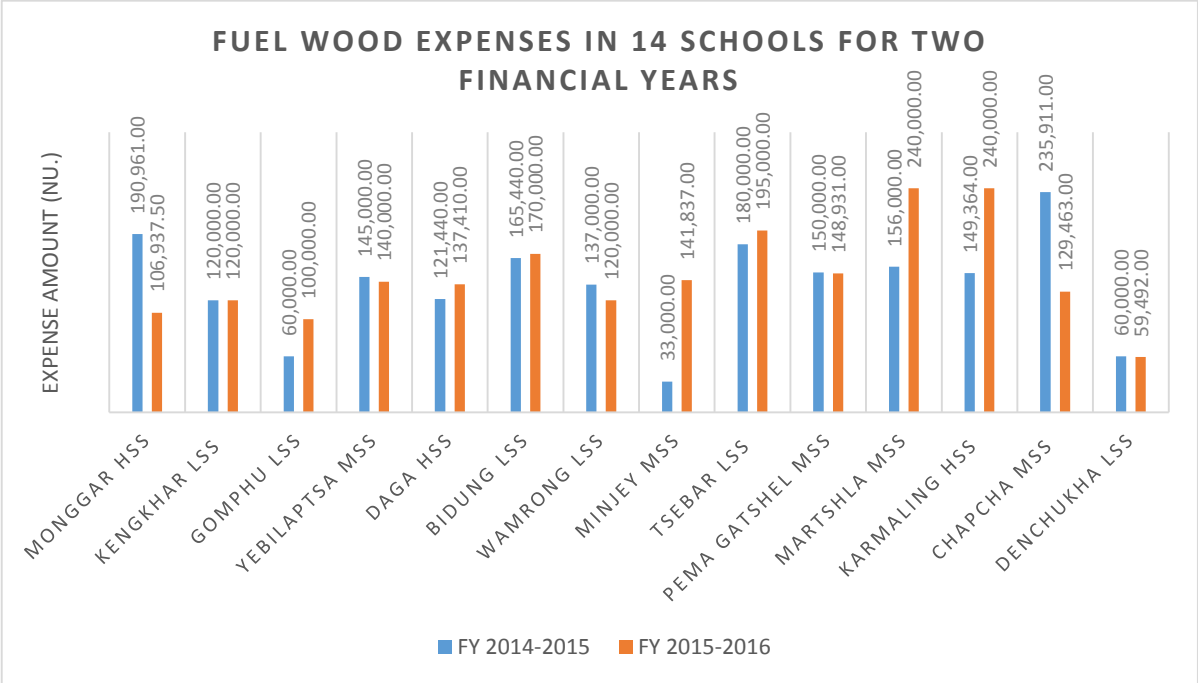

Figure 3.6: Bar chart showing the fuel wood expenses in 14 schools for two financial years

3.2.3.4. Unpalatable preparation of food resulting in loss of nutrients

Figure 3.6: Showing curries with thin consistency

Food should be prepared in such a way that nutrients are conserved during cooking. In addition, to increase in-take of food in the schools by the schoolchildren, food should be palatable, cooked properly, and appealing for the children to improve appetite**.**

On contrary, the RAA, while visiting the selected schools, observed that curries of mixed vegetables and lentils were cooked with very thin consistency and less other ingredients looking unpalatable and unappetizing. Unpalatable and unappetizing foods discourage schoolchildren from eating the right portion needed to meet the required nutrients. Furthermore, the RAA noted that most of cooks in the schools were not properly trained in cooking and so, this could be one of the causes for unpalatable preparation of school meals.

Even the Dietician of Monggar Regional Referral Hospital explained that adding a large quantity of water to food would deteriorate nutrient contents of the food, which in turn would reduce the intake amount of good nutrients.

3.2.4. Store Management

3.2.4.1. Lack of periodic reconciliation of stock balance as per books and actual balance

In order to manage the stocks of food commodities in schools effectively, it is important to carry out monthly reconciliation of stock balances as per books with the actual physical balances.

During the field visits to 16 selected schools, the RAA observed that periodic reconciliation of stock balances were not carried in all visited schools resulting in showing discrepancies between stock balances in books and actual stock balances. The differences exist mainly due to lack of periodic reconciliation of stock balances and also due to the following lapses:

i. **Quantities entered in the stock register as per ration scale**: The quantities of food commodities issued reflected in the stock registers are entered as per the prescribed ration scale whereas the actual quantities issued to the cooks are not equal to those reflected in the books;

ii. **Non-verification of stock entered or issued**: The chairman of the mess committee – principal – responsible for counter signing the stock register at the end of every month, do not verify if the closing balances in books are equal to the actual balances in stores;

iii. **Non-updation of stock register**: The member of the mess committee responsible for maintaining stock registers do not update the records on daily basis. Field visits to schools revealed several instances of stock registers which are not up to date – in some schools the books were not updated since several months back.

School Mess Committee has the responsibility of submitting 'Commodity Report' to the Department of School Education (DSE) on a half-yearly basis. The report presents a snapshot of food commodities[16] for the half-year. One important element the report captures is the ***Closing Balances*** of food commodities at the end of every term[17]. The closing balances are used for calculation of supplies required for the subsequent terms by taking it as ***Opening Balances***.

Due to lack of periodic reconciliation of stocks in books and in stores, the school mess committee submitted ***closing balances as per books instead of actual balances***. This resulted in submission of understated quantities of actual closing balances to the Department subsequently leading to ordering more quantities of food commodities than required by each school. Ordering more quantities than required has aggregated to the problem of storage space the schools are facing now and other associated problems such as spoilage of food commodities.

As shown in Figure 3.7 below, several instances were noted where due to lack of space, school store food commodities in dormitories and also intimated that schools often had to make requests FCBL to retain the quarterly supplies and to distribute it later when stocks deplete.

