

Functioning of Industrial canteen Catering To The Miners

By

S. THILAGAVATHI

**A THESIS SUBMITTED TO THE AVINASHILINGAM INSTITUTE FOR HOME SCIENCE
AND HIGHER EDUCATION FOR WOMEN-DEEMED UNIVERSITY, COIMBATORE-43
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE IN FOOD SERVICE MANAGEMENT AND DIETETICS**

April 1999

April 1999

**FUNCTIONING OF INDUSTRIAL CANTEEN
CATERING TO THE MINERS**

by
S. THILAGAVATHI

**A THESIS SUBMITTED TO
AVINASHILINGAM INSTITUTE FOR HOME SCIENCE
AND HIGHER EDUCATION FOR WOMEN
(DEEMED UNIVERSITY)
COIMBATORE – 641 043.**

in partial fulfillment of the requirement for the degree of

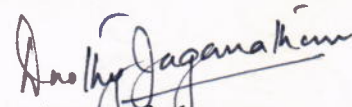
**MASTER OF SCIENCE
IN FOOD SERVICE MANAGEMENT AND DIETETICS
APRIL, 1999**

Certified as Bonafide Research Work

Signature of the
Dean of Faculty of
Home Science



Signature of the
Head of the
Department



Signature of the
guide

ACKNOWLEDGEMENT

ACKNOWLEDGEMENT

The investigator expresses her deep sense of gratitude to **Hon. Colonel. (Tmt.) Rajammal P. Devadas, M.A., M.Sc., Ph.D., (Ohio State), Hon.D.Sc., (Madras) Hon.D.Sc., (C.Azad, Agri University, Kanpur), Hon. D.Sc., (Ulster, Northern Ireland)**, Chancellor, Avinashilingam Institute for Home Sciences and Higher Education for women –Deemed University, Coimbatore for extending her valuable consent and providing opportunity and facilities to earn knowledge and wisdom at the unique university campus.

The investigator places on record her thanks to **Tmt. Lakshmi Shanta Rajagopal. M.S., (Tennessee), Ph.D., (Madras)**, Vice Chancellor, Avinashilingam Institute for Home Sciences and Higher Education for women –Deemed University, Coimbatore for providing all the amenities required for the successful conduct of the study.

The investigator owes her profound sense of gratitude and sincere thanks to **Tmt.Saroja Prabhakaran, M.A., Dip. Ed., Ph.D (Mother Teresa)**, Registrar and Director, Hall of Residence, Avinashilingam Institute for Home Science and Higher Education for women –Deemed University, Coimbatore for extending all the help for the smooth conduct of the study.

The investigator expresses the reverential gratitude and thanks to **Tmt. Parvathy Easwaran, M.S.,(Columbia) Ph.D.,**

(Madras), Dean , Faculty of Home Science, Professor and Head of the Department Food Service Management and Dietetics, Avinashilingam Institute for Home Science and Higher Education for Women -Deemed University, Coimbatore, for her overwhelming support and constructive criticism.

With great sense of deference and truthfulness, the researcher places her sincere and grateful thanks to her esteemed honoured guide **Tmt. Dorothy Jaganathan, M.Sc., M.Ed., (Madras), M.Phil., (Bharathiar)**, Department of Food Service Management and Dietetics, Avinashilingam Institute for Home Science and Higher Education for women - Deemed University, Coimbatore for her systematic guidance, constant stimulation, constructive suggestions and learned counsel during the study period.

The investigator wishes to express her thanks to the teacher of Food Service Management and Dietetics Department and her colleagues and friends, whose tremendous support, timely help and suggestions have made things work out the best.

She wishes to express her deepest sense of gratitude to her family members for their moral support, encouragement and co-operation without which the study would not have seen the light of the day.

The investigator would be failing in her duty if she did not thank **Mr. Kannan, Assistant Personnel Manager, Neyveli Lignite Corporation Ltd.** and others for their tremendous support during the period of study in their Institution.

Her sincere thanks are due to every one who directly and indirectly helped to accomplish their work.

She bows to the glory of **God** and his manifold mercies on her to carry out the study successfully.

CONTENTS

CHAPTER No.	TITLE	PAGE No.
	LIST OF TABLES	
	LIST OF PLATES	
	LIST OF APPENDICES	
I	INTRODUCTION	1
II	REVIEW OF LITERATURE	8
	(A) Organisation and Management of food service	8
	(B) Employee facilities	15
	(C) Trends in Food Service	16
	(D) Nutritional Knowledge, Hygiene and Sanitation	18
	(E) Customer Satisfaction	20
III	METHODOLOGY	22
	(A) Selection of the Area	22
	(B) Selection of the samples	23
	(C) Selection of the tool	23
	(D) Selection of the Data	25
	(E) Analysis and Interpretation of the data	25

IV	RESULTS AND DISCUSSION	26
	(A) The organisation set up	26
	(B) Menu pattern and special foods provided	32
	(C) Receiving, purchasing and storage of food items	35
	(D) Hygiene and Sanitation practices	39
	(E) Facilities provided to the canteen workers	41
	(F) Customer satisfaction	45
V	SUMMARY AND CONCLUSION	52
VI	RECOMMENDATIONS	56

BIBLIOGRAPHY

APPENDICES

LIST OF TABLES

CHAPTER No.	TITLE	PAGE No.
I	Number of Personnel Employed	28
II	Work Schedule	31
III	Menü and Quantity of Food	34
IV	Age group of the Selected samples	46
V	Income range of the selected samples	47
VI	Shift Timing	48
VII	Meals taken by the samples	49
VIII	Opinion regarding the food	50

LIST OF APPENDICES

- I **Menu pattern of the canteen**
- II **Nutritive value of the menu in the canteen**
- III **Schedule for hygiene for sanitation**
- IV **Questionnaire for Customer Satisfaction**

LIST OF PLATES

- I **Vans used to transport the foods**

INTRODUCTION

INTRODUCTION

The Food Service Industry has experienced tremendous growth and change in the last few years, which have created a need for food service facilities capable of providing the variety of meals prepared by different preparation techniques that will satisfy the changing desires of customers.

Food service is defined "the art or means of serving" to serve is "to provide goods and services for" and "to be as assistance to" service is a complex and critical component in the hospitality industry, and can be looked at from many perspectives.

Food service facilities vary from the simplest limited menu snack bar to the multifaceted hotel food service that may involve public dining rooms, employee dining rooms, cafeterias, banquet service and room service. Each type food service facility is characterized by unique traits in the meals offered, type of service, operational methods, marketing approach, customers served and atmosphere or ambience.

Food service may be planned to meet different objectives. For example, the objective for a fast food outlet may stress the speed of service, the Industrial Canteen Service has stress the increase of productivity in the Industry and Nutritional care of the employees

where as the hospital's food service has to stress the nutritional and therapeutic values of food.

- These variations indicate the complexity of planning food service. However, there is one characteristic common to all food service facilities. Each is involved in the production and sale or distribution of meals, this common characteristic requires that good service facility be planned for technologically modern production techniques and operated by modern management concepts.

Traditionally food service operations have been divided into two major categories. Commercial and Non commercial or Institutional.

Commercial operations are those that compete in free market and are open to all customers. Restaurants, outlets in convenience stores and street vendors would all be classified as commercial food services.

Non - Commercial or Institutional food services are those operations - set up within a specific kind of Institution to serve a specific audience. These establishments may be found in hospitals. On military bases, or in life care centres, in some Industries. Some institutions now have food service provided by commercial operations. For example Industries and some private companies.

From the mid - nineteenth century onwards, the Government reacted to growing public concern about the living and working conditions of Industrial workers. Employers were encouraged to look after the welfare of employees. In due course, workers are provided better food at work than they did at home.

Most government factories established at the end of the 1930's these built with canteen facilities. In 1940, the Government factory canteen order made it compulsory for factories employing more than 250 people to provide dining rooms where wholesome meals at reasonable prices were available.

Irrespective of this, it is a moral obligation on employers of catering staff to provide them with partly or fully subsidised meals even if the establishment is small enough to employ only four or five people. This benefit also helps to reduce pilferage of food during cooking and eating.

These cater to the workforce mainly. The food is generally served preplated in "Thalis" the table d'hote menu taking the form of rice, one curry, one seasonal sauted vegetables. Sweets and desserts may be made available but priced separately.

