

**Addis Ababa University
Faculty of Medicine
Community Health Department**

**Sanitary Survey of Food and Drinking Establishments
in Ambo Town West Showa Zone Oromia Region**

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Abstract

Introduction: food is a major factor affecting health and well beings. Consumption of contaminated foods and flesh of infected animals can resulted in different types of food born infections.

Objectives: The objective of this study was to assess sanitary conditions of public food and drinking establishment, in Ambo town, West Showa zone, Oromia Region.

Methods: a cross- sectional survey was carried out to assess sanitary conditions of public food and drinking establishments from February to March 2007. Standardized pre-tested questionnaire and observational check list were used for data collections. Open ended questionnaire were used for physical check up and stool examination of food handlers.

Results: Majority (96.6%) of the establishments were owned privately. 54.4% of catering establishments had their food and drinking business in rented buildings. Eighty six percent of the establishments were managed by the owner themselves. 38.9% of catering establishments had their activity of food and drinking business without formal licensing. There were high proportion of poor physical conditions of premises (poor repair of kitchen and dinning rooms). Sanitary condition of formal (licensed) catering establishments was found in better conditions in comparison to informal ones. Among one hundred twenty three establishments that had kitchens only 23.6% of the establishments were rated as good sanitary conditions. Storage of ready to be used equipments were safe in establishments in which sanitary inspections was done in the last one year in comparison of uninspected establishments (OR = 6.53; 95% C.I (3.07, 13.86)). Among food handlers for whom stool examination done the overall worm infection were found to be 34.5%.

Conclusions and recommendations: - Sanitary conditions of many catering establishments were not satisfactory due to high proportion of insanitary conditions of premise, therefore the probability of food contamination in these establishments were high. Legal licensing, sanitary inspection and self control have positive impact on improvement of sanitary conditions of catering establishments. As the solution to improver insanitary

conditions of catering establishments' Health sectors, Municipality, Ministry of Trade, Industry and Tourism should work in integrations with enforcing to be licensed for those non-licensed and by regular follow up (inspection of sanitary conditions of the establishments). Training of catering managers was rewarded in turn to train and supervise food handlers. Planning and implementation of proper waste handling and disposal was the must to improve currently unacceptable handling and disposal system of waste.

Introduction

Food is a major factor affecting health and well being (1). Food may be the means for the spread of infectious disease in several ways, in some case it can act as a medium for the growth of disease organisms, producing large number of bacteria or bacterial toxins. Consumption of these and flesh of infected animals can result in food –borne infection such as diphtheria and tuberculosis, as well as the intestinal disease of typhoid fever and salmonellosis, dysentery, cholera, undulant fever, Q fever, infectious hepatitis, leptospirosis, botulism and intestinal parasites. (2)

Food borne illness is a major health problem in both developed and developing countries (3). In industrialized countries it is estimated that one third of the population suffers from food borne disease every year and out of these may up to 20 per million die (4).

In the United States (U.S) food borne illness continues to present a public health challenge. The Center for Disease Control and prevention (CDC) estimates that, in the U.S each year 76 million people become sick, more than 325,000 people are hospitalized and 5,000 peoples die from food – borne illness. The estimated economic cost of food borne illness in terms of pain and suffering, reduced productivity, and medical expenses is substantial, in the range of \$ 10-83 billion each year (5).

In most less developed countries procuring an adequate supply of safe and nutritious food is a major problem; concerns for sanitation may not be great, physical facilities may be poor, and lower aesthetic standards may prevail, as a result food and drinking water are frequently contaminated with pathogens (1)

In developing countries it is considered that the burden of food- borne illness is in worst conditions than developed countries, as a result of inadequate food safety program. However there is no available data, which can show its magnitude as many cases of illness gone unreported and unrecognized yet this type of illness is a significant contributor to the burden of disease in less developed countries (6).

In Ethiopia even though there was no recorded data about magnitudes of food borne illness which occurred as a result of inappropriate handling of foods in mass catering establishments, it was observed that in different parts of the country towns there were high rate of insanitary conditions of catering establishments. This could directly or indirectly affect safety of foods in these establishments (7-11). On the other hand helminthes, Gastritis, dysentery and diarrheal disease were among the leading causes of out patient health services visits, which can be effectively prevented with the provision of safe foods and adequate and safe water supply (12).

Rationale of the study

Ambo town is rapidly growing as other towns of Ethiopia as a result of urban immigration and growth of business activity; accompanied with this public mass catering especially local “Migbi bet” has been flourishing. However the status of these establishments was not known, so collection and analysis of base line information can help to identify particular environmental health activities to be targeted in planning and implementation of environmental health services.

Literature review

Society has available several options for minimizing the adverse effect of disease through environmental control eliminating the hazardous conditions or separating or creating a barrier between the hazard and person is one method (2)

Centuries ago the laws of the Israelites contained detailed information on foods to be abhorred as well as on methods of preparation and the cleanliness of hands. About 2000 B.C the book of Leviticus records that Moses made laws to protect his people against infectious disease, hands were to be washed after killing sacrificial animals and before eating, laws were also given about edible animal life of all kinds (13)

Consumers expect many things from their food supply; they want quality nutritious and safe food at reasonable cost (14). Food for human consumptions was expected to be clean, wholesome and sanitary (15), it should be nourishing and attractive, it must be visibly clean and free from noxious materials (13).

However the sources of food contamination are diverse (13). It may be contaminated by polluted water, flies, animals and pets, unclean utensils and pots, dust and dirt. Unclean food handlers can also inoculate the food with infected excreta, pus, respiratory drippings' or other infectious discharge. Raw foods are frequently a source of contaminants because some might naturally harbor pathogens or come from infected animals (15, 16).

Food borne illness is traced to inappropriate food handling practice (17). Most outbreaks were caused by food that has been mishandled or mistreated during preparation or storage (3). Care less handling, inadequate pretreatment, contaminating environment, a high initial bacterial load, inadequate cooking and inappropriate storage have a negative influence on food safety and quality (2).

Many malpractices take place in food preparation can permit contamination, survival and growth of food-poisoning bacteria (13). Cross-contamination is a very important concept in food safety (3), if raw and cooked foods are prepared on the same surface using the same equipment and by the same food handling persons', or if they are stored in close proximity organisms may spread to foods, which will receive no further heat treatment before consumption (13). The indiscriminate use of insecticides and rodenticides in kitchens also create hazards, toxic metals and compounds can find their way into food from utensils, food containers or work surfaces (3).

Food handlers may be a major source of food contamination and ultimate sources of health risks either as carriers of pathogens or through poor hygienic practices (3, 16). Workers can carry microbial pathogens on their skin, in their hair, on their hands, and in their digestive systems or respiratory tracts. Unless-workers understand and follow basic food protection principles; they may unintentionally contaminate foods, water supplies and equipment, and there by create the opportunity to transmit food borne illness (18).

Food borne disease can also be spread through contact with persons who are ill, by insects, by contaminated hands or equipment (15). A polluted environment, poverty and lack of facilities for the preparation of safe food are interrelated factors which comprises food safety in poor social setting (19). Many infections of human beings are spread through inadequate sanitation (20)

Most of food handlers are not educated (2). The problem of contamination as well as the growth and survival of food borne pathogens is further aggravated by lack of knowledge about basic food safety measures and inappropriate food storage facilities (21). The hygiene of food storage and preparation depends on knowledge of habits of bacteria, the food they contaminate most frequently and the temperature they do and do not like for multiplication (13).

Many food borne diseases are associated with the time-temperature abuse of food during preparation and storage (19). In food safety the priority problem is the elimination or reduction of contamination by food borne pathogens such as salmonella, camplobacter and listeria (21), these diseases are caused by the disregard of known fundamental sanitary principles and hence are in most case preventable (15).

In many urban centers eating and drinking in public food service establishments, such as restaurants, clubs, dining places, cafeterias, snack bars and canteens has become common practice in different parts of the world (22).

In England over the four year 1981 to 1984, 37, 496 incidents involving 53,829 cases were reported, the outbreaks most commonly notified were those which occurred in locations where large number of people eats, such as hospitals, schools, factories, geriatric institutions, hostels, halls of residences, nurseries and children's homes (13).

It is essential that all food supplies to food service establishments should come from sound and reliable sources (3).

Food hygiene is aimed to study methods for the production, preparation and presentation of food, which is safe, and of good keeping quality (13). The chief aim is to prevent the contamination of food stuff at all stage of their production that is at collection, preparation manufacture, transportation, storage and sale or supply (14). The ultimate objective is to prevent food borne disease (22).