Figure 3.7: Stock pile-up at the dormitory in one of the schools visited

[16] *Includes details of Op. Balance, Total Qty. Received, Total Qty. Consumed, and Closing Balance as on 30/06/2016. It also includes monthly feeding days and counts of beneficiaries;*

[17] *In June of every year for the 1st term and in December for the 2nd term.*

3.2.4.2. Lack of proper storage place to store food commodities in schools

It is very crucial to build a proper storage place with good physical condition to store food commodities so as to prevent from infestation or damages by pests. More importantly, the storage place should be free from insects, rodents, birds, and should be properly ventilated and cleaned.

Nevertheless, during the field visits to 16 selected schools, the RAA found that schools did not have proper storage to store perishable items such as vegetables. Moreover, some of the schools did not even have proper storage to store perishable items. *For instance*, Kengkhar LSS has converted their old kitchen into storage place to store both perishable and non-perishable food items.

Figure 3.8: Showing improper storage place to store perishable items that need cold storage

Due to lack of proper storage space in schools particularly for perishable items, the RAA observed that vegetables with less shelf-lives getting spoiled quickly thereby causing financial losses to the schools and nutritional losses in vegetables. Further, the RAA also found rat droppings in food items as shown in *Figure 3.*9, where store was inadequately protected from rats.

Feeding these food items to the schoolchildren would have direct impact the nutritional condition of the children and may become one of the contributing factors for the nutrient deficiency outbreaks.

Figure 3.9:Showing rat droppings in food items in schools

3.2.4.3. Expiration dates not mentioned on the rice bags, dal, soya chunks, and sugar

All food commodities, irrespective of perishable or non-perishable, have certain shelf life, after which they become unfit for consumption. Similarly, food commodities supplied by FCBL to schools should also have shelf life in terms of expiration dates or best before dates.

Nonetheless, the RAA found that some food commodities such as rice, pulses, soya chunks, and sugar, which were re-packaged by FCBL, did not have expiry or best before dates. This is corroborated from the commodity reports submitted by schools (*discussed in 3.2.2.3*) where it has shown that the most damaged items supplied to schools were these items. In absence of such dates, store management cannot identify those food commodities that are nearing shelf-lives and some foods especially pulses get spoiled within few weeks upon reaching schools consequently resulting in waste of resources.

Figure 3.10: Showing rice and pulses packages without expiry or best before dates

CHAPTER 4: RECOMMENDATIONS

With a view to improve School Feeding Programme and to improve nutritional status of schoolchildren, the RAA provides the following recommendations which are based on the observations that are discussed in *Part 3.2 of Chapter 3*.

1. Standard Dietary Requirement for schoolchildren should be developed

Under-nutrition, malnutrition and micronutrient deficiencies have long lasting significant effect on the physical and mental health of children. The RAA observed that the daily nutrient intakes as per the Ration Scale did not meet the requirements of children in different age groups. Thus, in order to ensure that foods provided in schools dietary needs or requirements, the Department should define minimum **Standard Dietary Requirement** for schoolchildren.

Furthermore, the Department should:

- Readjust ration scale accordingly so that it meets the standard;
- Prepare menu that meets dietary requirements;
- Increase variety of foods; and
- Lower the frequency of repetitive menus.

2. Need to institute mechanism to monitor nutritional status of schoolchildren

Good nutrition and health are very crucial factors for improving child's learning and performance in schools. Children who are suffering from poor health and nutrition cannot achieve their physical and cognitive potential thereby impacting their current and future lives. Currently, there is no mechanism to monitor nutritional status of schoolchildren and so, timely and appropriate intervention cannot be provided.

Therefore, the Department should institute mechanism to monitor nutritional status of schoolchildren so that appropriate interventions can be made if instances of under nutrition or over nutrition found.

3. Strong quality control system must be instituted in School Feeding Management

In order to have adequate nutrition intake of schoolchildren, it is important to ensure that the food commodities supplied to schools are of good quality and quality can only be assured by conducting quality assessment. Since instances of poor quality or damaged food items supplied to schools were noted, the Department should institute strong quality control system in the centralised School Feeding Programme Management by involving BAFRA as an independent assessor.

Further, the Department should also develop criteria or benchmarks for quality assessment. The DSE should also develop in-house capacity in quality assessment of food items.

4. Supply of fortified rice to schools

Several outbreaks of Peripheral Neuropathy had occurred in boarding schools in the past and so, it is important to initiate measures to prevent such nutrition related problems in schools. Therefore, as mentioned in the responses, the Department should also replicate WFP in supplying fortified rice to all RGoB funded schools if found effective besides other appropriate interventions.

5. Food Commodity Report should be used effectively for preparing Food Release Note

Since Food Commodity Reports submitted by schools provide indication on quantities consumed and required for next supplies, the school management should ensure that correct and accurate information are provided in the report. Further, the Department should make effective use of Food Commodity Reports while preparing Food Release Notes so that the correct quantities of food commodities are supplied to schools thereby avoiding instances of excessive/short quantities supplied.

6. Need for proper storage facilities for food items

As observed during the field visits to schools, most schools lacked proper storage facilities. The Department should ensure that proper storage facilities are provided to schools where there are no proper storage facilities for both perishable and non-perishable food items.

7. FCBL should ensure that best before or expiry dates are indicated on food commodities supplied to schools

The RAA observed that most food commodities supplied to schools do not have expiry or best before dates, which makes it difficult to identify food items nearing expiry. Feeding expired food items to schoolchildren could have health problems as well as inadequacy in required nutritional intakes. Therefore, FCBL should ensure that expiry or best before dates are mentioned on packages of food commodities supplied to schools.

8. School cooks should be trained in preparation of proper foods

It was observed that the preparation of food was not palatable and appetizing to encourage schoolchildren to eat required quantum of school meals. Therefore, the Department should ensure that cooks employed by the schools are properly trained in cooking.

9. Schools should carry out periodic reconciliation of stocks

Lack of periodic reconciliation of stock balances has been observed in all selected sample schools resulting in discrepancies between book balances and physical stocks. This has affected the commodity reports submitted to the Department for the preparation of Food Release Note, which subsequently led to ordering less or more quantities than what is actually required by the schools. Thus, the school management should carry out monthly reconciliation of food commodity stocks in order to avoid stock discrepancies and for correct preparation of Food Release Note.