In employee Canteens, any foods placed on the menu would take care of nutritional and Satiety factors, as canteen meals and snacks

provide the main food for the factory workers. This is because they would like to take advantage of the subsidised meals provided at work as a welfare measure. In addition the work force is employed for the work round the clock and those on night shifts like heavy breakfast in canteens before going off duty, while those on day duty necessarily work through lunch or dinner times and eat main meals in the canteen.

The provision of subsidised food at the workplace became a recognised employee benefit. There is a growing trend in management thinking to sub - contract all activities other than the core business activity to specialists. Supplying food to the workforce should no longer be the direct concern of management of non - catering companies.

But nowadays, the Government is acting as the catalyst in encouraging the public sector to use contract canteen on a large scale and a new ways.

The traditional sectors are called cost, non- profit making or non commercial catering or social catering. Because contract caterers are also developing their interests in commercial catering.

Non- commercial or institutional food service operations are distinguished by the audience they serve. Institutional operations unlike commercial operations have a more captive audience. Revenue

may be earned by institutional providers in lump sums, such as a contract with a hospital or industry or through contracts with individuals, such as college meal plans.

Employee feeding is undergoing great changes because of the rising cost of labour and the decrease in corporate subsidies. Managers are realizing that these operations must be self - supporting. Decreases in the labour force have hurt sales and profits, but employee feeding will follow the economy in 1993, improving slightly (Chaudhry 1993). The competition from contract companies has caused many organisations food service managers to seek employment elsewhere.

Employee feeding contractors are expected to participate in the quality management program of the organisation that commissions them by satisfying the customer of empowering the food service employees. Contractors are strengthening relationship with brand name, or branded, concepts by becoming franchises or administering franchise agreements for their principals (Brault et al, 1992)

Nowadays many executives face health problems like heart trouble, high cholesterol level, high or low Blood pressure, tension and anxiety. Therefore they are advised by their doctors to cut down on salt, spices, fats and oils, sugars, meats, eggs for which they demand modified diets. Even the company's doctor recommend a

specific or special diets for their executives and top management personnel. It is better and easy for the company to compile different means for the executions. Some company's have separate menus for executives and other top personnel. This concept has given rise to special menus in the canteen.

Industrial catering is mainly staff and workers oriented. Here personals are from companies. Here workers demand rich, heavy, oily, spicy, meaty, quantity and quality food where there is not much concern about nutritious foods, balanced diets. The main concern may be taste.

Different menu types like normal food, light menus executive meals, packed meals, speciality menus may exist in Industrial catering. In Industrial catering more and more complaints are likely to be received, as workers get fed up of eating same food year after year, and they take out their anger on food and services offered.

Industrial catering involves part of canteen committees, trade unions in menu planning and other functions and activities, their interference is very much there and is very often, sometimes this could be too much and the catering management may be influenced by there presence.

In Industrial catering portion control may be difficult as workers are never satisfied with quantity they get, will always demand for more and more food.

It may not be possible to maintain high standards of hygiene and sanitation, as routine cleaning is carried on without concerning special cleaning normal course.

This project is taken to throw some light on the functioning of such Industrial canteen.

The objective of an employee feeding programme is to give employees food that exceeds the quality in a restaurant so they will not leave the building. Hence the study was carried out with the following objectives to :

1. Find out the organisation pattern of the selected canteen.
2. Find out the menu offered with subsidy provided.
3. Know whether any special diets are planned.
4. Assessing the purchasing, storage and receiving pattern of the foods in the establishment.
5. Assess the hygiene and sanitation practices followed in the canteen.
6. Find out incentives provided to the canteen personnel.
7. Assess customers satisfaction.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

The literature pertaining to the study is reviewed under the following headings.

- A. Organisational and Management of food service.
- B. Employee facilities
- C. Trends in food service
- D. Nutritional knowledge, Hygiene and sanitation
- E. Customer satisfaction.

A. ORGANISATION AND MANAGEMENT OF FOOD SERVICE

In Industrial as well as Institutional catering staffing, manpower planning and Organisational pattern are very important as the catering personnel are the backbone of any catering Organisation- either those who have own catering or contract catering companies. (Radhakrishnan. 1998, Lane et.al., 1996).

Organisation and Management are the two aspects of the problem of integrating industrial enterprise. From the point of view of the members of the enterprise, the organisation is the pattern of relationships established among them, and the management is the use to which their pattern is put in integrating their activities. (William 1982).

Dale. (1992) states the organisation for management is as old as human society and grew out of common interest and combined efforts to accomplish a common goal, Most of the theories fell into three categories classical, Human relations and modern or systems approach. The former two theories are not out dated and now-a day system approach method is being followed.

Organisation is the foundation upon which the whole structure of management is built that enables living things to work effectively by identifying and grouping the work to be performed, defining and delegating responsibility and authority and establishing relationships for the purpose of enabling people to work must effectively together in accomplishing objectives (Allen, 1995).

a. Menu Planning

More and more emphasis is now being laid on nutritious and balanced diets, to maintain the health and hygiene of Industrial workers and the staff and for that purpose appropriate legislation has been enacted by the government to ensure adherence to providing hygiene and nutritious food and eating facilities to the Industrial workers at reasonable rates. This attitude of the government has

encouraged employers to provide food facilities at more subsidised rates. (Spearman, 1997).

- The aim in planning meals in canteen should be to provide one meal during the day, a substantial proportion of all the essential nutrients, required by the body. Menus should be suitable for the age, type of worker, nature of the industry and working conditions involved. Variety and choice in the canteen meals are psychologically the best means of promoting appetite and of putting over a healthy diet. (New. 1987).

The latest trend in the meals charging system is standard deduction at source. In this system the meal charges charged to all employees and workers, are deducted directly from their salaries just like income tax or other tax deducted directly from the salary.

The percentage and the amount of money to be deducted from the salary is decided at joint management, catering manager, union and canteen committee meetings. This percentage or the subsidy offered by the management is likely to be more than 80 percent in any case, as this is becoming a norm in the industrial and institutional catering. (Radhakrishnan, 1998).

By and large the menus to the industrial and institutional catering are simple and easy to prepare. They do not have any fancy

items with complicated names and forms as nobody is really interested in them. Everybody needs quality, tasty meals of enough quantity. All employees have a very limited time of 15 minutes or so for breakfast and afternoon tea, 30 minutes for lunch and dinner. Within this time they have to come to canteen, stand in line, pick up and eat food, go back to their respective department to resume work. (Radhakrishnan. 1998).

Ghotikar, (1999) pointed out that "It is recommended not to give free food to all as free food has very little or no value as such, even if all employers pay as little as five per cent of the total food cost, there is an element of something taken against the food served and other services rendered to them. This system of charging the meals by coupon system in being abolished gradually.

b. Purchasing, Storage and Issuing :

Gonzaley (1996) found out three food purchasing procedure used by school food service programmes in the US were compared. The traditional bid system, the cost-plus-fixed-fee system, and co-operative system. The result shows that when compared with schools traditional bid system, schools using Co-operative system paid a mean of 2.9 percent less. Schools using the cost-plus-system paid a mean

of 4.2 percent more for food. So it indicates Co-operative purchasing was the least expensive but product shortages, food refusals and non-deliveries are common with this system.

Smith (1994) indicated that, In 1993 the Mississippi State department of education (MSDE) implemented an innovative purchasing system for child nutrition programs. The directors of such institutions identified several advantages compared with their old system : less time spent on administration improved vendor services, fewer out of stock items and substitutions, better food quality and cost savings. Other CNPS, nursing homes, hospitals and food service provides could use this program as a model for co-operative purchasing.

The purchasing function encompasses a full range of management activities, from listing supply needs to controlling inventory. Every activity influences the nature and effectiveness of the system by which hospitality organisations purchase the products and services required to please the guest. (Express Hotelier and Caterer, 1999).

The purchasing function was classified as a service activity in most hospitality businesses. Institutional managers traditionally

viewed purchasing as a support function required to purchase those products, supplies and services needed for production and service activities. As a result, purchasing consisted of little more than fulfilling a need for a particular product in a routine manner. (Express Hoteliers and Caterers, 1998).

Procurement relates to a broad series of management activities that are designed to maximise value for the company and its guest. The terms procurement and purchasing are used interchangeably in the hospitality industry. (Taylor 1993).

Good purchasing management continuously assess needs and, when successful, satisfies those needs in a manner which maximizes value for both the operation and its guests. (Surjeet Malhan, 1996).

Good storage practice involves storing adequate quantities and not excess which will ultimately lead to spoilage, wastage and pilferage. To maintain physical inventory is important (Peffer, 1990).