Protection of public from food borne hazards involves maintenance of sanitary control over harvesting or slaughtering, processing, preserving, distribution, storage and preparation of food for institutional or home consumption (23).

The sanitary control of food – processing and food services industry would be impossible without law that authorizes sanitary regulation and standards. Individuals have little control over

the production and processing of food they consume. The responsibility for food protection lies mainly with food processors, food services personal and the regulatory agencies (1).

The measures to be taken to maintain high standards of catering whether in home or in community at large will include;(i) the control of primary sources of food; (ii) inspection of relevant premises, (iii) supervision of food handlers, (iv) health education, (v) laboratory examination of foodstuffs; and (vi) legislations (24).

By considering importance of rule and regulations Federal Ministry of Health of Ethiopia issued public health law for promotion of health of the society which in corporate food quality control and food standard requirements. Mandate also given to regional health Bureau to formulate their own rule and regulations for application of these proclamations, how ever still now guidelines was not formulated with Oromia Regional Health Bureau for application of the regulation which seted by the regions (25, 26).

Survey carried out in Mauritius town secondary school canteens revealed that only 27% and 29% food handlers wore protective clothes and caps. A total of 61% of food handlers wore rings or other jewelers and 4% affirmed that they smoke at their place of work, a practice that is prohibited by law. Among poor hygiene practices it was observed that 14% of the canteen staff wore slippers while 29%were not properly dressed. It was observed that all the persons engaged in serving of food were also handling money (27).

Food handlers in developing countries are more likely to be carriers or infected with pathogenic microorganisms than food handlers in developed countries (15).

In food hygiene practice the most important aspect is good practice cannot be carried out in poor premises. The design and construction of rooms, the equipment used in them and the surfaces on which food is handled must all facilitate good hygiene practice (28).

Food contact surfaces including utensils should be cleaned sanitized and stored in clean and protected area to maintain good conditions to prevent contamination, and cross-contamination

should be prevented (15). Every establishment should have a properly built latrine and most be kept clean. There should be a proper disposal of refuse and liquid waste (29).

Food handlers should be encouraged developing good personal habits, keeping their selves clean and appropriately dressed and required to follow good sanitary procedures while on the job (13), they should also be encouraged to report immediately if they are ill (3).

It is the responsibility of owner/ manager to ensure that operators and preparators' follow proper food handling and sanitation practice to ensure safety of foods (15).

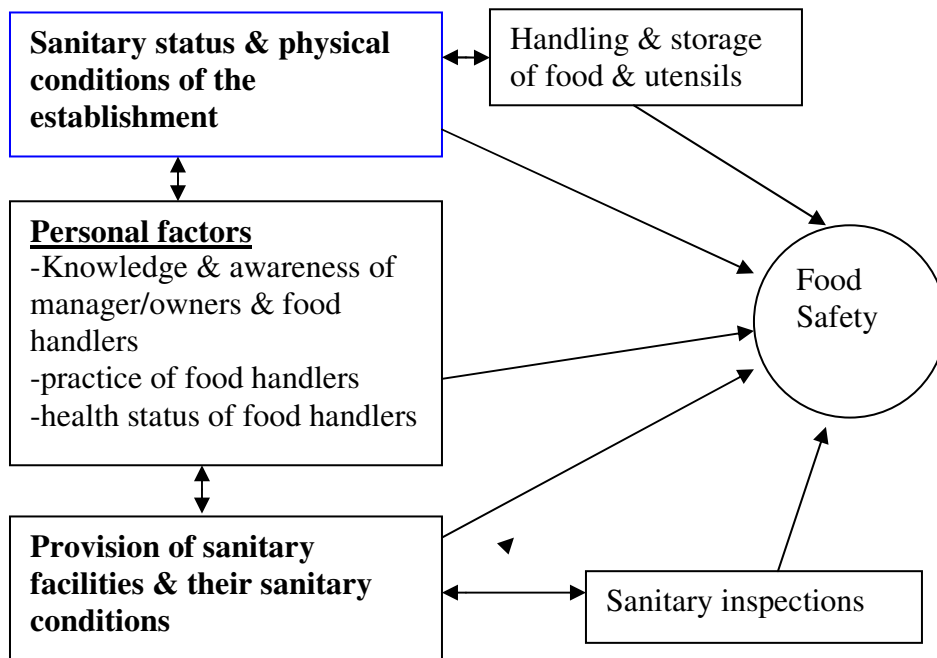
Education can help food handlers to play greater role in provision of safe food but due to high turn over of migrating food handlers formal training may be impractical however managers must be trained in the principles of food hygiene, so that they can intern train and supervise the workers those responsible for processing, preparation, storage and service of food (15).

Social and anthropological information on food related behavior is needed to know the target population and understand the factors that underlie food preferences or food preparation practices such information could include predisposing factors (like knowledge, attitudes, skills, beliefs and perceptions of the target population with regard to food safety, food borne hazard and control measures), enabling factors (like environmental conditions, economic situations, regulations and services such as water supply, sanitation and food storage facilities) ;reinforcing factors (like whether the environment encourages safe habits or safe food handling such as measures as the certification of trained food handlers, the attitudes of managers or supervisors in food service establishment)(19).

Different study conducted in different parts of Ethiopia towns revealed that there were grossly unhygienic conditions of catering establishments. High rate of poor repair conditions of premises, inadequate sanitary facility, improper handling and storage of food and food utensils, improper waste storage and disposal were the major findings (7-11).

However there was no such study conducted in the study area previously, adequate research to identify specific sanitary conditions and practices in relations to food safety in public food and drinking establishment was very important in planning and implementation of sanitary services. Considering this the study was aimed to assess the sanitary conditions of the establishments, awareness, hygienic food handling practice and health status of food handlers.

Fig 1: Conceptual framework for factors that can affect food safety in public food and drinking establishments.



Objectives of the study

General objective;–To assess sanitary condition of mass catering establishment and health status of food handlers, in Ambo town, West Show zone, Oromia region.

Specific objectives

1. To examine sanitary and physical conditions of public food and drinking establishment.
2. To examine awareness and safety practice in relation to hygienic food handling practice among food handlers.
3. To examine health status of food handlers.

Methods and materials

Study design: A cross-sectional survey was carried out from February to March 2007, to assess sanitary conditions of public food and drinking establishments, awareness, hygienic practice and health status of food handler.

Study area: -The study area was Ambo town, the capital city of West Showa Zone. It is located 125 km West of Addis Ababa along Addis Ababa to Nakemt road. Population size of the town was estimated to be 46,110 (22,594 male 23,516 females). The town is divided into 3 “Kebeles “. The altitude is about 2100 meters above sea level with average annual rain fall of 76.9 mm and average temperature of 18.5 °c.

Source Population:-Source population for the study was all public mass catering in Ambo town regardless of licensing status.

Study population: - the study population was all of the catering establishments which fulfill the inclusion criteria and one food handlers from all establishments which provide food services.

Inclusion criteria: - all establishments which prepare food and drinks and supply for consumptions or for sale were included in the study.

Exclusion criteria: - establishments which provided temporary services, street food vendors, present canned and packed foods and local “tela bet” were not included in this study.

Sample size determination

Census was performed to identify the existing number of catering establishments, 178 catering establishments were identified that was less than the required sample size, for that all of the available catering establishments was included in this study. This sample size is assumed adequate to describe the conditions in Ambo town.

Sampling techniques

1. **For the establishments:** census was done first to get list of each different types of the establishments. Since the population of identified catering establishments was less than the required sample all of the existing catering from each type was included in the survey.

2. For food handlers

1. From establishments those have greater than one food handlers at least one person who has a close contact with food (preparing foods) and food contact surfaces and equipment was selected with lottery method from each establishment and observed for assessment of personal hygiene and hygienic practice and also interviewed to assess KAp.

2. From all catering establishments that prepare edible food health status assessment (physical and stool examination) was planned to be done for one randomly selected person who has a close contact with food and food contact surface, how ever only 86.4% of food handler were come for physical check up.

Data collection procedures.