10. Proper segregation of duties should be instituted in school mess management

A well-defined or proper segregation of duties was generally found lacking in all visited schools in school mess management. Thus, in order to institute proper check and balance, school management should define and segregate the duties and responsibilities of mess committees. Adequate representation of students should also be included in Mess Committee.

School Management may also resort to institution of strong monitoring and supervision mechanism for the activities, by teachers who are not involved in mess management.

11. Effective use of bulk electric cookers should be made

It was noted that the schools were spending a huge amount of budget on firewood despite the issuance of bulk electric cookers to Middle and Higher Secondary Schools. Using firewood for cooking not only has financial burden but also impacts the sustainability of our pristine forests and environment. Further, it also has some negative effect on the health.

The Department should find out the problems of not using electric cookers and provide solutions so that school management make best use of electric cookers distributed to the schools and minimize use of firewood for cooking.

12. Nutrition Education should be provided to schoolchildren

The Department in collaboration with Ministry of Health should conduct Nutrition Education to schools with an aim to promote healthy eating habits and to improve students' knowledge and competencies in nutrition.

Further, many students are turning vegetarians due to religious beliefs or other reasons. Awareness on minimum nutrient intakes should be created among schoolchildren as part of nutrition education programme.

13. Feedback system should be instituted in schools

The Department should institute a feedback system where the beneficiaries of school feeding programme can report directly to the Department for any issues on mismanagement or misuse by the school management, and also on quality of school meals.

CHAPTER 5: CONCLUSION

Nutrition has huge significance to human well-being and productivity. Poor nutrition and nutrient deficiencies among children particularly school going children are imposing substantial negative impact on physical growth, learning capacity, and academic performance. Poor nutrition also has long-term effects on the society in terms of medical costs, loss in human capital, and reduced economic productivity. School Feeding Programme, initiated 40 years ago, plays a vital role in empowering the schoolchildren in manifolds such as enhancing classroom concentration, educational achievement, and improving the nutritional status. The SFP also overcomes short-term hunger, increases school enrolment, decreases drop-outs, and encourages school education among underprivileged children.

The RAA noted that the Department of School Education had taken initiatives to improve SFP and also to improve the nutritional status of the schoolchildren by developing Handbook on School Feeding Management. The Department introduced centralised procurement of essential food items to improve the quality, attain higher economic of scale, timely delivery of food to schools, ensure uniform nutritional quality, ease burden of procurement on school management. With the centralized procurement system, the Department was able to standardize school feeding with same ration scale and also benefitted far flung schools that do not have direct access to markets for getting commodities on time.

Despite these positive contributions of SFP and the initiatives of the Ministry of Education, the RAA also observed shortcomings and deficiencies in the management of school feeding. As there is no standard for dietary requirements prescribed for school going children, the ration scale developed by the Ministry may not meet dietary requirement of nutrients. Furthermore, systematic monitoring system was lacking to review and ascertain the micronutrient deficiencies among schoolchildren in the country. Due to which, required interventions or appropriate actions by authorities cannot be taken if there are micronutrients deficiencies. Schools management had not followed the standard recommended menu developed by the Ministry. Most schools have developed their own menu cycle that was repeated throughout the year and did not include variety of foods. Moreover, school menu was not analyse for nutritional content in order to assess whether it meets the requirement. Lack of appropriate storage facilities, particularly for perishable items, was observed also in schools. There were several outbreaks of PN in schools, which indicate nutrient deficiencies among schoolchildren.

The Department of School Education's initiative of engaging in-house Nutritionist and proposal for signing MoU with BAFRA for quality control will certainly go a long-way in improving SFP as well as meeting the objective of improving the nutritional condition of schoolchildren. Introduction of fortified rice on pilot basis by WFP in some schools is also expected to address the nutrient deficiencies to certain extent. However, there is a need for development of minimum dietary requirement standard for students besides instituting strong monitoring and inspection mechanism to ensure that all schools comply with the standard.

APPENDIX I

དཔལ་ལྡན་འབྲུག་གཞུང་། ཤེས་རིག་ལྷན་ཁག།
Royal Government of Bhutan
Ministry of Education
Department of School Education
School Health and Nutrition Division
ཤེས་རིག

Ref. No: MoE/DSE/18/2016/449 Date: 30th March, 2016

The Deputy Auditor General
Department of Performance and Commercial Audits
ROYAL AUDIT AUTHORITY
Royal Government of Bhutan
Thimphu / BHUTAN.

Subject: Draft Report on Performance Audit on School Feeding Programme

Dear Sir,

This is to acknowledge with thanks the receipt of the Draft Report on Performance Audit of School Feeding Programme. Please accept our appreciation for your focus on school feeding and the resulting improvement it is bound to bring to the Ministry of Education's endeavors towards constant improvement in our school feeding program. The sound and useful recommendations made by you will be shared with all the beneficiary schools, as the issues are common across the feeding schools.

The Division would like to submit the following explanations, before the final Report is printed.

I. LAPSES & SHORT COMINGS

Under the Executive Summary, it was pointed out that the daily nutrient intake was found to be inadequate, comparative to the standard ration scale.

We would like to explain that the **Ration Scale** and the **Standard Menu** were worked out by the Nutritionist of the Ministry of Health. While doing so, the Nutritionist had considered food and food items that contain certain essential micro and macronutrients needed for a balanced diet. The Standard Menu prescribed by the Division meets the Recommended Daily Allowances (RDA). However, in the cases of menu worked out by some schools at their level, it is slightly in variant to those recommended by us. This is unavoidable since all food items recommended by us are not locally available. Therefore adaptation is called for, although it is possible that the adapted menu may not meet the RDA given that the school authorities do not have the expertise to calculate the RDA. This is something that we hope to correct, given that the Division is now staffed with a qualified Nutritionist.