The food materials must be stored in an orderly manner and in logical sections. The golden rule for storing food is to keep it clean, cool and covered. The proper storage of food in a catering establishment calls for systematic and unremitting care on the part of both management and staff. (Ross, 1992).

c. Preparation, Portion control and Quality Control :

Workers can be more quickly trained in proper cooking procedures and with standards, quality established better records of food consumption and controlled inventories. Any deviations can also be quickly spotted. (Kamalanathan, 1991).

The standardization of the menu does not eliminate the act of cooking but merely makes the artistry consistent. (Teske, 1989).

Portion control makes the size or the quantity of food to be served to each customer, which is determined by the management by reference to number of factors, type of customers or establishments, quality of food, portion size adjusted to the price charged and the amount of profit required (Jey Chandran 1990).

In industrial canteens standard recipes are to be followed costing must be done at least after every 6 months or so. These recipes must be strictly adhered to, the standard recipe cards or statement must be maintained in proper files and category wise. The weights and measurement of raw food materials must be followed very strictly. (Ghotikar, 1998).

Quality control safeguard the people from the health hazards posed by the practice of adulteration. It is defined as “ that which makes a thing what it is : nature, kind, property, status and guard of goodness – excellent” (Jacob, 1986).

Quality control or quality assurance is an activity, method or programme that will ensure the maintenance and continuity of specifications and standards of products during all stages of handling, processing and preparations characteristics are sustained during storage processing or preparation and will remain unaltered until consumed (Thorner et.al., 1989).

B EMPLOYEE FACILITIES :

Beslie, 1998. emphasised, in the united States in the 1800s many employers provided free or below cost meals to their employees, a practice that continues today.

Kenneck,(1994) viewed that In industrial catering, the trade Unions, both internal and external, started demanding more and more quality, quantity and variety of food and allied services. They also demanded a better quality of miscellaneous service and better hygiene standards. The organisation basically has to fulfill the basic plus the specific needs since man power is the backbone of the company.

Spearman, (1995) stated that Robert Owen, a scottish is considered the "father of Industrial catering" has so improved working conditions for his employees that his mill became a model throughout the Industrial world. Among other things, it contained a large kitchen and eating room for employees and their families prices for meals were nominal.

C. PRESENT SCENARIO OF FOOD SERVICE

a. Trends in Food Service.

Several key trends are changing the services and characteristics of contract food services. In conference in United states discussed eight trends like consolidation and stratification service bundling, marketing programs, front of the house investment, food safety and HACCP programmes, culinary influences, new avenues of growth and technology. (Journal of American Dietetic Association , Poster session 1998).

Changes in eating patterns and food purchasing behaviors lag for behind shifts in consumer lifestyles and attitudes. Despite greater dependence on technology the desire for fresh, natural pure and environmentally sensitive products is stronger than ever. Consumers will continue to be concerned look to foods rather than drugs to

prevent and treat diseases. (Journal of American Dietetic Association, 1998).

Spears (1993) insisted that employee feeding is projected to total \$ 5.5 billion in 1985. Food contractors account for approx 2/3rd of this volume by providing services in industrial plants and in commercial office buildings.

Industrial feeding is regarded as an integral part of the facilities of the factory even though the provision of food to workers is frequently not required by law (FAO, WHO, 1985).

Industrial catering is now such an established feature in industry that the canteen has become almost a part of the modern factory or office as the workshop or sales office (New 1987).

Rapid urbanisation and consequent large shifts in population and industrial feeding programme becomes important not only to the health and productive capacity of the worker but also to the improved distribution and use of food supply (Lillicarp 1991).

A canteen which can produce a well cooked meal at a reasonable price in pleasant surroundings ; has some influence an attracting and

holding labour a point being regard by many firms as being of great importance. (Lubarg 1993).

D. NUTRITION KNOWLEDGE, HYGIENE AND SANITATION ASPECTS AND CUSTOMER SATISFACTION

Nutrition Labelling in restaurants : An article on this states that labelling regulations as they pertain to food service operations. It also describes print materials used to convey nutrition information to customers by to food services companies like Burger king, pizza hut (Journal of American Dietetic Association, 1994).

Abell, (1993). stressed the Hospitality Industry is responding to its customers growing interest in their health and nutrition by offering alternative menu selection that are lower in fat, sodium, cholesterol and calories. The results of a study indicate that the majority of restraints offer or plan to offer in the future what they consider nutritious menu items. These results reflect that there is a growing necessity for nutrition education is the Hospitality Industry.

Sipple (1990) and Rao (1997) explain that a well planned and well organised effort in Nutrition Education can motivate people to improve their feeding habits .

Urgent need for hygiene in eating out establishment in some thing that should have taken place a longtime ago. More cases of hygiene-related sickness and food poisoning cases are reported in a large part of the country. (Suri 1998).

Radhakrishan, (1998). expressed that, it is very essential to keep the entire catering facility clean and tidy. It is a fact that "Cleanliness is next to godliness" All the areas like kitchen, mess halls like dining halls, must be kept clean as not to allow germs, bacteria, viruses to develop thus maintaining hygiene and sanitation in top condition.

Manning May, (1989). designed a questionnaire to assess food safety knowledge and attitudes of 2 food handlers groups : Temporary group and Institutional group. Differences and demographic characteristics were identified for these 2 groups of workers. These have implications for their education/Training.

Pest control to be done. The pesticide insecticide fumigation spray can be sprayed at all the lower sides and corners in the kitchen stores and different halls. Care has to be taken to see that the insecticides or the fumes do not come in contact of food in persons (Ghotikar 1998).

In 1987 the hygiene condition was analysed of 28 workers canteens in the province of cichanow considering also the quality of lunches. The inspection showed that the hygienic condition of 14 canteens (40 percentage) was unsatisfactory. The microbiological cleanliness of the equipment was questioned most frequently in these canteens in which the hygienic condition was below standard. In 28 canteens controlled the nutrition was incorrect. It was found that the occupational qualifications and the level of knowledge on rational nutrition of the staff and personnel in the canteens were unsatisfactory.(Express Hotelier and Caterer, 1998).

E. CUSTOMER SATISFACTION :

In many hospitality companies and customers largely determine customer satisfaction, with the service. To improve satisfaction, service personnel must both understand the significance of their role and able to independently recognize and correct service problems (Cauziani, 1995).

Duble, (1989) analysed patients satisfaction with 26 food service attributes by factor analysis. This statistical technique allows the food service attributes that are correlated to be grouped under a number of attributes. These dimensions represent the underlying psychological

dimension a concept in other words, how patients perceive the quality of food service.

Measuring customers Satisfaction :

- ❖ Levics and pizens (1986) have identified the factors that a satisfaction index should achieve and say that it should.
- ❖ Measure that dominant trends in consumer satisfaction
- ❖ Provides straight forward information
- ❖ Not be so long as to discourage customers from responding
- ❖ Tell the organisation if the guest will return or not
- ❖ Meet the specific needs of an operation
- ❖ Be easy to analyse , so that prompt action can be taken.

METHODOLOGY

METHODOLOGY

The design of the study – “Functioning of Industrial Canteen catering to the Miners” was framed on the basis of the objectives of the study and the methodology covered the below mentioned aspects.

- I. Selection of the Area
- II. Selection of the Sample
- III. Selection of the tool
- IV. Collection of Data
- V. Analysis and Interpretation of the data.

I. SELECTION OF THE AREA

The Study was carried out in one of the biggest lignite producing company NEYVELI was selected from Cuddalore district. This was chosen for the below mentioned reasons.

1. This is the well known area, which consists of 7 industries running successfully and profitably in a township.
2. Large number of employees were benefited by this lignite city.
3. Availability of samples required by the data Collection.

II. SELECTION OF THE SAMPLE

Samples were selected by simple random sampling. From the mines I, about 400 in the age group of 25-55 years of various categories of jobs performing heavy and moderate work were randomly selected.

Gupta, (1991). stated that Random Sampling is the method where every item of the Universe have an equal opportunity of being selected in the sample.

III. SELECTION OF THE TOOL

A. Finding Out the Organisation Pattern :

Interview method was chosen in collecting this data. Kothari, (1997). states "The Interview method of collecting data involves presentation of Oral verbal stimuli and reply in terms of Oral - verbal responses". Using the Interview method details regarding, Organisational set up, the hierarchy shift system Order of work were collected.