Tools used for data collections were questionnaires, check lists and microscopic examination. Standardized and structured questionnaire was used for the purpose of collecting back ground information while structured check list was used to assess (observe) information on status of maintenance and cleanness of premise, provision of sanitary facilities food handling and storage practice, personal hygiene's of food handlers and for physical checkup of selected food handlers to assess respiratory disease, skin infections and eye disease

One senior sanitarian for supervision, two sanitarians and two public health nurses for filed data collection, one health officers and one senior nurse for physical check up of food handlers and two laboratory technicians for stool examination were involved in data collection. Principal investigator was involved in over all controlling activities of data collections. Stool examination was done with direct microscopic methods. Censusing was done for one days and each data collectors was filled on average five questionnaires and actual data collection had taken eight days(from March 4-13, 2007) excluding training and pre-testing.

Questionnaire was developed in English and translated in to "Afan oromo" then back to English to check for its consistency. Administration was done with "Afan oromo" versions.

Training was given for three days for supervisors and data collectors how to perform interviewing. Pre testing of questionnaires was done on establishments which were not included in the actual study in order to check its language clarity and consistency of questionnaire. Corrections of questionnaire that was ambiguous for respondents was done after pre testing. Training manuals was given to data collectors to use it for data collection.

Study variables

Dependent variables

- _ Hygienic practices in food handling.
- _ Sanitary conditions and provision of sanitary facilities of the establishments.

Independent variables

- _ Educational status of owners/ managers/food handlers.
- _ Knowledge/training of food handlers and managers about food safety
- _ Licensing status of establishment
- _ Service year of establishment
- _ Owners of the building
- _ Previous visiting/inspection of the establishment by an authorized body.
- _ Type of the services delivered by the establishment
- _ Average number of client visits the establishments per day
- _ Health status of food handlers.

Operational definitions (2, 3, 13 & 15)

Food and drinking establishment: - are establishments where food and drinks are prepared in large quantities for public consumptions.

Food contact surface: -The surface of equipment and utensils with which food normally comes in contact and those surfaces from which food may drain, drip or splash back on to surfaces normally in contact with food.

Cooked food appropriately stored: - mean the food is placed in clean container and covered with fixtures that fit to cover to prevent from contamination of dust, splashing and insect

Personal hygiene: - those protective measures primarily with the responsibility of individuals which promote health and limit the spread of infectious disease chiefly those transmitted by direct contact, such measures encompasses washing hands with soap and waters and keeping the body and cloths clean by sufficiently frequent soap and water bath.

Wear of appropriate over coat: - the worker worn gown/ over coat and hair cover which is purposely prepared to be worn on normal food handling practice.

Cleanliness of the equipment kept: - the equipment is free of dust, filth, grease and finger print.

Adequate lighting of the room: - health person can easily identify objects in the class with out eye straining in the class.

Good repair condition: - there were no cracks, holes and joints in which wastes and dirt's can lodge in preparation and dinning rooms of floors, wall and ceiling

Cleanliness of the room kept: - the class is free of visible dirt, dust soot or smoke particles and web of spiders.

Refuse/garbage properly handled: - appropriate receptacles (fit to cover, moist resistant, durable type and light to left) were placed in proper area (in distant place from food preparation place) for onsite storage of waste.

Data analysis

Data entering and cleaning was made using EPI info version 6.04 while analysis was done with SPSS version 13 statistical package. Reentering of 10% randomly selected questionnaire and checking of its consistency with questionnaire which was already entered was done. Checking each frequency was done to check missing value. Selected questionnaire was recoded for rating of general sanitary conditions of the establishments. Frequency distribution, percentage and odds ratio was calculated. Comparison made between major findings of the study while significance of the statistical association was assured using 95% C.I and $p < 0.05$. Data was presented using tables

Data quality management

To ensure data quality training was given for data collectors and supervisors. Pre testing of the questionnaire was also done to test its clarity for both interviewer and respondent and to get experience to be applied with data collectors on actual data collection. Discussion with all supervisors and data collectors at the end of each day was performed to get feed back and to solve any problem which should be solved. Data consistency was assured through out data collection, entry and analysis.

Ethical consideration

Ethical clearance was obtained from Department of Community Health, Faculty of Medicine, Addis Ababa University. Formal letter was written to municipality and district health office of Ambo town and concerned officials were informed about the purpose of the study. Informed consent was obtained from owner/ manager of the establishment and food handlers after a brief explanation of the benefits of the study. Confidentiality of the respondent was maintained; he/she assured that no problem would face their establishment as this information would not pass to any third body with identification of their establishment. On the other hand advise were given for manager of the establishments to improve sanitary status of the establishments where gross insanitary conditions encountered during the survey. With the same manner food handler found to be ova positive during stool examination were advised to take anti worm.

Dissemination of results

Final copy of this study finding will be submitted to Department of Community Health Faculty of Medicine Addis Ababa University, Federal Ministry of Health, Oromia Regional Health Bureau and Ambo town municipality and district Health office in addition the finding of the research will be presented on seminar and publication will be attempted on scientific Journals

Results

Characteristics of study unit

One hundred seventy eight catering establishments were identified with the census performed for the study. One hundred seventy five 175(98.3%) mass catering establishments were investigated during the study. The none response rate was 3(1.7%). Among the surved mass catering establishments a total of 140(80%) of establishments provide food services.

Majority, 169(96.6%) of the establishments were owned privately, 4(2.3%) owned by organizations, the remaining two (1.1%) were recreational areas of offices. Majority, 151(86.3%) of the establishments were managed by owners them selves, thirteen (7.4%) managed by relatives of owners and eleven (6.3%) of the establishments managed by hired

personals. 34(19.4%) of the manager were trained about food safety the other 141(80.6%) were not given any training.

There were a total of 987 food handlers' 216 males and 771 females serve in all of the establishments, this is 5-6 per establishments. On average it was reported that about 11,916 costumers used the catering establishments daily. The median service year of the establishment was 4 year the minimum was one month and the maximum was 50 years.

One hundred twenty (68.6%) catering establishments were inspected before three months, 4(2.3%) were inspected before six months, 3(1.7%) were inspected before one year, the remaining 48(27.4%) were never inspected. One hundred seven (61.14%) of the establishments were licensed. Concerning the services for which they got permit 96(89.72%) give the services for which they got permit from licensing organizations while 11(10.28%) give other services in addition of their permit (Table 1).

Table 1- Distribution of food and drinking establishments by type, building owners, licensing status and year of service of the establishment in Ambo town, West Showa Zone, Oromia Region, March 2007(n= 175)

Characteristics	Frequency	Percent
-----------------	-----------	---------

Type of establishments		
-Hotel	21	12
-Bar	13	7.4
-Restaurant	63	36
-Grocery	21	12
-Snack bar	31	17.7
-Butcher shop	2	1.1
-Tej bet	8	4.6
-Juice selling shop	7	4
-Pastries	9	5.1
Type of service		
-Exclusively food	61	34.9
-Exclusively drink	32	18.3
-Food and drink	61	34.9
-Food, drink & bed	19	10.9
-Food, drink, bed & hall services	2	1.1
Licensing status		
-Licensed	107	61.14
-Not licensed	68	36.86
Building owner		
-Private	71	40.6
-Rented	104	59.4
Year of service of the establishment		
< 1 year	25	14.3
1- 5 year	79	45.1
6- 10 year	29	16.6
11 ⁺	42	24.0

Socio-demographic characteristics of owner/managers

As shown with Table 2, Most, 103(58.9%) of owner/ managers were females. The mean age of managers/owners were found to be 40.99 (\pm 12.67) years ranging from 20 year up to 80 years. The majority, 145 (82.9%) of owner/ manager were literate. One hundred thirty five (77.1%) were married and live together

Table 2: Socio-demographic characteristics of owner/managers of public food and drinking establishments, Ambo town, West Showa zone, Oromia Region, March 2007 (n= 175)

Characteristics	Frequency	Percent
-----------------	-----------	---------

Sex		
Male	72	41.1
Female	103	58.9
Age		
20_34	57	32.6
35_55	97	55.4
>55	21	12.0
Education status		
Illiterate	30	17.1
Grade 1_6	59	33.7
Grade 7_12	76	43.4
12 ⁺	10	5.7
Marital status		
Single	19	10.9
Married	135	77.1
Divorced	7	4.0
Widowed	12	6.9
Separated	2	1.1

Socio-demographic characteristics of food handler

Among one hundred forty food handlers those recruited for knowledge and practice, the majority, 123(87.9%) of food handlers were females. The mean age was found to be 28.01 (± 11) years ranging from thirteen year up to sixty years. Sixty-five (46.4%) were not married, 58(41.4%) were married. Ninety-five (67.9%) of food handlers were literate. The median service year of food preparation was found to be 2 years ranging from two weeks up to thirty years (Table 3)