3.2.1.1 NUTRITION

In the absence of a qualified Nutritionist, the Division was earlier constrained at determining the proper nutritional requirements in the foods being served to the school children. However, now that the Division has an in-house Nutritionist as of February 2017, we hope to be able to make improvements in the dietary intake by the school children. In addition, with technical assistance from the WFP, a study on dietary assessment is currently underway. This study is expected to come up with a number of recommendations to improve nutrition in schools, along with any interventions that might be required.

Royal Audit Authority
Thimphu : Bhutan
Dairy No. 5797
Date 24/3/2017

AAG, IAD
Pl. receive in the Reception & then review.
30/3/17

3.2.1.3 Absence of effective preventive measures against Peripheral Neuropathy outbreaks

With respect to outbreak of Peripheral Neuropathy (PN), in an effort to combat the incidence of PN, the Division had prescribed the inclusion Soya chunks in the menu. Soya chunks have high "**Thiamine**" content, which prevents PN. Unfortunately, most students found it unpalatable and refused to eat it. Consequently, in an effort to get around the problem, the Division submitted to the School Feeding Technical Committee - for the introduction of boiled rice in the menu. The Committee duly approved the recommendation and, thus, boiled rice was introduced as of 2015. Initially, unsure of how the children would accept the boiled rice, the ratio was kept at a low of 20% boiled rice and 80% raw rice. The ratio was stepped up to 30% in 2016. Having convinced that there was acceptance among the children, the ratio was increased to the current level of 50:50.

Boiled rice is considered a suitable substitute to Soya chunks since it too has high content of Thiamin. Soya Chunk is now altogether excluded from the supply list.

Pork is supposed to be the best source for the micronutrient Thiamine. Unfortunately very few students consume pork – since most of them have turned vegetarian. No amount of motivational talks has helped to convince them to revert to pork consumption.

Another option that we have piloted beginning this year is the supply of fortified rice. To begin with, this new initiative is being piloted in all the WFP schools. Should this prove effective, the program will be rolled out to all the feeding schools supported by the RGoB, by next year.

3.2.2.1 Lack of Strong Quality Control System
Non-Involvement of third-party like BAFRA for quality assessment for food commodities

A member from BAFRA is indeed in our Technical Committee. In fact, even their Chief Program Officer was invited to witness and learn from the Quality and Quantity (Q&Q) Checks conducted for WFP food in 2015. However, the two Departments are yet to sign a MoU. It is hoped that once the MoU is in place, the BAFRA officers would visit and inspect the school kitchens, as a matter of routine function.

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Royal Government of Bhutan
Ministry of Education
Department of School Education
School Health and Nutrition Division
ཤེས་རིག

3.2.2.2 "Food Commodity Reports Showed Excess Supplies……"

This is inaccurate. The Division uses the Food Commodity Report submitted by the schools for preparing the FRN. In the month of December, upon closure of the schools, the schools submit stock balance and projection of student enrolment for the following year. The stock of food from the previous year is adjusted against the supply due for the 1st Quarter. Understandably, the school authorities are unsure of the enrolment strength in the coming academic session. To be on the safe side, they tend to project on the higher side - resulting in inflated projection for the 1st Quarter.

In the 2nd Quarter, the food is released based on the actual number of students admitted during the start of the academic session. Since the schools do not submit commodity report for the 1st Quarter, adjustment on account of excess food can only be made at the time of supplying for the 3rd Quarter, upon receipt of the 2nd Quarter commodity report. The tendering process also causes the delay in adjustment – since FRN has to be sent two months ahead of the tender anouncement.

3.2.2.4 Payment of stipend at uniform rate to all schools regardless of location of schools

One of the reasons for the Ministry to initiate and implement central procurement was so that schools with poor market access would benefit from the system, in spite of their remote location. For perishable foods and vegetables, the schools are asked to tie up with local agriculture cooperatives, so that supply is ensured round the year, from the farms within the locality. Establishing links between the farmers and schools was initiated by the DAMC under the MoA. The modalities of how this is to be operated are left to the Dzongkhags and school authorities, depending upon their own conveniences. While we believe that the allocation of Nu.400.00 for perishable items is not adequate, the good thing is that the schools have access and the ability to purchase nutritious food, fresh out of the gardens. If this system is done away with, remotely located schools stand to suffer.

The Performance audit done by the team is deeply appreciated which will help the School Feeding Program.

Yours Sincerely,

(Karma Tshering)
Director General.