B. Finding out the Menu offered, storage, purchasing and receiving pattern, and Incentives provided to the Employees.

Using observation and Interview method the data was collected. The observation method, the information is sought by way of investigators own direct observation without asking from

the respondent Kothari, (1997). These methods helped in collecting the information regarding the type of menu followed, storage, purchasing and receiving procedure, Incentives provided over there.

C. Assessment of Hygiene and Sanitation.

A schedule was used to collect this data. According to Kothari, (1997), Schedules are being filled in by the enumerators who are specially appointed for the purpose. Investigator collected information regarding Hygiene and sanitation practices followed in different areas and personal hygiene practices followed.

D. Assessment of Customer Satisfaction:

The questionnaire method was chosen to collect the data . According to Kothari, (1997), a questionnaire consists of a number of questions printed or typed in a definite order on a form or set of forms. "A questionnaire was prepared to elicit information from the workers regarding the customer satisfaction for the food provided by the company through the canteen with the subsidy, rates, their age, Occupation and income were also included.

IV. COLLECTION OF THE DATA :

The investigator met the higher authorities of the company, described about the study in terms of its objectives and collected basic information regarding total number of employees working in the canteen, Organisational set up, mode of purchasing, method of preparation, equipment used over there, storage, issuing and purchasing methods, specific amenities provided by the institution. A rapport was established among the workers and informed about the purpose of the study and the information based on their job satisfaction, problems faced and the amenities provided by the institution was collected with the help of a personal interview with the head of the department.

V. ANALYSIS AND INTERPRETATION OF THE DATA :

The collected data was consolidated tabulated and analysed and the details are given in the following chapter. Their nutrient intake was also calculated from the data obtained then the schedule in order to find out the nutritional adequacy.

RESULTS AND DISCUSSION

RESULTS AND DISCUSSION

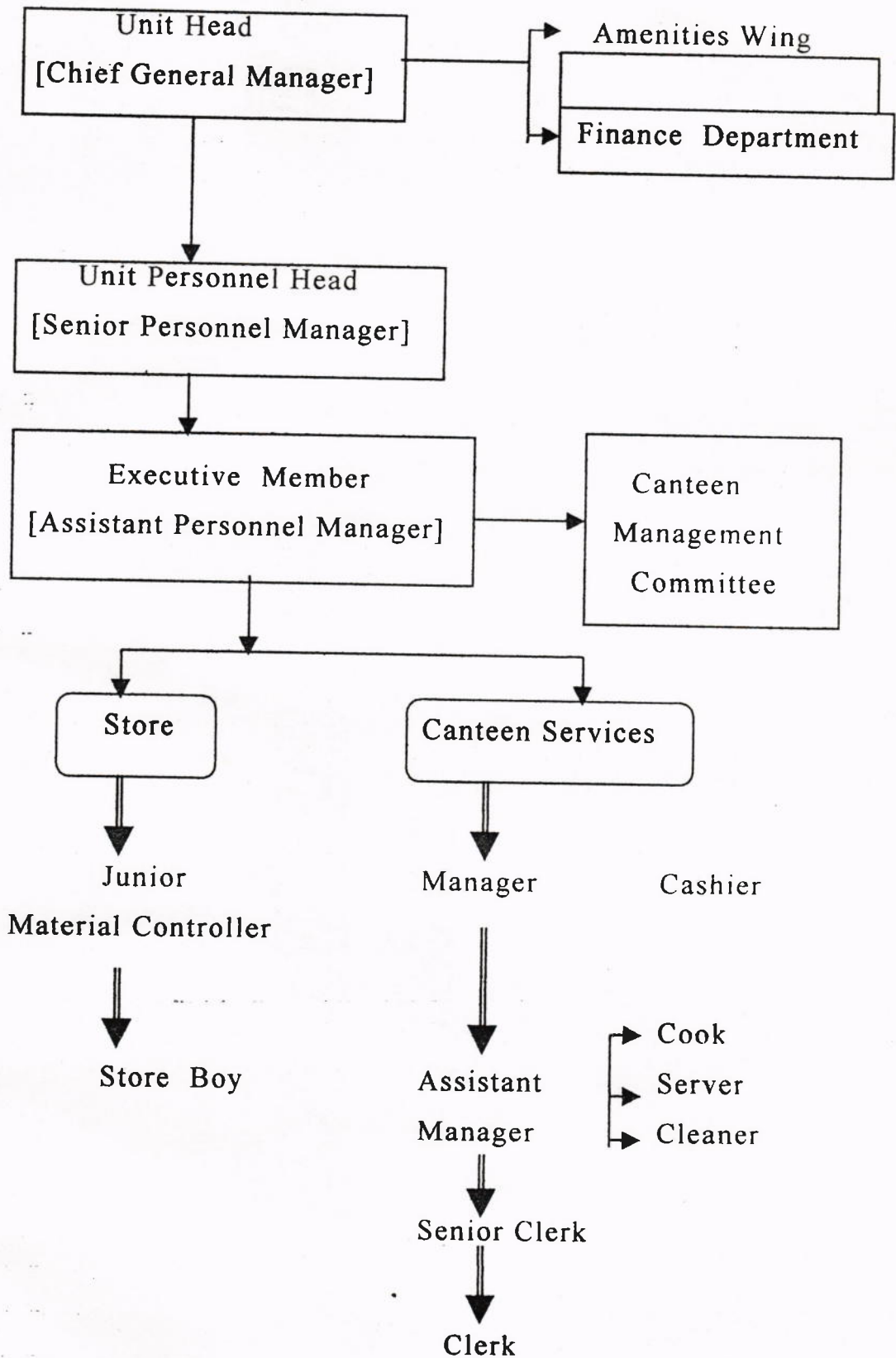
The results of present study on “Functioning of Industrial Canteen Catering to the Miners” at Neyveli are presented and discussed under the following headings :

- A. The Organisation setup.
- B. Menu pattern and special food provided.
- C. Receiving, purchasing and storage of food items
- D. Hygiene and sanitation Practices
- E. Facilities provided to the canteen workers
- F. Customer satisfaction

A. ORGANISATION SET UP :

Organisation structure studied indicates, the line of authority and the relationships which exist in the canteen among the workers. The type of authority observed was line and staff. According to Spearman, (1996) the Organisation pattern is the structure which is the outcome of organizing people and jobs and therefore represents the entire strength of the people who are involved in the running of the establishment at operational and managerial levels. Radha Krishnan (1998) also is of the that in Industrial Canteen, staffing, manpower planning and organisational pattern are very important as the catering personnel are the backbone of any food service Organisation.

The hierarchy of the Canteen flows in the following order :



From the observation made it was understood that none of the workers in the canteen were qualified in catering. They were only those who qualified themselves through experience.

Table -I

THE NUMBER OF PERSONNEL EMPLOYED

S.No	PERSONNELS	NUMBER OF PERSONNEL
1	Manager	1
2.	Assistant Manager	3
3.	Cashier	3
4.	Clerk	9
5.	Cooks	10
6.	Assistant Cooks, Servers & Cleaners	94
	Total No of Workers	120

From the Table I, we came to understand that the total number of workers working in this mines canteen number to 120. The number in each level in also mentioned in the table. The manager is overall incharge, who is assisted by three members who are designated as Assistant Managers. Under whom is a cashier, who is responsible for

all cash transactions, and he in turn reports to either the Assistant Managers or to the Manager. There are nine clerks, three in each of the three canteens located in the Mines I.

Three clerks were put up in each of the canteen in Mines I. They do all correspondence that are sent by Amenities wing to the canteen.

The Factories Act, 1948 covers the obligation of employees regarding the comfort and welfare facilities of staff. The Factories Act expects all employers to provide minimum safeguards for the safety, health and welfare of people at work. The welfare measures provided for the employees includes the following :

- a. Washing facilities for staff along with toilets and rest rooms.
- b. First aid facilities
- c. Paid annual leave
- d. Uniforms including footwear that is comfortable for work.
- e. Working hours not exceeding ten and half hours a day, including rest periods. The maximum hours per week must not exceed 48 hours provision is also made for overtime work.
- f. Paid annual leave at the rate of one month's salary for every year of service for permanent employees.

As per the Factory Act all the employees of the canteen enjoyed the same benefits as the other employed in the inside Mines. Their salary was also paid by the management on par with the workers. The Night shift workers are paid an extra amount of Rs. 15/- for each shift. This extra amount serves as an incentive to the employees.

a. Work schedule :

A work schedule represents an outline of the work to be done by an employee (Sethi 1996). The work schedule for the selected canteen workers is presented in Table II. This mine which was selected has three canteens. One canteen catered to only meals in the other canteen snacks and beverages are alone prepared and distributed to the workers at the work site. Since the work site is rather low from the ground level of the location of canteen, they cannot come up every time to have their foods. Hence, this provision to provide food and beverage at their work place have been planned.