Table 3: Socio-demographic characteristics of food handler's engaged in food preparation in public food and drinking establishments, Ambo town, West Showa Zone, Oromia Region, March 2007 (n= 140)

Characteristics	Frequency	Percent
Sex		
Male	17	12.1
Female	123	87.9
Age		
< 15	2	1.4
15_34	104	74.3
35_55	33	23.6
>55	1	0.7
Marital status		
Single	65	46.4
Married	58	41.4
Divorced	15	10.7
Widowed	2	1.4
Educational status		
Illiterate	45	32.1
Grade 1_6	59	42.1
Grade 7_12	35	25
12 ⁺	1	0.7
Service Year of food preparation		
<1 year	32	22.8
1_ 5 year	82	58.6
6_10 year	15	10.7
> 10year	11	7.9

Physical conditions of the kitchen and activities performed in it

Among those establishments that delivered food services 123(87.9%) had kitchens, among those that had kitchens, 55(44.7%) of them had floor constructed of cement concrete, 66(53.7%) were plain earth the remaining 2(1.1%) were cement pointed stone. Fifty-three (43.1%) of kitchen floor cleanliness not kept. About half (52%) of the kitchen had poor repair of floor. Sixty- nine (56.1%) of kitchen wall and ceiling cleanliness not kept. Fifty-seven (46.3%) of the kitchen had poor repair of wall and ceiling. 37(30.1%) of the kitchen room had no adequate lighting

In forty nine (39.8%) of the kitchen hood and chimney was not installed for ventilation of the room. In 6(4.9%) of the kitchen its room gives multi services in a manner it can degrade safety of foods. In 9(7.3%) of the establishments kitchen room were infested with insect and vermin's. only in 55(44.7%) of the kitchen there were running water for washing of equipment

and preparation of food. In half (51.2%) of the kitchen waste handling and disposal was not appropriate.

In most, 84(68.3%) of the kitchens all food handlers engaged in preparation of food were not wearing appropriate over coat. It was found that only in 67(54.5%) of the kitchen food handlers were advised with owners or managers of the establishment on safe handling practice of food. In 20(16.3%) of the establishments food handlers were not supervised with owners/ managers of the establishments on normal work of food preparation.

In 84(68.3%) of the kitchen all equipment used for processing was not smooth, free from crack and easily cleanable type. In 44(35.8%) of the kitchen cleanliness of processing equipment were not kept at time of visiting while in 42(34.1%) of the kitchen cooked food was not stored in proper manner that can prevent contamination of food.

Comparison of kitchen cleanliness and repair conditions was made between licensed and unlicensed catering establishment. It was found that the cleanliness and repair conditions were in better status in licensed catering establishment than unlicensed establishment (Table 4). In the same manner in the establishment for which sanitary inspection done in the past one year was found in better conditions than uninspected ones (Table 5)

Table 4; physical condition of the kitchen in relation of licensing status, Ambo town, West Showa Zone, Oromia Region, March 2007 (n=123)

Characteristics	Licensed (n=65)	unlicensed (n=58)	OR (95% C.I)
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Floor			
Clean	48(73.8%)	22(37.9%)	4.62(2.15, 9.94)
Not clean	17(26.2%)	36(62.1%)	1.00
Repair of floor			
Good	41(63.1%)	18(31%)	3.8(1.79, 8.04)
Poor	24(36.9%)	40(69%)	1.00
Wall & ceiling			
Clean	38(58.5%)	16(27.6%)	3.69(1.73, 7.89)
Not clean	27(41.5%)	42(72.4%)	1.00
Repair of wall & ceiling			
Good	43(66.2%)	23(39.7%)	2.97(1.43, 6.21)
Poor	22(33.8%)	35(60.3%)	1.00
Lighting of room			
Adequate	51(78.5%)	35(60.3%)	2.39(1.09, 5.28)
Inadequate	14(21.5%)	23(39.7%)	1.00
Installations of hood & chimney For ventilations			
Installed	48(73.8%)	26(44.8%)	3.48(1.63, 7.41)
Not installed	17(26.2%)	32(55.2%)	1.00
Running water for washing & Preparation			
Installed	43(66.2%)	12(20.7%)	7.49(3.31, 16.96)
Not installed	22(33.8%)	46(79.3%)	1.000

Physical condition of dining/ service room and activities performed in it

Sanitary assessment was done in all of 175 establishments. One hundred six (60.6%) of the establishment its floor was constructed of concrete, 23(13.1%) was wooden, 3(1.7%) was cement pointed stone, the remaining 43(24.6%) was plain earth.

Sixty nine (39.4%) of the establishments had floor which was not repaired in good conditions. 50(28.6%) of the establishments had rough surface of wall which can not easily cleanable. In 49(28%) of the establishments its wall not maintained in good conditions. In sixty one (34.9%) of the establishments wall cleanliness not kept. In sixty-three (36%) of the establishments ceiling repair was poor. In seventy-nine (45%) of the establishments ceiling cleanliness not kept. In 30(17.1%) of the establishment lighting of the room was inadequate.

In 118(67.4%) of the establishment all of the workers engaged in delivering food and drink were without appropriate over coat. in 154(88.4%) of the establishment all of the workers not wearing hair cover. in 111(67.4%) of the establishment all of the workers engaged in delivering food and drinks handle money.

Comparison of physical conditions of dining or service room was made between licensed and unlicensed catering establishments. Licensed catering establishments were found in better conditions than unlicensed (Table 6). The same finding was found that for the establishment sanitary inspection done in the last one year was found in better status than for those sanitary inspections never done. (Table 7)

Table 5; physical condition of the kitchen and activities performed in it in relation of sanitary inspections, Ambo town, West Showa Zone, Oromia Region, March 2007(n=123)

Characteristics	Inspected (n=88)	not inspected (n=35)	OR (95% C.I)
Wear of over coat			
All worn	34(38.6%)	5(14.3%)	3.78(1.34, 10.68)
Not all worn	54(61.4%)	30(85.7%)	1.00
Floor			
Clean	57(64.8%)	13(37.1%)	3.11(1.38, 7.02)
Not clean	31(35.2%)	22 (62.9%)	1.00
Repair of floor			
Good	50(56.6%)	9(25.7%)	3.8(1.6, 9.05)
Poor	38(43.2%)	26(74.3%)	1.00
Wall& Ceiling			
Clean	46(52.3%)	8(22.9%)	3.6(1.51, 9.03)
Not clean	42(47.7%)	27(77.1%)	1.00
Repair of wall & ceiling			
Good	56(63.6%)	10 (28.6)	4.38(1.87, 10.26)
Poor	32(36.4%)	25(71.4%)	1.00
Storage of cooked food in kitchen			
Appropriate	68(77.3%)	13(37.1%)	5.75(2.47, 13. 45)
Inappropriate	20(22.7%)	22(62.9%)	1.00
Waste handling & disposal in kitchen			
Appropriate	51(58%)	9(25.7%)	3.98(1.67, 9.49)
Inappropriate	37(42%)	26(74.3%)	1.00

Store room: only 50(28.6%) of the establishment had separate store rooms, among those had store rooms 46(92%) the floor constructed of cement concrete, 3(6%) wooden, 1(2%) was plain earth.

Refrigerators: Among the establishments which present perishable food for services refrigerators were available only in fifty five (39.3%) while fixed thermometer was available only in 23(41.8%)of them; of these had fixed thermometers in 18(78.3%) reading of the temperature was adjusted to be ≤ 10 °c at the time of visit. Concerning manner of storage of food in 2(3.6%) of the establishments perishable and non perishable foods stored in refrigerators together, in 47(85.5%) of the establishments cooked and raw food stored in separate refrigerators while in 8(14.5%) of the establishments cooked and raw food stored in the same refrigerators side by side or raw food in upper compartments.

Water supply and sanitary facilities

Water source: Majority, 160(91.4%) of the establishments had installed pipe in their compounds that was provided with municipal services, 7(4%) of the establishment get water from communal services from near by stand pipe distributions, the rest 8(4.6%) of the establishments buy from privately installed pipe. On the other hand majority, 152 (86.9%) of the establishments did not have any tanker/reservoirs for storage of water to be used during shortage of water.