ANNEXURE

Annexure 'A': Exhibiting a list of damaged food commodities by school wise

Schools	Dzongkhag	Year	Item Name (in Kgs)								
			Rice	Pulses	ChickPeas	Oil	Soya	Tea	Milk Powder	Salt	Sugar
Gaserling CS	Dagana	2014 (July to December)	1,300.00	1,449.00	354.00	-	414.00	-	-	-	-
Lhuentse HS	Lhentse		600.00	300.00	100.00	100.00	350.00	30.00	-	-	-
Gyelpozhing HSS	Monggar		1,500.00	-	-	-	-	-	-	-	-
Nangkhor HS	PemaGatshel		-	-	-	-	480.00	-	-	-	-
NangLam HS	PemaGatshel		-	275.00	-	-	240.00	-	-	-	-
Nanglam LSS	PemaGatshel		-	-	-	-	157.00	-	-	-	-
Karmaling HSS	SamdrupJongkhar		-	295.00	-	-	105.00	-	-	-	-
Rangjung HSS	Trashigang		100.00	100.00	-	-	-	-	-	-	-
Bartsham MSS	Trashigang		-	-	-	-	388.00	-	-	-	-
Sherubling HSS	Trongsa		-	100.00	50.00	-	15.00	-	-	-	-
Langthel MSS	Trongsa		-	200.00	25.00	-	45.00	-	-	-	-
Mendrelgang CS	Tsirang		-	1,450.00	-	-	330.00	-	-	-	-
Phobjikha MSS	Wangdue		-	-	-	-	225.00	-	-	-	-
		Subtotal:	**3,500.00**	**4,169.00**	**529.00**	**100.00**	**2,749.00**	**30.00**	**-**	**-**	**-**
CHUMEY MSS	Bumthang	2015 (Feb to June)	-	250.00	-	-	-	-	-	-	-
Laya LSS	Gasa		-	-	-	-	-	-	16.00	-	-
TSHAPHEL LSS	Haa		-	-	-	11.00	-	-	-	-	-
NANGKOR HSS	PemaGatshel		-	1,550.00	-	-	90.00	-	-	-	-
NGANGLAM HSS	PemaGatshel		-	102.00	532.00	-	54.00	-	-	-	-
NGANGLAM LSS	PemaGatshel		-	175.00	125.00	-	75.00	-	-	-	-
ORONG HSS	SamdrupJongkhar		-	1,200.00	-	-	225.00	-	-	-	-
ORONG LSS	SamdrupJongkhar		-	207.00	-	-	-	-	-	-	-
SARPANG HSS	Sarpang		-	500.00	125.00	18.00	300.00	-	-	-	-
TRASHITSE HSS	Trashigang		945.00	1,700.00	-	-	-	-	-	-	-
BARTSHAM MSS	Trashigang		250.00	100.00	100.00	18.00	40.00	3.00	11.00	10.00	-
THRIMSHING MSS	Trashigang		610.00	-	-	-	-	-	-	-	-
SHERUBLING HSS	Trongsa		-	75.00	25.00	5.00	-	-	7.00	-	-
SAMCHOLING MSS	Trongsa		-	50.00	-	-	-	-	-	-	-
LANGTHEL	Trongsa		-	-	-	-	166.00	-	-	-	-
DAMPHU HSS	Tsirang		-	150.00	-	-	90.00	-	-	-	-
MENDRELGANG MS	Tsirang		-	1,000.00	-	-	-	-	-	-	-
PHOBJIKHA MSS	Wangdue		-	250.00	-	-	-	-	-	-	-
SONAMTHANG MSS	Zhemgang		-	350.00	-	-	-	-	-	-	-
		Subtotal:	**1,805.00**	**7,659.00**	**907.00**	**52.00**	**1,040.00**	**3.00**	**34.00**	**10.00**	**-**
PAKSHIKHA HSS	Chukha		-	1,000.00	-	-	805.00	-	-	-	-

DRUJEYGANG HSS	Dagana		90.00	2,100.00	250.00	-	120.00	-	-	-	-
GESERLING MSS	Dagana		-	325.00	941.00	-	285.00	-	-	-	-
LHUENTSE HS	Lhuentse		1,000.00	-	-	-		-	10	5	-
KHOMA LSS	Lhuentse		-	-	384.00	-	181.00	-	-	-	-
DRAMETSE MSS	Monggar		-	1,100.00	-	-	165.00	-	-	-	-
NGANGLAM HSS	PemaGatshel		-	-	-	-	252.00	-	-	-	-
PEMAGATSHEL MSS	PemaGatshel	2015 (July to	-	800.00	-	-	-	-	-	-	-
YELCHEN MSS	PemaGatshel	December)	-	1,103.00	-	-	-	-	-	-	-
NGANGLAM LSS	PemaGatshel		-	336.00	112.00	-	101.00	-	-	-	-
TRASHITSE HSS	Trashigang		35.00	-	-	-	-	-	-	-	-
DUNGTSE MSS	Trashigang		-	609.00	146.00	15.00	188.00	-	-	-	-
BARTSHAM MSS	Trashigang		150.00	150.00	50.00	-	60.00	-	10		10
BIKHAR LSS	Trashigang		-	350.00	-	-	-	-	-	-	-
YEBILAPTSA MSS	Zhemgang		-	-	200.00	-	75.00	-	-	-	-
SONAMTHANG MSS	Zhemgang		-	130.00	-	-	180.00	-	-	-	-
		Subtotal:	**1,275.00**	**8,003.00**	**2,083.00**	**15.00**	**2,412.00**	**-**	**20.00**	**5.00**	**10.00**
		Grand Total:	**6,580.00**	**19,831.00**	**3,519.00**	**167.00**	**6,201.00**	**33.00**	**54.00**	**15.00**	**10.00**

Annexure: B

Comparison of Food Commodity Reports submitted by school and subsequent Food Release Notes