Several distribution point are located to make the distribution of food quicker and easier for the canteen as well as for the workers so that they can go back for their work faster. This is because the number of workers in the Industry is so large that is number is 3,200

and the workers in the canteen are proportionately low that is 120 including supervisors and catering managers. Hence this arrangement was preferred.

Work shift of the canteen workers is shown in Table II.

TABLE II
WORK SCHEDULE

S.No	SHIFT	TIMINGS
1.	I Shift	6 AM – 2 PM
2.	II Shift	2 PM – 10 PM
3.	III Shift	10 PM – 6 AM
4.	General shift	9 AM – 5 PM

These shifts comes in rotation for all workers. They work for eight hours per day, which is rather comfortable. A special mention has to be made here, that the night shift workers get the breakfast ready before their shift changes, and hence those who come for the night shift start right with the meals.

General shift workers help in preparing the beverages and snack foods while the first shift and second shift workers are mainly involve in preparing the main meals, namely lunch items which

includes rice, sambar / kolambu, rasam,poriyal, papad, pickle, curd and Buttermilk and dinner.

B. MENU PATTERN FOLLOWED AND THE SPECIAL FOOD PROVIDED.

The menu pattern followed in the selected Industrial canteen is given in Appendix I.

Only vegetarian foods are provided in all the three canteens. All meals are provided at subsidised rate. Since the food is provided in order of welfare motive, the percentage of subsidy ranges between 75 - 80 percent. The canteen followed a set pattern of meals. Timing for each meal served depend upon the working and shift hours of the Industry. During work hours tea is provided for the workers which is supplied at the work spot. The tea supplied is free of cost. The system for meals is special tokens issued for each member at the end of the month. These tokens are used at any time whenever the worker requires.

Among the 3,200 workers, 800 were put up per shift. Accordingly the cost is fixed and quantity standardised.

The production of food items for Breakfast are listed below.

5,500 Idlies

4,500 Vadais

7,000 Teas

The Breakfast menus includes idli, variety rice, poori, pongal sundal and vadai. These foods amount vary depending upon the order from the work site.

For lunch the procedure followed is that, the workers who wishes to have lunch, uses his token which he has purchased earlier and informs the catering Manager or supervisor that he needs lunch or any meal. The price for full meals is Re. 1/-. Full meals includes rice, dhal, sambar / kalambu, rasam, curd, poriyal, papad and pickle. Butter milk is charged separately. The foods served with quantity are listed in the Table III.

TABLE -III
MENU AND QUANTITY OF FOOD

ITEM	QUANTITY	PRICE
Idly	1 Set (45 gs each)	20NP
Ulundu Vadai	1 Set (30 gs each)	20 NP
Tea	100 ml	10 NP (1 tea free)
Meals	(Unlimited)	Re. 1/-
Medu vadai /Bonda	1 set (30 g each)	20 NP
Masal Vadai	1 set	20 NP
Curd Rice	175 gs	20 NP
Lemon Rice	175 gs	20 NP
Tamarind Rice	175 gs	20 NP
Poori	1 set (35 g each)	Re. 1/-
Karasev	30 g	20 NP
Uppuma	135 g	Re. 1-
Sundal	35 g	10 NP
Buttermilk	250 ml	20 NP

During midnight 30 g of Karasev or mixture is served. The total number of workers in the night shift is about 500. The type of food

VANS USED TO TRANSPORT THE FOODS



provided is a variety rice. This meal which is provided for the night shift workers is not changed. The total number is about 500.

a. Mode of distribution

The prepared foods are arranged in a van and sent to the work place. There it is distributed at a various points to the workers to make work easy and feasible. Different vans were directed to different points for easy distribution and to save time. So that foods can be served hot. Individual plates have been given to the workers. They use them when they have their meals. The snacks provided were packed in plastic covers to ensure easy distribution and uniform quantity.

C. PURCHASE, STORAGE AND RECEIVING

Historically, the purchasing function was classified as a service activity in most hospitality businesses. (Express hotelier and caterers, 1998).

Most of the requirement of all the twelve industrial canteens located in various production units of Neyveli Integrated Projects are taken care of by the amenities wing. The activities of amenities wing includes purchase, allocation, distribution, follow up, collection Delivery Challans, consolidation and passing of bills, it also

responsible for the printing of token, monthly updation of men-in-position in all industrial canteens.

The food items are all purchased mainly from many co-operative stores through the Management. The amenities wing committee sends out tenders to the government agencies and Co-operative stores calling for quotations. The quotations are analysed by the committee and the supplier is decided. This tender opens at every third week of a month so that it is feasible for them to select the agency which can provide the commodity at a low price and also of good quality. The amenities department will receive the ingredients from the agencies and distribute to the various canteens according to the needs and demand.

The store keeper who is there, will receive the items and takes charge of the them.

The sources of purchase probably include the co-operatives such as :

- ❖ Chinthamani, Co-operative whole sale consumer Ltd, Pondicherry.
- ❖ M.R.Krishnamoorthy Co-op, Sugar Mills Ltd, Sethiathope.
- ❖ Trichy District Amaravathi consumers Co-op whole sale stores Ltd, Trichy.

- ❖ Tamil Nadu Civil Supplies Corporation Ltd, Cuddalore.
- ❖ Universal Agency, Chennai -42.
- ❖ Tamil Nadu Co-op oil seeds, growers Federation Ltd, Vridhachalam.

The purchasing function encompasses a full range of management activities, from listing supply needs to controlling inventory (Express Hoteliers & caterers, 1998).

The selected suppliers are invited to the committee meeting, there the quality of the product, quantity they can afford and needed quantity and prices were discussed. The order will be given to the representatives of the selected supplier, they will send the food to the amenities wing. The ordered foods are received by the Amenities wing at Neyveli Lignite corporation Ltd, the requirements from each canteen are sent according to the requirement the foods are supplied to each canteen.

Each canteen has a store keeper, who is totally responsible for all activities of the store room from receiving and issuing the commodities.

Foods are stored in well ventilated rooms. Foods are purchased in bulk and utilised immediately due to the large production and hence no special storage is essential for this kind of purchasing. The

frequency of purchasing of non-perishable items are once in 15 days and perishable items on alternate days and sometimes even everyday depending upon the need of the food.

Other than this certain foods like ravai, maidha, green gram dhal, roasted bengal gram, papad, salt Bags, table salt, cleaning powder, poletene covers, packing papers, jute thread were bought in Vaigai Maligai. The store keeper maintains a record of daily issue and balance stock and based upon this stock he sends indent for ingredients in case there is a need. A store boy is also appointed who helps in organizing the store. First in first out (FIFO) Principle is followed, so as to ensure that the old stocks do not remain inside the store. The issue of materials to be adopted should be first In first out which is the catering norm. (Express Hoteliers & caterers, 1998).

a. Record maintenance

All the Industrial canteens of this industry are required to necessarily maintain the following registers.

1. Production –Sales register
2. Site sales register
3. Bill passing register
4. Daily Issue statement
5. Daily production statement

6. Token sales register
7. Stock register
8. Token Book Accounts register
9. Cash bill register
10. Token Sales statement Pad

The following periodical returns are also required to be sent to the Amenities wing for cross checking for maintenance and issuing of stock.

1. Daily issue statement
2. Daily production and sales statement
3. Monthly consumption and closing stock statement of provisions and vegetables.
4. Monthly return of men in position of Industrial Canteens.

D. FACILITIES PROVIDED TO THE CANTEEN WORKERS

The aim of every Organisation is to gain maximum at a minimum costs through a loyal and co-operative workforce. To achieve this it is necessary for every establishment to provide a comfortable work environment for its staff, convenient and pleasant. These are often referred to as "Staff Welfare Provision".

The Shop and Establishment Act and Factory Act specifies certain rules governing the operations of different establishment.

- i. Opening and closing hours
- ii. Interval of rest
- iii. Daily and weekly work hours
- iv. Holidays in a year.

Others than this, Act also provided standing guidelines for health and safety conditions within the work place like cleanliness, ventilation and lighting and Employee safety (Ghotikar, 1998).