Table 6; physical conditions of dining room and activities preformed in it in relation of licensing status, Ambo town, West Showa Zone, Oromia Region, March 2007 (n=175)

Characteristics	Licensed (n=107)	Unlicensed (n=68)	OR (95% C.I)
Repair of floor			
Good	72(67.3%)	34(50%)	2.06(1.10, 3.84)
Poor	35(32.7%)	34(50%)	1.00
Lighting of the room			
Adequate	94(87.9%)	51(75%)	2.41(1.09, 5.36)
Inadequate	13(12.1%)	17(25%)	1.00
Repair of wall			
Good	82(76.6%)	44(64.7%)	1.79(0.92, 5.49)
Poor	25(23.4%)	24(35.3%)	1.00
Wall			
Clean	83(77.6%)	31(45.6%)	4.13(2.14, 7.98)
Not clean	24(22.4%)	37(54.4%)	1.00
Repair of ceiling			
Good	79(73.8%)	33(48.5%)	2.99(1.58, 5.69)
Poor	28(26.2%)	36(51.5%)	1.000
Ceiling			
Clean	73(68.2%)	23(33.8%)	4.2(2.2, 8.02)
Not clean	34(31.8%)	45(66.2%)	1.00
Wear of over coat with food deliverers			
All worn	47(43.9%)	10(14.7%)	4.52(2.10, 9.83)
Not all worn	60(56.1%)	58(85.3%)	1.000
Wear of hair cover with food deliverers			
All worn	13(12.1%)	8(11.8%)	1.04(0.41, 2.65)
Not all worn	94(87.9%)	60(88.2%)	1.00

Table 7; physical conditions of dinning room and activities performed in it in relation of sanitary inspections, Ambo town, West Showa Zone, Oromia Region, March 2007(n=175)

Characteristics	Inspected (n=127)	Not inspected (n=48)	OR (95% C.I)
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Repair of floor			
Good	89(70.1%)	17(35.4%)	4.27(2.12, 8.63)
Poor	38(29.9%)	31(46.6%)	1.00
Repair of wall			
Good	97(76.4%)	29(60.4%)	2.12(1.04, 4.30)
Poor	30(23.6%)	19(39.6%)	1.00
Wall			
Clean	90(70.9%)	24(50%)	2.43(1.23, 4.82)
Not clean	37(29.1%)	24(50%)	1.00
Repair of ceiling			
Good	89(70.1%)	23(47.9%)	2.55(1.29, 5.03)
Poor	38(29.9%)	25(52.2%)	1.00
Ceiling			
Clean	79(62.2%)	17(35.4%)	3.00(1.50, 5.99)
Not clean	48(37.8%)	31(64.6%)	1.00
Wear of over coat with food deliverers			
All worn	53(41.7%)	4(8.3%)	7.88(2.67, 23.26)
Not all worn	74(58.3%)	44(91.7%)	1.00
Wear of hair cover with food deliverers			
All worn	18(14.2%)	3(6.3%)	2.48(0.7, 8.83)
Not all worn	109(85.8%)	45(93.8%)	1.00

Sanitary facilities

Latrine facility: Concerning latrine facility 108(61.7%) of the establishments had private latrines, 16(9.1%) used communal latrine together with neighbors, 13(7.4%) used public latrines while the rest 38(21.7%) of the establishments had no latrine facility. Type of latrine 24(17.5%) flush type, 113(82.5%) were dry pit latrine. Among those that had latrine only in 15(10.9%) of the establishments separated for male and female usage. About 79(57.7%) of the available latrine had only one seat. In four (2.3%) of the establishments the available latrine was not functional at time of visit because it was locked. In 75(54.7%) of the establishments the available latrine cleanliness not kept at time of visiting. In 52(38%) of the establishments the available latrine was infested with flies at time of visit. Only in 54(39.4%) of the establishment there were hand washing facility to be used after latrine.

Hand washing facility /lavatory

Among the establishment which prepare food for services hand washing facility/ lavatory to be used with costumers were available only in one hundred seven (74.4%) of the establishment. Of these had lavatory facility 36(33.6%) were welded metals, 38(35.5%)were water trough constructed of concrete and connected with running water tap, the rest 33(23.6%) uses buckets and discarded equipments. On the other hand among the establishments which had lavatory facility soap or detergent were available only in 47(43.9%) of the establishments for hand washing. In 74(69.2%) of the establishment receptacles of liquid waste from lavatory were not properly drained and the site was filthy and dirty.

Shower services: Shower services to be used with food handler was only available in 40(22.9%) of the establishment.

Cloak room: Only in 64(36.6%) of the establishments there were separate rooms for clothing, resting and placing of clothes for food handlers.

Washing basin for soiled glass and utensils and method of cleansing

In one hundred sixty nine (96.6%) of the establishment there were some type of washing basins for washing of soiled glass and utensils, among these in 72(42.6%) there was only one compartment, in 54(32%) two compartments, in 43(25.4%) had three compartment for washing of these only 19(10.9%) establishments were follow standard way of washing utensils and equipments.

Types of washing basins 6(3.4%) of the available washing basin was the standard type which was constructed of ceramics, 26(14.9%) were fixed trough constructed of concrete which work with running water tap, 137(78.3%) used bowls/ buckets for washing. In 77(45.6%) of the establishments cleanliness of washing basin and area around the basin was not kept at time of visiting

Concerning way of washing and sanitizing in 145 (82.9%) of the establishments only local soap and detergents used together with cold water for washing, only in 43(24.6%) of the establishments washed equipments were soaked in water which have 10% sedex for sanitizations. Only in 54(30.9%) of the establishment there were drying racks for drying of

equipment after washing while in 76(43.4%) of the establishments washed and ready to be used equipments were not properly stored in appropriate shelf which can prevent recontamination of the equipments.

Comparison between inspected and uninspected catering establishments was done with ways of storage of ready to be used utensils. It was found that conditions of storage was better in establishments for which sanitary inspection done than uninspected one with odds ratio 6.53 and 95% C.I of (3.07, 13.86)

Solid waste handling and disposal

Containers/ receptacles for the over all on-site storage of generated solid waste was available only in one hundred eighteen (67.4%) of the establishments in their compound while in 57(32.6%) of the establishment there were no any containers/receptacles placed in their compounds. Among the establishments in which refuse receptacles were present only in 45(38.1%) of the establishment the available refuse receptacles was durable type. In 13(11%) of the establishment the available receptacles was over filled in a manner it can aid breeding of flies during the time of visiting while in 96(54.9%) of the establishments it was reported that the waste was transported to final disposal before over filling of the containers.

Concerning the final disposal of generated solid waste only 34(19.4%) of the establishments use municipal services, 25(14.3%) burn at site, 53(30.3%) dispose on the street, 63(36%) of the establishments thrown in to the rivers.

Availability of refuse receptacle for on site storage of generated waste was compared between licensed and unlicensed establishment. It was found in better conditions in licensed one than unlicensed with odds ratio 4.61 and 95% C.I of (2.35, 9.04)

Liquid waste collection and disposal

In the town there were no drainage system for the over all collection and disposal of liquid waste. On the other hand drainage system for collection of generated liquid waste was available only in 49 (28%) of the establishments; of these 38(77.6%) were installed in a

manner which can collect all generated liquid waste, 11(22.4%) were open trench that can collect only fraction of generated liquid waste. In 33(18.9%) of the establishments liquid waste was stagnated in the area in a manner which can aid breeding of flies and can affect sanitary conditions of the establishments due to blockage and careless handling.

Concerning final disposal of generated liquid waste, 129(73.7%) of the establishment dump in open filed, 29(16.6%) dump in to septic tank, 4(2.3%) dump in to the latrine while the rest 13(7.4%) of the establishment connected their drainage system with Uluka rivers to discharge in it

Presence of drainage system and licensing status of the establishment were highly associated in comparison of licensed and unlicensed establishment with odds ratio 11.61 and 95% C. I of (3.94, 34.22)

Knowledge of food handlers

Among 140 food handlers who were interviewed for knowledge and practice 129(92.2%) of food handlers heard at least one type of food borne disease. Mass media was the first source of information followed by health professionals while formal education was the least, 114(88.4%), 81(62.8%) and 3(2.3%) respectively. Concerning the way of food born disease transmission 130(92.9%) of food handler knew that contaminated food is the means of transmission while most (72.1%) of food handlers responded that handling food with dirt hand could contaminate food (Table 8).