Schools	Closing Balances as per Food Commodity Reports									Food releases made as per Food Release Notes									Food required by schools (as per ration scale, feeding days & no. of beneficiaries)									Differences (+) : Food releases more than required (-) : Food releases less than required								
	Rice	Pulses	Oil	Peas	Milk Powder	Salt	Sugar	Soya chunk	Tea leaf	Rice	Pulses	Oil	Chick Peas	Milk Powder	Salt	Sugar	Soya Chunk	Tea Leaf	450	60	45	13	10	15	10	17	3								
																			Rice	Pulses	Oil	Chick Peas	Milk Powder	Salt	Sugar	Soya Chunk	Tea Leaf	Rice	Pulses	Oil	Chick Peas	Milk Powder	Salt	Sugar	Soya Chunk	Tea Leaf
FCR 2014 vs. 1st FRN 2015																																		
Chapcha MSS	958	212	222	358	50	47	54	284	10	20950	2800	2100	600	466	699	466	375	93	20961	2795	2097	606	466	699	466	792	140	**947**	**217**	**225**	**352**	**50**	**47**	**54**	**-133**	**-37**
Daga HSS	1472	244	148	68	34	57	0	52	2	28150	3750	2820	800	626	939	626	495	125	28175	3757	2818	814	627	940	627	1065	188	**1447**	**237**	**150**	**54**	**33**	**56**	**-1**	**-518**	**-61**
Minjey MSS	523	160	18	197	7	72	128	127	19	7350	1000	740	200	163	245	163	135	33	7337	979	734	212	164	245	164	278	49	**536**	**181**	**24**	**185**	**6**	**72**	**127**	**-16**	**3**
Mongar HSS	1927	257	157	289	43	61	43	356	13	22800	3050	2280	650	507	760	507	405	101	22811	3042	2282	659	507	761	507	862	153	**1916**	**265**	**155**	**280**	**43**	**60**	**43**	**-101**	**-39**
Kengkhar LSS	0	0	0	0	0	0	0	0	0	6650	900	660	200	148	222	148	120	30	6659	888	666	193	148	222	148	252	45	**-9**	**12**	**-6**	**7**	**0**	**0**	**0**	**-132**	**-15**
Pemagatshel MSS	-21	-22	63	99	68	34	1	-9	0	12350	1650	1240	350	274	411	274	225	55	12330	1644	1233	357	274	411	274	466	83	**20**	**6**	**70**	**92**	**68**	**34**	**1**	**-241**	**-28**
Tsebar LSS	0	0	0	0	0	0	0	0	0	7700	1050	780	200	171	257	171	135	34	7707	1028	771	223	172	257	172	292	52	**-7**	**22**	**9**	**-23**	**-1**	**0**	**-1**	**-157**	**-18**
Karmaling HSS	2460	0	115	0	61	88	8	0	66	20550	2750	2060	600	456	684	456	360	91	20530	2738	2053	594	457	685	457	776	137	**2480**	**12**	**122**	**6**	**60**	**87**	**7**	**-416**	**20**
Martshala MSS	921	96	138	226	21	29	3	319	8	16650	2200	1660	500	370	555	370	300	74	16646	2220	1665	481	370	555	370	629	111	**925**	**76**	**133**	**245**	**21**	**29**	**3**	**-10**	**-29**
Denchukha LSS	0	0	0	0	0	0	0	0	0	6600	875	660	200	147	220	147	120	29	6597	880	660	191	147	220	147	250	44	**3**	**-5**	**0**	**9**	**0**	**0**	**0**	**-130**	**-15**
Bidung LSS	1001	144	110	41	41	34	58	11	7	15550	2050	1560	450	345	518	345	270	69	15536	2072	1554	449	346	518	346	587	104	**1015**	**122**	**116**	**42**	**40**	**34**	**57**	**-306**	**-28**
Wamrong LSS	0	0	0	0	0	0	0	0	0	12250	1650	1220	350	273	409	273	225	55	12269	1636	1227	355	273	409	273	464	82	**-19**	**14**	**-7**	**-5**	**0**	**0**	**0**	**-239**	**-27**
Yebilaptsa MSS	1475	194	149	74	30	56	35	40	9	19100	2550	1920	550	425	637	425	345	85	19112	2549	1912	553	425	638	425	722	128	**1463**	**195**	**157**	**71**	**30**	**55**	**35**	**-337**	**-34**
Gomphu LSS	2827	409	303	89	65	87	68	267	-121	4300	600	440	100	96	144	96	75	19	4316	576	432	125	96	144	96	164	29	**2811**	**433**	**311**	**64**	**65**	**87**	**68**	**178**	**-10**
1st FCR 2015 vs. 2nd & 3rd FRN 2015																																		
Chapcha MSS	12366	1628	1213	751	270	400	270	484	48	23750	3150	2280	50	504	789	500	0	107	24448	3260	2445	706	543	815	543	924	163	**11668**	**1518**	**1048**	**95**	**231**	**374**	**227**	**-440**	**-8**
Daga HSS	12323	1652	1237	354	275	448	276	229	55	16800	2200	1680	450	371	515	404	270	145	24798	3306	2480	716	551	827	551	937	165	**4325**	**546**	**437**	**88**	**95**	**136**	**129**	**-438**	**35**
Minjey MSS	774	139	-29	382	7	73	129	140	-11	20400	2650	2080	250	464	632	342	225	105	15038	2005	1504	434	334	501	334	568	100	**6136**	**784**	**576**	**198**	**137**	**204**	**137**	**-203**	**5**
Mongar HSS	4116	558	365	343	90	135	90	359	18	8450	1150	880	50	188	285	188	0	34	3257	434	326	94	72	109	72	123	22	**9309**	**1274**	**919**	**299**	**206**	**311**	**206**	**236**	**30**
Kengkhar LSS	1472	0	22	101	46	5	46	59	9	3550	500	360	150	78	117	78	75	16	3673	490	367	106	82	122	82	139	24	**1349**	**10**	**15**	**145**	**42**	**0**	**42**	**-5**	**1**
Pemagatshel MSS	6533	875	1120	377	212	251	145	181	33	250	50	0	0	0	0	5	0	0	15350	2047	1535	443	341	512	341	580	102	**-8567**	**-1122**	**-415**	**-66**	**-129**	**-261**	**-191**	**-399**	**-69**
Tsebar LSS	3866	562	242	246	88	130	88	131	17	6050	750	720	100	131	198	131	45	27	7346	979	735	212	163	245	163	278	49	**2570**	**333**	**227**	**134**	**56**	**83**	**56**	**-102**	**-5**
Karmaling HSS	7570	951	750	260	303	335	45	60	102	9750	1350	800	250	114	242	339	225	0	16424	2190	1642	474	365	547	365	620	109	**896**	**111**	**-92**	**36**	**52**	**30**	**19**	**-335**	**-7**
Martshala MSS	354	0	-72	277	8	-20	-10	401	6	19250	2600	1880	250	428	643	446	0	81	19508	2601	1951	564	434	650	434	737	130	**96**	**-1**	**-71**	**-37**	**2**	**-7**	**12**	**-336**	**-43**
Denchukha LSS	1169	176	149	53	17	91	19	31	3	3075	400	500	25	124	124	124	75	26	6410	855	641	185	142	214	142	242	43	**-2166**	**-279**	**8**	**-107**	**-1**	**1**	**1**	**-136**	**-14**
Bidung LSS	5721	722	565	146	131	167	154	82	26	7000	1000	700	150	153	257	130	150	31	12682	1691	1268	366	282	423	282	479	85	**39**	**31**	**-3**	**-70**	**2**	**1**	**2**	**-247**	**-28**
Wamrong LSS	1353	108	61	303	57	2	55	128	13	13650	1900	1340	250	276	498	278	150	54	14900	1987	1490	430	331	497	331	563	99	**103**	**21**	**-89**	**123**	**2**	**3**	**2**	**-285**	**-32**
Yebilaptsa MSS	9325	1303	884	486	209	270	183	277	56	14200	1850	1420	200	311	470	313	135	45	18399	2453	1840	532	409	613	409	695	123	**5126**	**700**	**464**	**154**	**111**	**127**	**87**	**-283**	**-22**
Gomphu LSS	928	101	101	68	22	38	26	56	-2	2850	350	280	50	62	94	62	30	12	3812	508	381	110	85	127	85	144	25	**-34**	**-57**	**0**	**8**	**-1**	**5**	**3**	**-58**	**-13**
2nd FCR 2015 vs. 1st & 2nd FRN 2016																																		
Chapcha MSS	2920	326	531	472	137	496	30	57	89	23600	3250	2120	450	453	491	560	420	66	26510	3535	2651	766	590	884	590	1002	177	**10**	**41**	**0**	**156**	**0**	**103**	**0**	**-525**	**-22**
Chungkha PS	182	6	9	16	0	0	0	0	0	14700	2000	960	450	213	319	213	180	43	9556	1275	956	277	213	319	213	361	64	**5326**	**731**	**13**	**189**	**0**	**0**	**0**	**-181**	**-21**
Daga HSS	2596	342	240	1	54	96	80	48	8	22850	3050	2300	750	511	751	485	405	105	25400	3387	2540	734	565	847	565	960	170	**46**	**5**	**0**	**17**	**0**	**0**	**0**	**-507**	**-57**
Minjey MSS	1010	64	91	197	18	25	18	23	17	13800	1950	1400	250	311	469	311	255	49	14796	1973	1480	428	329	494	329	559	99	**14**	**41**	**11**	**19**	**0**	**0**	**0**	**-281**	**-33**
Dungkar PS	210	36	14	38	0	0	0	0	0	5350	750	560	150	124	185	124	105	25	5549	740	555	161	124	185	124	210	37	**11**	**46**	**19**	**27**	**0**	**0**	**0**	**-105**	**-12**
Mongar HSS	1295	149	129	40	52	43	28	18	6	20900	2850	2100	650	442	697	466	390	93	22194	2960	2220	642	494	740	494	839	148	**1**	**39**	**9**	**48**	**0**	**0**	**0**	**-431**	**-49**
Kengkhar LSS	598	47	62	55	12	14	12	0	0	7150	1000	720	200	160	243	160	150	35	7707	1028	771	223	172	257	172	292	52	**41**	**19**	**11**	**32**	**0**	**0**	**0**	**-142**	**-17**
Pemagatshel MSS	-275	0	-105	77	56	15	-6	-4	1	7500	1000	760	150	110	234	166	135	33	16052	2141	1606	464	357	536	357	607	108	**-8552**	**-1141**	**-846**	**-237**	**-191**	**-287**	**-191**	**-472**	**-74**
Tsebar LSS	354	72	60	161	4	2	0	76	0	4550	600	440	100	105	161	109	60	22	4871	650	488	141	109	163	109	184	33	**33**	**22**	**12**	**120**	**0**	**0**	**0**	**-48**	**-11**
Karmaling HSS	1970	243	60	63	101	124	130	113	42	18700	2550	2020	550	358	565	329	255	51	20653	2754	2066	597	459	689	459	781	138	**17**	**39**	**14**	**16**	**0**	**0**	**0**	**-413**	**-45**
Martshala MSS	1617	202	118	7	36	23	36	81	7	17950	2400	1800	550	399	598	399	330	80	24784	3305	2479	716	551	827	551	937	166	**-5217**	**-703**	**-561**	**-159**	**-116**	**-206**	**-116**	**-526**	**-79**
Denchukha LSS	530	104	101	12	47	75	47	0	10	6500	850	620	200	110	160	110	135	22	7029	938	703	204	157	235	157	266	47	**1**	**16**	**18**	**8**	**0**	**0**	**0**	**-131**	**-15**
Bidung LSS	118	42	6	0	10	-7	4	7	4	10750	1450	1080	350	232	362	238	195	45	10851	1447	1086	314	242	362	242	410	73	**17**	**45**	**0**	**36**	**0**	**0**	**0**	**-208**	**-24**
Wamrong LSS	2751	372	443	260	88	192	89	98	19	9950	1350	840	250	195	235	194	135	38	12700	1694	1270	367	283	424	283	480	85	**1**	**28**	**13**	**143**	**0**	**3**	**0**	**-247**	**-28**
Yebilaptsa MSS	696	86	23	110	13	19	14	78	2	16600	2250	1720	400	371	557	370	240	75	17262	2302	1727	499	384	576	384	653	116	**34**	**34**	**16**	**11**	**0**	**0**	**0**	**-335**	**-39**
Gomphu LSS	11	-52	1	71	0	6	1	57	-6	8050	1100	820	200	179	262	178	90	36	8015	1069	802	232	179	268	179	303	54	**46**	**31**	**19**	**39**	**0**	**0**	**0**	**-156**	**-18**