The general provision for the workers lists are as follows :

- ❖ Uniforms (2 per year)
- ❖ Helmet, Boots (One for 5 year & 2 pair per year)
- ❖ Apron – 2 no
- ❖ Napkin cloth - 4 no.

Paid holidays, medical leave with free medicines and treatment, earned leaves are also included in the facility. Like the Industrial workers, the canteen workers also get their Bonus and Incentives, in par with the industrial workers. People who work night shift are paid an extra amount of Rs. 15/- per shift, which serves as an incentive. As it is difficult to work during night and this extra amount is just to boost their morale. The other facilities the company provides are

- ❖ Company house with subsidised rent
- ❖ Subsidised Electric charge

❖ Subsidised water charge facility.

Special encouragement like Bonus, loan and Festival Advances are also provided to these workers. This amount vary depending upon the experience and basic salary. This may range from Rs. 4,000/- to Rs. 8,000.00/-.

E. HYGIENE AND SANITATION PRACTICES

Hygiene is the science and study of health and healthy habits, sanitation is the healthy condition and maintenance of the same, taking care of the environment and cleanliness of the concerned and surrounding area, by which good hygienic conditions are maintained. (Ghotikar, 1998).

Sanitation is very important and critical for any catering establishment. If the environment is unhygienic, the food quality will be affected leading to infection and other health hazards.

For assessing the hygiene and sanitation practices in the selected canteen a schedule was developed. The schedule is presented in Appendix No-III. The schedule was used in the following areas such as kitchen preparation area and dining areas. The assessed schedule is discussed.

a. Personnel hygiene

Personnel hygiene refers to the general health, personnel grooming and working habits of all people who work in catering establishment (Sethi, 1998)

On observation it was found out that, the hygiene practices followed by the selected canteen workers of the mines was satisfactory. Every worker in the canteen were given uniforms and had to wear them. Apron and head caps were used at times. But the investigator insists that the use of head caps were essential and instructed them to use it regularly. The uniform and apron were clean and gave an appearance of neatness. They regularly trim their hair, cut nails and maintain good personal hygiene. They wash their hand each time before starting the work thereby ensuring hygiene food. Preparation clean towels are used in the cooking area for wiping the vessels and hands.

b. Cleanliness in the receiving Area:

Right from the point of receiving of food materials, the principles of hygiene and sanitation needs are applied. A strict check on the quality of the food received will go a long way to provide wholesome food to the customer. Hence good quality food was given importance.

It has been observed that due importance is given to cleanliness right from the point of receiving. They have separate waste disposal bin in the receiving area. The collected wastes are disposed in a van which will come and receive the waste twice a day. The foods are bought in well packed containers. So it is easy to arrange in the storage room. They also clear the area promptly before and after the receiving of the food items.

c. Cleanliness In storage Area.

To ensure that foods do not become hazardous to health while in storage, certain aspects have to be considered.

Appropriate storage practices are being followed depending on the nature and type of the raw materials. Since all the food items are being packed in appropriate packs, they are arranged in dry store. "First In First Out" Principle is also followed to ensure prompt usage. The storage area is well lighted and ventilated and maintained clean. Adequate pest control measures are also adopted in storage area.

d. Pre-preparation and preparation area.

Preparation area is the area where activities of appropriate cooking techniques are applied so as to give a final product more palatable and acceptable in quality. The common cooking methods used here are steaming boiling and frying.

Pre-preparation area is defined as a area where all kinds of activities like cutting, chopping , mixing, grinding, are carried out. It includes all the processes that a food goes through before it is cooked. (Malhan, 1997).

The preparation area is of utmost importance with regard to hygiene and sanitations, as it is the area where maximum handling of food material occurs. Any ignorance in these area may affect in the health of the customers, so adequate care is taken in this area. The vegetables are washed before cutting. Knives and cutting boards are used before and after use. This is also followed in the case of large equipments and vessels used in pre-preparation, in the production area and also in the service areas.

e. Waste disposal area :

Waste is being discarded periodically ie twice a day. If accumulated for a long time, it may become a source of contamination. All the areas are cleaned regularly as dust and dirt may harbour micro-organisms. The tables are also cleared immediately after service and the service area is thereby maintained clean. Table cleaning and floor cleaning detergents and soap oils are used. But the fact that no sterilization techniques are followed in the washing cleaning of

the equipments, which is discouraging. The investigator has appealed to the management that sterilization of equipments is essential and that they should take steps to bring in methods of sterilizing the cooking equipments. Regarding the flooring, only cement flooring was used for the different work areas in all the three canteens, The flooring was maintained clean as it was mopped at the end of each meal times. The walls and ceilings of all the work areas were maintained clean. The walls were prevented from getting dirty and they were white washed regularly. Leco is used as a fuel in preparing snacks but still sufficient measures were taken for the smoke to escape without making the places dirty .

F. ASSESSING CUSTOMER SATISFACTION :

A customer survey, however, obtains opinions from a much broader range of customers and as such is preferable as a means of ensuring quality management (Jones, 1986).

To study the customer satisfaction 400 workers from the mines were selected, in the income group of Rs.4500 - Rs.7500 per month.

i. Age group

TABLE -IV

AGE GROUP OF SELECTED SAMPLES (N = 400)

YEARS	NO	%
20-30	56	14
30-40	188	47
40-50	120	30
50-60	36	9

Among the selected 14 percent were in the age group of 20 – 30 years, 47 percent in the age group of 30 – 40 years, 30 percent belonged to the age group of 40 - 50 and the minimum number of 9 percent of workers were in the age group of 50 – 60. The maximum number of workers were in the age group of 30 - 40 years.

ii. Income range

TABLE V
INCOME RANGE

MONTHLY INCOME OF SELECTED SAMPLE	NO	%
UPTO 2100	--	--
> 2100 -< 4,500	44	11
> 4500 - < 7,500	230	70
7500 and above	76	19

According to Hudco classification (1997), 11 percent of the workers were earning more than Rs, 2,100, 19 percent of the workers were earning more than Rs. 7,500 who are comes under the executive category. 70 percent of the workers were earning between Rs. 4,500/- to Rs. 7,500/-. Most of them belonged to the middle income group which implements the status of the people living in that township. According to the educational status and experience they were promoted and salary increments fixed.

iii. Shift Timing

TABLE VI
SHIFT TIMING

SHIFT	TIME	NO	%
First Shift	6AM- 2PM	156	39
Second Shift	2pm-10pm	76	19
Third Shift	10PM-6AM	27	7
General Shift	9AM -5PM	141	32

The above table indicates the shift timing of the selected mine workers who are to critically comment on the food served and other facilities provided for them in the canteen. People from first shift selected were around 30 percent those who are not able to bring their breakfast will get their food in the canteen. About 32 percent of general shift persons were selected who are depend on the Industrial canteen for their whole day meals were selected. About 19 percent of from the second shift who had their tea and dinner were selected and the least percentage of Night shift and Third shift workers, who are not available during day time were selected for the study.

Shop and establishments Act, 1954 covers working hours, comfort at work and the establishment of good human relations.(Sethi, 1996).

iv. Meals taken :

TABLE VII
MEALS TAKEN BY THE SELECTED SAMPLES

MEALS	NO	%
Breakfast	120	30
Mid Morning	297	75
Lunch	102	26
Evening	98	25
Dinner	76	19
Mid night	17	4

To be energetic and get good work turnover from the workers, the company provides food at frequent intervals. Those who are coming for I shift and general shift gets midmorning tea and snacks which may be either vadai /bonda or sundal. Tea is being provided for free of cost and snacks at a very minimum rate which accounts to 10 N.P which is preferred by 75 percent of selected workers.

30 percent of them preferred breakfast, especially those who come for I shift. 26 percent of the workers takes lunch, evening tea and snacks is taken by 25 percent of the workers. Dinner is preferred by only 19 percent and for midnight 4 percent of the selected workers.

v. Opinion regarding the food

**TABLE VIII
OPINION REGARDING THE FOOD**

CRITERIAS	REMARKS	NO	%
Well Prepared	Yes	376	94
	No	-	-
Display of the food	Good	324	81
	Satisfactory	76	19
Service	Good	400	100
	Satisfactory	--	--
Working Area Cleanliness	Hygiene	286	72
	Unhygienic	114	29

The prepared food should be prepared distributed so that it is accepted and liked by the maximum number of employees. Hence customer satisfaction is emphasized.

The above table reflects the customer opinion regarding the food served in the canteen. A vast 94 percent of the selected population of the customers were satisfied with the preparation and 81 percent about the display of the food. It is clearly evident from the table that all the samples were immensely satisfied with the type of service offered and the cost of the items. 72 percent of the samples considered the work area should be maintained more clean and hygienic.