Practice of food handlers

Among interviewed food handlers only forty (28.6%) of food handlers had worn appropriate outer garment and hair covers, on the other hand sixty-seven (47.9%) of food handlers were not kept their personal hygiene and cleanliness of their overcoat. It was observed that 38(27.1%) of food handlers wore rings/finger ornaments on their finger during food preparations. 17(12.1%) of food handler had nail paint. 42(30%) of food handlers their nail not short trimmed and clean. 8(5.7%) of food handlers responded that they were not washed their hands before starting of food handling practice on the day of interviewing. 2(1.1%) of food handlers were smokers (Table 9).

Table 8; knowledge of food handlers and source of information, Ambo town, West Showa Zone, Oromia Region, March 2007(n=140)

Knowledge	Frequency	Percent
Heard at least about one type of food born disease		
Yes	129	92.1
No	11	7.9
Source of information about food borne disease		
Mass media	114	88.4
Health professionals	81	62.8
Written display	20	15.5
Formal education	3	2.3
Way of transmission of food born disease		
With contaminated food	130	92.9
Don't know	10	7.1
Way of contamination of food		
Exposure to flies	82	58.6
Handling in contaminated area	32	24.3
Using dirt equipment	71	50.7
Using contaminated water for preparation & washing	47	33.6
Handling with dirt hands	101	72.1
Using the same container for cooked &raw food	27	19.3

Comparison of practice of food handlers like keeping cleanliness of processing equipment, proper storage of cooked food in kitchen, and waste handling and disposal in kitchen was done between establishments which gives advice for food handlers on food safety and for those not gives advice. It was found in better conditions in establishment in which advice were given with OR and 95% C. I of 10.74 (4.23, 26.06), 9.25 (3.83, 22.32) and 9.26 (4.04, 21.25) respectively. The same finding were also found in the establishments which perform supervision (which done with managers or owners) of cookers in the kitchen on normal work were found in better conditions than the establishments which not perform supervisions of workers with OR and 95% C.I of 7.49(3.84, 79.69), 5.68(1.99, 16.17) and 7.02 (1.94, 25.44) respectively.

Table 9-Distribution of practice of food handlers in relation to food safety in public food & drinking establishments, in Ambo town, west showa zone, Oromia Region, March 2007(n=140)

Practice	Frequency	Percent
Wear of appropriate over coat at time of visit		
Yes	40	28.6
No	100	71.4
Wear of appropriate hair cover		
Yes	40	28.6
No	100	71.4
Short trimmed and cleaned nail		
Yes	98	70
No	42	30
Over coat & visible body part at time of visit		
Clean	73	52.1
Not clean	67	47.9
Wear of jewelry		
Yes	38	27.1
No	102	72.9
Nail paint during visit		
Observed	17	12.1
Not observed	123	87.9
Washing of hand before starting work on day of interviewing		
Yes	132	94.3
No	8	5.7

Health status assessment of food handlers

Among one hundred forty food handlers (cookers) who were randomly selected for recruitment of health status assessment (physical check up and stool examinations) only one hundred twenty one (86.4 %) persons were availed them selves for the study, the remaining 19(13.57%) were non respondents. Of these person for whom health status assessment was done, 3(2.14%) persons found with history of sinusitis, 1(0.7%) person his eye was tearing during the examination time while the over all prevalence of worm infection was found to be 34.7%(42) (the true prevalence could be between 30% to 43.6% by considering if the non response was all non case or all were cases). Among the case the dominant findings were *Ascaris lumbricoides* (37.2%) and *Entoamba histolitica* (32.6%) (Table 10)

Table10; prevalence of intestinal parasites among food handlers in public catering establishment, Ambo town, West Showa Zone, Oromia Region, March 2007 (n=121)

Sr.no	Type of parasite	Number of person infected	Percent
1	Ascaries Lumbricoides	16	37.2
2	Entamoeba Histolytica trophozoite	14	32.6
3	Gardia lamblia	4	9.3
4	Hook worm species	4	9.3
5	Strongloid stercoraries	1	2.3
6	T .Tricurria	1	2.3
7	H. nana	3	7
	Total	43	100

- No, of multiple infection 1(2.3%)

Overall sanitary conditions

For rating of general sanitary conditions as good or poor the study faced difficulty because of lack of standard criteria. However locally developed criteria was used with selection of a few variables for rating of general sanitary conditions of the establishments. The selected variables were provision of sanitary facility in the kitchen, repair conditions and cleanliness of floor, wall and ceiling of kitchen and dinning room, conditions of processing equipment, latrine availability and presence of proper receptacles in establishment's compound for onsite storage of generated sold waste. Among one hundred twenty three establishments those had kitchen only 29(23.6%) of establishments were rated as good sanitary conditions at time of the study.

Sanitary conditions were compared across the type of establishments, 13(61.9%) hotels, 6(9.5%) restaurants, 2(9.5%) grocery, 5(16.1%) snack bar, each single bar, juice selling house and pastries were rated as good sanitary conditions. Cross tabulation were done to check for any association between the variables. Licensed and regularly inspected establishments were

more likely to be found in good sanitary conditions than unlicensed and not regularly inspected (Table 11).

Table 11; Over all sanitary conditions of the establishments in relation of establishment building owners, sanitary inspections and licensing status in Ambo town, West Showa Zone, Oromia Region March 2007.(n =123)

Variable	Sanitation		OR 95% C. I
	good (29)	poor (94)	
Building owner			
-private	16(55.2%)	34(36.2%)	2.17(0.93, 5.05)
-rented	13(44.8%)	60(63.8%)	1.00
Inspection			
-done	28(96.6%)	60(63.8%)	15.87(2.07, 121.85)
-not done	1(3.4%)	34(36.2%)	1.00
License			
- licensed	26(89.7%)	39(41.5%)	12.22(3.46, 43.24)
-not licensed	3(10.3%)	55(58.5%)	1.00

Discussion

The study revealed that among one hundred twenty three establishments those had kitchen only 23.6% of food establishments were rated as good sanitary conditions at time of study.

To ensure that the public is served food that is healthy and safely prepared concern for food safety and protection should start at the source and end with ultimate consumers (15). However to prevent biological food borne disease occurrence glance at processing and serving plays crucial role.

Since source of food contamination are diverse (13) controlling the over all of sanitary condition of the establishments, health status of workers and raising the awareness of managers and workers has great roles in improving of food safety and prevention of food borne illness.

This study revealed that there are high proportions (38.9%) of informal (unlicensed) catering establishments which give services at time of study. The proportion of informal catering was high compared to the finding of other studies (Addis Ababa 29.1%, Mekelle & Awassa 9% each) but lower than Zeway findings (50.3%) (7-11). The problem is that (unlicensing of the establishments) these establishments could not fulfill the criteria for issuing of license, the building of the house in which they give service were not planned for catering services at the beginning (similar study conducted in Addis Ababa and Awassa also revealed this). Also they give services for lower economic status of the population and economically they are weak. However no food business should be carried out at insanitary premise where the conditions, situations and constructions are such that food may be contaminated, the premise must be well lit, ventilated, clean and in good repair (13). The structural lay out of food premise or surround area should not contain potential or breeding ground for rates mice, flies or other harmful rodents and insects (3).

Though good sanitary practice can not performed in poor premises, the present study revealed that there are high proportions of poor physical conditions of premises, 52% of kitchen floor, 46.3% of kitchen wall and ceiling, 39.4% of dinning room floor, 28% of dinning room wall and 36% of dinning room ceiling were not repaired in good conditions. In turn it had cracks, hole, joint and crevices in which dirt's and insects can lodge. This finding was similar with findings of study conducted in Addis Ababa (46.2% of floor repair and 84.2% of wall and ceiling repair of catering establishment were found in poor conditions) (7,8) and Zeway (41.5% of dinning room wall and 49% of dinning room ceiling were not found in good

conditions) (10). Even if there were high proportion of unlicensed catering establishment in this study maintenance conditions of informal catering were found to be in worst conditions in comparison of formal catering establishments the same is true for the finding of study conducted in Addis Ababa and Zeway.

There are high proportions of insanitary condition of catering establishments. Cleanliness of kitchen and dining room was not acceptable in most of the catering establishment. On the other hand in the same manner with repair conditions of catering establishment cleanliness of formal catering establishment were found in better conditions in comparison of informal (unlicensed) catering establishments at time of surveying. This can indicate that safety of food prepared and served in formal catering was kept and prevented from unhygienic area in which food was prepared.