***Annexure 'C'** :Table showing the rates for food commodities supplied by FCBL*

S/n	Commodity	Issuance made by FCBL to schools				Amount (Nu.) - Payment received by FCBL for school feeding				*Rates (Nu.)		
		2014	2015 1	2015 2	2015 3	2014	2015 1	2015 2	2015 3	2014	2015 1	2015 2 & 3
1	Rice	1,550,225	1,847,850	799,575	902,800	41,591,679.85	41,419,988.11	17,299,227.77	20,218,740.13	*26.83*	*22.42*	*22.04*
3	YSPea	205,900	246,900	101,300	121,275	8,738,831.11	9,297,919.75	4,097,278.61	4,736,297.74	*42.44*	*37.66*	*39.69*
4	Veg.Oil	147,460	185,526	78,105	85,922	12,588,678.94	16,244,280.42	7,048,068.18	6,717,590.55	*85.37*	*87.56*	*83.92*
5	C/Pea	45,100	53,047	20,000	15,975	1,972,732.12	2,460,507.29	1,225,551.90	1,043,511.59	*43.74*	*46.38*	*63.07*
6	Sugar	34,252	41,046	17,793	19,915	1,453,652.38	1,497,807.68	591,860.71	640,935.17	*42.44*	*36.49*	*32.69*
7	Salt	34,413	61,514	26,697	29,038	287,567.46	563,118.27	236,546.88	253,764.88	*8.36*	*9.15*	*8.80*
8	S/Chunk	58,215	32,808	8,460	10,620	4,154,059.43	1,693,139.30	515,774.33	609,344.67	*71.36*	*51.61*	*58.97*
9	Mpowder	34,700	41,011	16,908	19,284	10,516,980.71	13,797,648.98	5,699,384.61	5,878,195.42	*303.09*	*336.44*	*319.89*
10	Tea	10,273	8,200	3,072	4,042	1,498,388.96	1,063,011.85	384,092.97	456,306.80	*145.86*	*129.64*	*118.13*