SUMMARY AND CONCLUSION

SUMMARY AND CONCLUSION

In industrial enterprises, where high productivity of workers is important to effect greater volume of business, the provision of good food through the cafeteria has become a matter of policy to the establishment. Good quality food could be served only through the trained hands which do not grow spontaneously but are made by good management and a well planned organisation.

The study was conducted to know the functioning of a canteen on behalf of the welfare of employees and their (Customer) Satisfaction towards the food. Mines Industrial canteens was selected from the township of Neyveli Lignite Corporation Limited for the study. The study also includes the organisation set up, menu pattern, receiving , purchasing and storage of foods, Employee facilities, Hygiene and sanitation practices of canteen workers, and customer satisfaction of food.

The following were concluded from the study.

- All the three canteens in the Mines I were managed by the Industry itself.

- In these canteen facilities were provided for the proper functioning
- For all the workers in the canteen the four shift timing and duty come in rotation to get one day off during the week. They work for 8 hours in a day.
- The type of diet that is being provided in the canteen is vegetarian.
- All the meals are subsidised to a maximum of 80 percent in this Industrial Canteen
- The total number of clientel was 3,200. Since, this was a very large number to cater at one single unit, the industry had three canteen which was run by the management.
- The food items for the canteen was purchased from different co-operative stores and government agencies through the management's Amenities wing.
- The food items were all properly and carefully stored.
- The issue of materials to be adopted is First In First Out method which is catering norm.

- On observation it was found out that hygiene practices followed by the canteen workers was satisfactory. They were provided with uniform, aprons and head caps, which they were insisted to use.
- All the workers in the canteen were provided with the facilities which are enjoyed by the mine workers like Bonus, Investment, Festival advances, medical facilities, uniforms health and safety conditions.
- A schedule was used for the Assessment of Hygiene and sanitation practices followed in areas such as kitchen, preparation area and dining areas. The assessed schedule showed good result that all areas were maintained neatly except preparation area which is not satisfactory.
- A questionnaire was designed to check the customer's satisfaction. 400 mine workers were selected, to find out their opinion about the foods provided, menu pattern, food service and subsidy rates. The results obtained proved highly satisfactory.

In general, in the functioning of this Mines I canteen, the welfare motive of the employees were given priority. This aids the employees to put their maximum effort efficiently and effectively so as to ensure good productivity and thereby they gain profit to the industry in turn fir high salary and bonus or other type of incentives. This canteen as a service unit will serve as the back bone, in the industry namely of Neyveli Lignite Corporation Ltd.,

RECOMMENDATIONS

- More emphasis has to be laid on Hygiene and sanitation.
- Microbial Analysis of foods can be taken up for further studies to ensure hygienic and wholesome food for the workers.
- Automation can be improved in the pre-preparation, production and washing area.
- More emphasis could be laid on the managerial aspects of the industrial canteen.
- Action programmes can be conducted to improve the nutritional knowledge of the canteen workers and supervisor staff.

BIBLIOGRAPHY

BIBLIOGRAPHY

1. Abell.M.A.(1995), " Implementation and Benefits of Nutritious menu items for Non commercial Institutions, Restaurant Management", Widener University, Chester Journal of the American Dietetic Association, Oct 1993 - P - 53.
2. Allen, L.A., 1995, "Management and Organisation", Tokyo, London singapore, Sydney, Mc Graw Hill Kogakusha Ltd., P- 7.
3. Ashforth, Alan, "Planned cleaning for the catering kitchen, cleaning and maintenance" 35 (6), June 1988, P - 57.
4. Bessie, B. West Le Velle Wood., Hargel, V.F., Grace S Shugart,G.S., June paynepalacio, J.,(1988) "Food Service in Institutions", 6th Edition, Mac Millan Publishing Company, New York, Pp. 17 - 18.
5. Bolton, R.N., Drew, J.H.,(1991) "A multistage model of customers assessments of service quality and value", Consumer Pcos, Vol- 17,Pp. 375 - 384.
6. Dale, E.,(1992), "Planning and developing the company Organisation Structure" Journal of American Dietetic Association Research Report, 20, Pp. 14 ,15.
7. Diane, D., and others (1996) "Comparison of food purchasing systems", Journal of American Dietetic Association, 96 (12) Sep. Pp. 1711 - 1715.

8. Dennis L. Foster, (1993), "An Introduction to Hospitality", Mc Grew - Hill International Editions P - 27.
9. Marlen, D.H., and John, L.,(1989) "The effect of an employee wellness programme on Dietary intake, Eating and exercise habits, Nutrition knowledge, percent body fat - weight of participants", Mc Cellan memorial veterans Hospital Little rock, Journal of Americans P - 53.
10. Educational Institute of AH & MA, India office "Purchasing system an overview", Dec 7, 1998. Express Holier and Caterer.
11. Eunic Taylor, and Jerry Taylor (1990), "Mastering catering Theory", Mac Millan Press Ltd, Pp 18, 1 - 4.
12. FAO Report 1982, "Nutrition and Working Efficiency", Basic Study, FFHC, FAO, No.5 Pp. 23 - 33.
13. Ghotikar, D.,(1998). "An approach to Industrial Catering", Express Hotelier and Caterer, Sep. P - 11.
14. Ghotikar, D.,(1998). "An approach to Industrial Catering", Express Hotelier and Caterer, June, 14 (29).
15. Lane, H.E., and Dupre, D., (1987), "Hospitality world an Introduction", A division of International Thomson publishing Inc, Pp 86, 221-227, 245-250, 210-211.
16. Jacob, T., (1987), "Food Adulteration", Mac. Millan Comp., Bombay P- 4.

17. Jey chandran, N., "The catering management in India", Institute of catering Tech and applied Nutrition, Madras, Pp. 1-5 , 81-87.
18. Duple, L.,(1994), "Determining the complexity of patient satisfaction with food services", Journal of the American Dietetic Association, April Pp. 394-395.
19. Leong, J.K., and Ebro,L.L., (1994), Department of Nutritional Sciences "Nutritional Factors influencing consumer preference for snack foods", Ok lahoma university Still water oplahoma, P - 176.
20. Lillicarp, D.R.,(1991), "Food and Beverage Service" London, Edward Arnold Ltd., Pp 141-144.
21. Livingston,G.E., (1996),"Effectiveness of a state wide purchasing program" Journal of American Dietetic Association, Vol. 96 (9) Sep. P- 55.
22. Lubarg, S., (1993). "Rescheovling the implant menu", Plant and Business food Management. 6 (19), P- 26.
23. Manning, M., and Kenneck, C., (1994)" Food Safety knowledge and attitudes of workers from institutional and tempoary food services operation". Journal of the American Dietetic Association 94 (8) Aug. Pp. 895-896.
24. Spears,M.C.,and Vaden, A.G., (1985), "Food service Organisations : A managerial system and approach", published by John Wiles and Sons, New York, P- 16.

25. Sethi, M., and Malhan, S., (1992), "Catering management An Integrated Approach", Second Edition, published by New Age International (p) Ltd, publishers. New Delhi, Bangalore Chennai, Pp -345, 162, 164, 191, 22, 297.
26. New. J.G., (1987). "Office and works catering", London Business Publications Ltd., Pp. 9 , 13, 18, 20-25 89, 128-130.
27. Nelson. (1994), "Slow growth for non-commercial food service", Journal of American Dietetic Association, April, Vol - 94, P- 459.
28. Palacio. (1998) " Food service in Institutions" 6th Edition, Mac. Millan publishing Company New York, Pp 17-18.
29. Macricks, P., and Jones, P., (1986), "The management of catering operations", Holt, Rinchart and winsto publishers London, Pp 87-89.
30. Peffers, W., (1990). "Tracing food cost consumption", The modern Hospital, Vol 94, P- 164.
31. Penner. K.P., and Shanklin. C.W., (1993), College of Human Ecology, Kansas state University Manhattan, K.S.: Food safety in food service, Explaining public policy options Journal of the American Dietetic Association, Oct P- 55.
32. Pedderson C., and Raymond, B., (1988), "Food service and hotel purchasing". New York, Van Hostrand, P- 708.