Sanitary inspection and physical conditions of the catering establishments were significantly associated, for the establishments in which sanitary inspection was done in the past one year physical conditions of kitchen and dining room were found in better conditions; study conducted in Addis Ababa, Mekelle and Zeway also show that sanitary inspection has positive impact on physical conditions of the catering establishments. However in the study area sanitary inspection was done irregularly and there were no clear guide line for the inspection. A major reason for the sanitary inspection (supervision) of food establishments were the prevention of food borne illness, routine or frequent inspection of food processing and food service establishments alone will not be adequate, to ensure the maintenance of proper levels of sanitation; this (sanitary inspection) must be supplemented by education, motivation, persuasion, legal action, management supervisions and self inspections which performed by management of catering establishments (15)

This study revealed that supervision of food handlers (self control) which preformed by manager of the establishment has positive impact on activities which performed in preparation rooms. However majority (80.6%) of managers were not given any training about safety of foods. The over all strategy for reducing food borne illness is to place a heavy emphasizes on education about proper food storage and preparation practice along with stricter and more targeted enforcement (17), in food services establishment managers must be trained in the

principles of food hygiene so that they can in turn train and supervise the workers responsible for processing, preparation, storage and service of food (13).

There were high percentages of unavailability of sanitary facility. Latrine coverage, availability of hand washing facility, installation of running water in the kitchen for equipment washing and food preparations, presence of dust bins (refuse receptacles) for onsite storage of generated solid waste all these had low coverage. These all (high percentage of unavailability of sanitary facility) have negative impact directly or indirectly on safety of food which prepared and delivered for the consumers in these establishments, so efforts to improve these conditions should be strengthened with concerned authority.

Final disposal of solid and liquid waste were not properly practiced in majority of the establishments, only 19.4% of the establishments' use municipal services the rest use open burning, dispose on street and thrown in to the rivers. Though Ambo town municipality has one refuse truck for solid waste collection and disposal many of the establishments did not use the services and the coverage was very low. For final disposal of generated liquid waste only 18.9% of the establishments safely dispose their liquid waste the rest use open dumping in the area and discharge to the rivers which can be the factor for environmental degradations. This finding is similar with the same study conducted in Zeway (81% and 75.5% of the establishments were not properly dispose their solid and liquid waste) while study conducted in Awassa revealed that 57.3% and 27.9% of catering establishments not properly dispose their solid and liquid waste they use open dumping in open filed. Condition of solid waste disposal in Addis Ababa (89.9% use municipal collection containers) and findings of Mekelle study (88.6% of establishment use municipal container for solid waste collection, 87.1% of the establishments dispose their liquid waste in to septic tank) was found to be in better conditions in relation to this findings.

For prevention of food borne disease application of known and well established microbiological and sanitary principles has been effective. These measures are refrigeration, hygienic practice including prevention of cross contamination with raw foods or contaminated surface, and general sanitations are must important (15). How ever in this study in 34.1% of kitchen cooked/ready to be served food was not stored in proper manner, in 35.8% of the

kitchen cleanliness of processing equipment were not kept, in 43.4% of the establishments washed and ready for use equipments were not properly stored in a manner which can prevent recontamination of the equipments and in 69.1% of the establishments there have no drying racks for drying of washed equipments. These all indicates safety of food served in these establishments were not kept. On the other hand among those establishments which present perishable foods for services refrigerators were available only in 39.3% of the establishments for storage of perishable food, while storage temperature were adjusted to be less than or equal to 10 °c only in 32.7% of the establishments those had refrigerators. This finding (unavailability of refrigerators) were similar to the finding of Addis Ababa study (only 40.2% of the establishment had refrigerators) while the finding of Mekelle and Awassa were different from this findings 66.3% and 90.3% of the establishments had refrigerators.

Food handler is the ultimate source of health risks so health consciousness is essential, clothing of food services can also play an important role in prevention of food contamination so employees should wear neat and reasonably clean garments and hair net before food room and must keep their personal hygiene(3). However this study revealed that in 68.3% of the kitchen where food prepared all of the workers those perform preparation of food not worn outer garment. In 67.4% and 88.4% of the establishment all of the workers engaged in delivering food and drink in dinning room was not worn appropriate over coat and hair cover. This finding is slightly similar with the same study conducted in Mauritius town high schools (only 27% and 29% of food handler's worn protective cloth and cap) (27). While this condition (wear of outer garment) is slightly better than this finding in finding of Awassa, Mekelle and Addis Ababa study, wear of outer garment was practiced with 86%, 72.6% and 54.2% of workers respectively.

Among the workers interviewed for knowledge and practice 92.2% of food handlers knew at least one type of food borne disease, the source of information from which they heard were mass media was the first followed by from health professionals. This finding is consistent with study conducted in Mekelle. The knowledge level of food handlers were high however safety practices of food handling were not acceptable this is may be due to low level of attitudinal change and improper enabling environment.

Strength and limitation of the study

Strength of the study

-This study was done for the first time in study area so it can be used for planning of environmental health activities which performed in the town.

- This study was supported with different tools for data collections so it can said the quality of the data maintained.

Limitation of the study

-The study was not supported with bacteriological examination of utensils and water samples due to inavailability of coordinated laboratory in the study area.

-Due to lack of standard criteria for grading of sanitary conditions of the establishment locally developed criteria was used.

-Hazardous Analysis Critical Control point (HACCP) was not addressed with this study.

-How drinking water served for the consumers was not addressed with this study because it was missed during the design.

Conclusions

Based on the finding of this study the following conclusion could be drawn

-There was high proportion of informal catering establishments

- Sanitary conditions of many catering establishments were not satisfactory due to high proportion of insanitary conditions of premise such as poor repair of premises, lower coverage of sanitary facility, unclean preparation and serving room, high proportion of unacceptable waste handling and disposal services, improper washing and handling practice of utensils
- Therefore the probability of food contamination in these establishments was high due to poor sanitary conditions of the establishments and improper handling practice of food.
- Legal licensing, sanitary inspection (which conducted by an authorized body), self inspection (which conducted by manager of the establishments) and advising of food handlers which given by manager of the establishment on safe handling practice of food all these have positive impact in improving of sanitary conditions of the establishments.
- Coverage of sanitary inspection was low

Recommendations

The following recommendations are forwarded based on finding the study.

1. Health sectors, Municipality, Ministry of Trade, Industry and Tourism should work with integration to improve insanitary conditions like by

- enforcing to be licensed for those establishment not licensed
 - enforcing to built latrine and lavatory facility for those have not these facility and
 - regular sanitary inspection should practiced which should be followed with strict enforcement to improve sanitary conditions in case where insanitary conditions prevail.
2. There should be guidelines for inspection.
 3. To prevent unintentional contamination of food with food handlers due to lack of basic understanding of food protection principles training of catering establishment managers were rewarded in turn to train and supervise food handler to create awareness for healthy handling practice of food and to ensure that basic health requirements are met at all times.
 4. Appropriate solid and liquid waste collection and disposal should be planned and implemented to solve the current condition of unacceptable and improper waste collection and disposal system in the over all town and separate unite (establishment).

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Annex: 1(30)

1. Content of a comprehensive history for physical check up of food handlers

Date and time of history _____

Identifying data:

Age _____

Gender _____

Marital status _____

Occupations _____

Source of history or referral _____

Reliability _____

Chief Complaints _____

Present illness

Current medication _____

Allergies _____

Past history _____

Current health status _____

Review of system

Skin _____

Eye _____

Ear

Nose and Sinuses

Respiratory

2 Stool examinations (31)

- Direct microscopic examination techniques was performed to study prevalence of parasitic infections of food handlers
- For clinical purpose a fresh faecal specimen is required and should be uncontaminated with urine.

- **Collection of faecal specimen for parasitic examination**
- Selected food handler for whom physical check up intended to be done were provided with suitable size, clean, dry and leak-proof containers which was not sterile but free of all traces of antiseptics and disinfectants together with applicator stick.
- Then he/she tolled to bring a large teaspoon or about 10ml of a fluid specimen which was fresh and uncontaminated with urine and other filth.
- The specimens was labeled correctly accompanied with a correctly a completed request from.

Microscopical examination of faecal specimens

Examine immediately those specimens containing blood and mucus and those that are unformed because these may contain motile trophozoites of *E. histolytica* or *G. lamblia*.