** Rates are calculated based on the data collected from FCBL Pling and inclusive of direct and indirect costs*

Annexure: D

Exhibiting comparison of quanties of food commodities required and quantities supplied for 1 quarter (1st Oct to 18th Dec 2016)

Name of the School	Total no. of Students (as per schools' record)	Quantity (kg) Required based on standard ration scale from 1st Oct to 18th Dec 2016 - 78 feeding days									Quantity (kg) Supplied as per DSE's records from 1st Oct to 18th Dec 2016 - 78 feeding days									(+) Excess / (-) Short Supplies								
		Rice	Pulses	Oil	Chick peas	Salt	Sugar	Milk powder	Soya	Tea leaf	Rice	Pulses	Oil	Chick peas	Salt	Sugar	Milk powder	Soya	Tea leaf	Rice	Pulses	Oil	Chick Peas	Salt	Sugar	Milk Powder	Soya	Tea leaf
Ration Scale (g)		450	60	45	13	15	10	10	17	3	450	60	45	13	15	10	10	17	3									
Kengkhar LSS	113	3966.3	528.84	396.63	114.582	132.21	88.14	88.14	149.838	26.442	7200	1000	720	250	240	160	160	135	32	3233.7	471.16	323.37	135.418	107.79	71.86	71.86	-14.838	5.558
Dungkhar PS	70	2457	327.6	245.7	70.98	81.9	54.6	54.6	92.82	16.38	2500	350	260	100	82	55	55	45	11	43	22.4	14.3	29.02	0.1	0.4	0.4	-47.82	-5.38
Minjey MSS	208	7300.8	973.44	730.08	210.912	243.36	162.24	162.24	275.808	48.672	7550	1050	760	250	252	168	168	135	34	249.2	76.56	29.92	39.088	8.64	5.76	5.76	-140.808	-14.67
Bidung LSS	151	5300.1	706.68	530.01	153.114	176.67	117.78	117.78	200.226	35.334	5300	750	540	200	177	118	118	105	24	-0.1	43.32	9.99	46.886	0.33	0.22	0.22	-95.226	-11.33
Wamrong LSS	169	5931.9	790.92	593.19	171.366	197.73	131.82	131.82	224.094	39.546	6150	850	620	200	204	136	136	120	28	218.1	59.08	26.81	28.634	6.27	4.18	4.18	-104.094	-11.55
Pemagatshel MSS	127	4457.7	594.36	445.77	128.778	148.59	99.06	99.06	168.402	29.718	4550	650	460	150	151	101	101	90	21	92.3	55.64	14.23	21.222	2.41	1.94	1.94	-78.402	-8.718
Tsebar LSS	111	3896.1	519.48	389.61	112.554	129.87	86.58	86.58	147.186	25.974	3950	550	400	150	131	87	87	75	18	53.9	30.52	10.39	37.446	1.13	0.42	0.42	-72.186	-7.974
Karmaling HSS	239	8388.9	1118.52	838.89	242.346	279.63	186.42	186.42	316.914	55.926	8500	1150	860	250	283	189	189	165	38	111.1	31.48	21.11	7.654	3.37	2.58	2.58	-151.914	-17.93
Denchukha LSS	164	5756.4	767.52	575.64	166.296	191.88	127.92	127.92	217.464	38.376	12250	1650	620	400	204	136	136	120	28	6493.6	882.48	44.36	233.704	12.12	8.08	8.08	-97.464	-10.38
Gomphu LSS	112	3931.2	524.16	393.12	113.568	131.04	87.36	87.36	148.512	26.208	4000	550	400	150	133	89	89	75	18	68.8	25.84	6.88	36.432	1.96	1.64	1.64	-73.512	-8.208
Yebilaptsa MSS	231	8108.1	1081.08	810.81	234.234	270.27	180.18	180.18	306.306	54.054	8950	1200	900	300	298	199	199	165	40	841.9	118.92	89.19	65.766	27.73	18.82	18.82	-141.306	-14.05
Chungkha PS	96	3369.6	449.28	336.96	97.344	112.32	74.88	74.88	127.296	22.464	3450	500	360	100	114	76	76	75	16	80.4	50.72	23.04	2.656	1.68	1.12	1.12	-52.296	-6.464
Chapcha MSS	375	13162.5	1755	1316.25	380.25	438.75	292.5	292.5	497.25	87.75	13450	1800	1360	400	447	298	298	240	60	287.5	45	43.75	19.75	8.25	5.5	5.5	-257.25	-27.75
Daga HSS	354	12425.4	1656.72	1242.54	358.956	414.18	276.12	276.12	469.404	82.836	12850	1750	1300	400	428	286	286	240	58	424.6	93.28	57.46	41.044	13.82	9.88	9.88	-229.404	-24.84
Monggar HSS	320	11232	1497.6	1123.2	324.48	374.4	249.6	249.6	424.32	74.88	11450	1550	1160	350	381	254	254	210	51	218	52.4	36.8	25.52	6.6	4.4	4.4	-214.32	-23.88
Martsala MSS	250	8775	1170	877.5	253.5	292.5	195	195	331.5	58.5	8900	1200	900	300	297	198	198	165	40	125	30	22.5	46.5	4.5	3	3	-166.5	-18.5

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