33. Radhakrishnan, E., (1998), "Hygiene and Sanitation an Overview" Express Hotelier and Caterer, Dec. 7 Vol-4, No- 27. P-11.
34. Richey, A.S., and Gonzalay, N., (1993). "Comparison of food Service operations in child care programs in Washington State, including for profit and Non-profit USDA / CACFP", Journal of the American Dietetic Association, P- 113.
35. Ross. M.A., (1992), "The Growing demand for technical assistance in feeding the workers", Journal of American Dietetic Association, 50 (4), Pp. 284 – 289.
36. Sipple,L., (1990), "An opportunity for the Health professions", The Nutrition foundation, New York, Pp. 14 – 16.
37. Sherer, J., (1993), "Hospital workers Job satisfaction Journal of American dietetic Association, 93 (67) April. P- 1023.
38. Timknowles.(1994), "Hospitality management, An Introduction", pitman publishing, Pp 6 – 8.
39. Teste, A.P., (1989), "Standardised recipes makes food look good, taste good, small good", school lunch journal, Vol – 13, P - 62.
40. Unknown, Food Management : Food Safety knowledge of prospective employees, Journal of American Dietetic Association, 1994.

41. Unknown : Trends in Contract food service Management, Journal of the American Dietetic Association. Jan 98, P.1063.
42. West brook, R., and Oliver, R.L., (1980), "Developing better measures of consumer satisfaction", some preliminary results advers consumer response ,Vol.(8), Pp. 94-99.
43. William, A.R., (1982), "Industrial caterings Dilemma", Canadian Food Journal,.3, P- 38.
44. Woodside, A.G., Frey, L.L., and Daly, R.T,(1989), "Linking service quality, customer satisfaction and behavioural intention", Journal of Health care marketing, 9(4) Pp. 5 - 7.
45. Zumteg, D., (1996), "Standardisation of receipe of cost control", The modern Hospital, Vol (94), P- 160.

APPENDICES

APPENDIX-I MENU PATTERN OF THE CANTEEN

S.NO	MEALS	MENU ITEMS	QUANTITY SERVED	COST Rs/NP	TIMING	NUMBER OF PERSON SERVED
I	Break fast	(Any one item with tea is served)		(1 tea free)		
		Tea	100 ml	10NP		
		Idly	2 no	20 NP		
		Uppuma	175 g	20 NP	7.30 – 8.00 AM	600 – 1000
II	Mid Morning	Poori Masal	2 no	20 NP		
		Tea	100 ml			
III	Lunch	Vadai/Bonda/Sundal	35 g	10 NP	10.00-10.15 AM	1000-1500
		Rice				
I		Sambar /Kolambu				
		Rasam				
		Kootu	Unlimited	Rs. 1	12.30- 1.30 PM	600-900
		Papad	1 No			
		Curd	1 Cup			
		Tea	100 ml			
IV	Tea	Vadai/Bonda/Sundal	35 g (2no)		3.00 –3.15 PM	1500
		Variety Rice	175 g	Rs. 1		
V	Dinner	(Tomato, Tamarind , Curd)				
		Karasev	35 g	10 NP	8.00-10.00 PM	600

APPENDIX -II NUTRITIVE VALUE OF THE MENU

S.No	FOODS	ENERGY K.cal	CHO g	PROTEIN. g	FAT g	FIBRE g	CAROTENE g	THIAMINE mg	RIBO FLAVIN mg	NIACIN mg	VIT.C Mg
1.	Idli	225	15	5	0.5	0.3	7.6	0.2	0.1	7	0
2.	Sambar (Plain)	130	11	4	5.8	2.3	105	0.1	0	1	3
3.	Sambar (Vegetable)	98	13	5	2.3	0.3	47.8	0.4	0	0.4	3
4.	Rasam	42	4	0.1	3	0.3	20.5	-	0	0.1	1.4
5.	poori	131	18	3	5.4	0.3	4.8	0.1	0	0.8	0
6.	Olu Masala	24	5.6	0.4	1.0	0.2	4.8	0.02	0	0.2	4
7.	Pongal	114	16	1.4	5	0	37.5	0	0	0.4	0
8.	Chutney	55	5.8	2.2	2.5	0.2	11	0.02	-	0.1	0
9.	Kootu	19	3	1	0.3	0.1	6.4	0	0	0	0
10.	Poriyal	61	11	2.8	0.5	0.5	15	0.1	0	0	0
11.	Curd Rice	132	24	3.4	1.6	0	48	0.15	0	1.24	1
12.	Tomato Rice	155	25	2.1	5	0.1	0	70.1	0	1.14	5
13.	Tamarind Rice	108	24	2.0	0	0	0.1	0.14	1.0	1.14	0
14.	Ulundu Vadai	82	9	3.6	3.2	0.1	5.7	0.1	0	0.3	0
15.	Masal Vadai	130	13	4.8	1.6	0.6	36	0.1	0	0.5	8
16.	Bengal Gram Sundal	180	30.4	8.5	2.6	1.9	94	0.15	0.07	1.4	1.5
17.	Payasam	241	40	3.1	6.9	0.1	66	0	0	0.4	0
18.	Tea	98	10	2.1	3.2	-	96	0.1	0.2	0.2	2
19.	Karasev	119	12	4.2	1.12	0.2	26	0.1	0	0.5	0.2

APPENDIX -III

FUNCTIONING OF INDUSTRIAL CANTEEN

CATERING TO THE MINERS

SCHEDULE FOR HYGIENE AND SANITATION

1. PERSONAL HYGIENE

- i. Do you wear clean uniform?
- ii. How often do you wash the uniform?
- iii. Do you wear apron and Heap cap while at work?
- iv. Do you comb / trim your hair regularly /properly?
- v. Do you cut your nails regularly?
- vi. Do you wash you hands before starting the work?

2. CLEANLINESS IN THE RECEIVING AREA

- i. Do you have separate basket/container for receiving food items?
- ii. Do you have separate waste disposal bin in the receiving area?
- iii. Do you clear the area before and after the receipt of food items?

3. CLEANLINESS IN THE STORAGE ARE

- i. Are the foods stored at proper temperature?
- ii. Do you have foods stored in appropriate containers?
- iii. Do you have separate storage area for raw foods and cooked foods?
- iv. Do you follow First in First Out principle?
- v. How often you will clean the storage area?
- vi. Do you provide adequate ventilation and lighting?

4. CLEANLINESS IN THE PRE-PREPARATION AND PREPARATION AREA

- i. Do you wash knife cutting boards before and after use?
- ii. Do you use separate cutting boards for different preparations?
- iii. Do you wash the equipments /vessels before use?
- iv. Do you cook the food at proper temperature in proper container?
- v. Do you cook the food by closing with lids?
- vi. Do you hold the foods in clean vessels prior to serving?
- vii. Do you wash the portioning equipment clean?
- viii. Do you serve the food in proper cleaned vessels?
- ix. Are you maintaining minimum personal handling?

5. DISPOSING AREA CLEANLINESS

- i. Do you use proper or separate area for disposing the waste?
- ii. Do you use separate trolley for disposing waste?
- iii. How often waste is disposed?
- iv. What kind of destruction do you follow for disposing the waste?
 - a. Burning the waste
 - b. Discarding in a place
 - c. Using incenerator
 - d. Waste compactor.

6. How often floor's of each area is cleaned?

7. Are you using dish for cleaning the vessels?

YES

NO

If no, Any sterilization techniques followed ? Mention

8. What are the instruments used for pest control or preventive measures to keep away insects?

9. Are the table is cleared immediately or the tables maintained neatly?

APPENDIX -VI

FUNCTIONING OF INDUSTRIAL CANTEEN

CATERING TO MINERS

QUESTIONNAIRE FOR CUSTOMERS SATISFACTION

1. Name of the Interviewee
2. Name of the Interviewer
3. Age
4. Sex
5. Occupation
6. Income
7. Working Time
8. Meals taken in the Canteen
9. Meal Timings

8.00-9.30 A.M Breakfast	10.00- 10.30 A.M Mid Morning	12.00- 1.30 P.M Lunch	3.30 to 4.00 P.M Evening	8.00 to 9.30 P.M Dinner	12 - 12.30 A.M Midnight

10. Is the quantity adequate? : YES NO

11. Of the items you like , do you consider
them as well prepared?

If 'NO" Why ?

12. Do you like the way foods are

Displayed

YES

NO

If "NO" Why?

13. Do you like the way foods are

Service followed

YES

NO

If "NO" Why?

14. Do you feel that the food service

Area or preparation area is maintained

YES

NO

in a hygienic manner

15. Is there any special food offered :

Mention

16. Is the cost of foods acceptable :