Examination of dysenteric and unformed specimens

1. Using a wire loop or piece of stick, place a small amount of specimen, to include blood and mucus on one end of a slide. With out adding saline, cover with a cover glass and using a tissue, press gently on the cover glass to make a thin preparation

2. Place a drop of eosin reagent on the other end of the slide. Mix a small amount of the specimen with the eosin and cover with a cover glass
3. Examine immediately the preparation microscopically, first using the 10x objective with the condenser iris closed sufficiently to give good contrast. Use the 40x objective to identify motile trophozoites

Examination of semi-formed and formed faeces

1. Place a drop of fresh physiological saline on one end of a slide and a drop of iodine on the other end.
2. Using a wire loop or piece of a stick, mix a small amount of specimen, about 2 mg, (matchstick head amount) with the saline and a similar amount with the iodine. Make smooth thin preparation. Cover each preparation with a cover glass.
3. Examine systematically the entire saline preparation for larvae, ciliates, helminthes eggs, cysts, and oocysts. Use the 10x objective with the consider iris closed sufficiently to give good contrast. Use the 40x objective to assist the detection and identification of eggs, cysts and oocysts. Always examine several microscope fields with this objective before reporting No parasite found.
4. Use the iodine preparation to assist in the identification of cysts
5. Report the number of larvae and each species of egg found in the entire saline preparation as follows:

Scanty	1-3 per preparation
Few	4-10 per preparation
Moderate number	11-20 per preparation
Many	21-40 per preparation
Very many	over 40 per preparation

Annex: 2

Code No _____

Addis Ababa University Faculty of Medicine
Department of Community Health

A questionnaire prepared to conduct sanitary survey in public food and drinking establishment in Ambo Town, west show zone, Oromia region, March 2007

Name of the establishment _____

Location _____

Code of establishment _____

Form of verbal consent before conducting interview.

Introduction: My name is _____ I am working with a research team of Addis Ababa University, in research entitled sanitary survey of public food and drinking establishment in Ambo town, west showa zone, Oromia region. Your establishment have been selected to be included in this study. The finding of the study will be used for better planning and intervention of sanitary conditions of food and drinking establishments, therefore I am requesting you to respond honestly for interview questions and I need your willingness to enter and observe some area of your establishment and condition of the equipment, your response completely confidential, your name do not be written and the result do not be given for third body. Your participation is voluntary and you are kindly requested to answer every

question and you may stop at any time you want however your honest answers to interview questions and willingness to observe the status of the establishments will help us better understand at what condition is there the public food and drinking establishments in Ambo town.

Would you willing to participate?

- 1 .If yes, proceed to the next page
- 2 .If no pass to the next participant.

Name of interviewer _____ signature _____

Date of interview _____ time started _____ time finished _____

Supervisors name _____ signature _____

INSTRUCTIONS

The questionnaires have interview and observational types. For interview questions which were pre – coded response, only read (ask) as it is written and record the response of the respondents and for observational types go and observe each of the requested items and record your observations exactly.

1 .General information

Sr.no	Questions	Response	Code
101	Types of establishment	1. hotel 2.bar 3.restorant 4.grocery 5.snack 6 butcher shop7 “Tej bet” 8. juice house 9.pastary	/_/_
102	Type of services the establishment gives	1.exclusively food 2.exclusiverly drinks 3.food &drink 4.bed services in addition of food or drink 5.others (specify_)	/_/_
103	Sex of manager/owner	1.male 2.female	
104	Age of manager/owner	year _____	/_/_
105	Educational/ literacy/ status of manager/owner	1.illitrate 2.Literate ___ grade	/_/_
106	Marital status of manager/owner	1. single 2.married 3.divorced 4.widowided 5.separated	/_/_
107	Manager of the establishment	1.owner 2.relatives 3.employed	
108	Owner of establishment	1 individual 2.organization 3.Others(specify_)	/_/_
109	Owner ship of the establishment building	1.private 2.rented	/_/_
110	Number of worker	1. male ___ 2. female __ total__	/_/_
111	Does the establishment prepare food for sale (services)?	1. yes 2 no	/_/_
2. Condition of kitchen for establishment which prepare food for services.			
201	Does the establishment have the kitchen?	1.yes 2.no	/_/_
202	Had all food handlers wear over coot?	1. Yes 2. no	/_/_
203	Had food handlers given in house training about proper sanitary practices?	1yes 2. no	/_/_
204	Do managers supervise workers on their normal work?	1.yes 2.no	/_/_
205	Types of floor	1.Concrete/ cement 2.earthen 3.brick/plastered stone 4.other--	/_/_
206	Is the floor clean at time of visit?	1. Yes 2. no	/_/_
207	Is the floor in good repair, have no joints and cervices in which dirt’s can lodge?	1.yes 2.no	/_/_

2.3 Cleanness and repair conditions of wall and ceiling			
208	Dose cleanness kept and free from visible dirt, dust, soot, and web of spider	1. yes 2. no	/_/_
209	Is it maintained in good conditions which have no joint, hole and crack in which dirt's and insects can longed	1. yes 2. no	/_/_
210	Is the kitchen provided with adequate lighting systems?	1yes2.no	/_/_
2.4 Ventilation of the kitchen.			
211	Is hood and chimney installed for ventilation?	1. yes2. no	/_/_
212	Multi-purpose-Does the kitchen space serve other purpose	1 yes 2 no	/_/_
213	If yes specify it _____		/_/_
2.5 Insect and vermin protection			
214	Is any infestation of kitchen observed at time of visiting?	1.no 2.yes ,if yes type 1.flies 2.rate 3. Cockroach 4. other(specify__)	/_/_

Sr. no	Question	Response	code
2.7 Conditions of processing equipment and handling of food in kitchen			
215	Does smooth, non observant, free from crack and easily cleanable materials provided for processing?	1. yes 2.no	/_/_
216	Is processing equipment cleanness kept and free from visible dirt and filth?	1.yes 2.no	/_/_
217	Is there connection of running water in the kitchen for preparation and washing of equipment?	1.yes 2.no	/_/_
218	Does cooked food handled properly in kitchen/ kept in sealed conditions to prevent access from insect and open environment?	1.yes 2.no	/_/_
219	Waste handling in kitchen. Are appropriate refuse receptacles which is tight and fight for cover proved in kitchen?	1.yes 2.no	/_/_
3. store room and refrigerators			
301	Is a refrigerator available for storage of perishable foods?	1.yes 2.no	/_/_
302	If refrigerator available, dose perishable and non perishable food stored together?	1.yes 2.no	/_/_
303	Does the refrigerator over filled in manner which limits circulation of air?	1.yes 2.no	/_/_
304	Manner of storage of raw and cooked foods.	1. in separate refrigerators for raw and cooked foods. 2. in the same refrigerators cooked food in upper compartment. 3. in the same refrigerators side by side or raw food in upper compartment. 4. other (specify_____)	/_/_
305	Does the refrigerator have fixed thermometer reading?	1.yes2.no	/_/_
306	If the refrigerator have fixed thermometer, what is the reading of temperature at time of visit?	_____	/_/_
307	Does the establishment have separate store room?	1.yes2.no	/_/_
308	If there is separate store Room type of floor	1. concrete/ cement. 2. plastered stone /bricks. 3. wooden. 4. earthen. 5.others (specify_____)	/_/_
309	Does the room free from moisture and dust?	1.yes2.no	/_/_
310	Does the class infested with insect during visit?	1. yes 2. no	/_/_
311	Does any chemicals stored in manner it can come in contact with equipment and foods?	1.yes 2.no	/_/_
312	If there is any chemicals stored in manner it can come in contact with	1. _____	/_/_

	equipment or food list of it (specify it)	2. _____	
4. Dining room			
401	Types of floor	1. tile 2.concret 3 wooden 4 plastered stone/bricks 5.earthen.	/_/
402	Dose floor repaired in conditions which have no cracks and cervices in which dirt's can lodge?	1.yes 2.no	/_/
403	Lighting of dining room	1.adequate 2.inadequate	/_/
404	Wall type	1.smooth easily cleanable 2.rough surface.3.others (specify__)	/_/
405	Dose the wall maintained in good conditions?	1. yes 2.no	/_/
406	Dose cleanness of the wall kept at time of visit?	1.yes 2.no	/_/

407	Does the ceiling maintained in good conditions	1. Yes 2. no	/_/
408	Is cleanness of ceiling kept and free from dust, soot and web of spider?	1.yes2.no	/_/
409	Do all workers engaged in delivering food wear appropriate over coat?	1.yes2.no	/_/
410	Do all workers engaged in food handling wear hair cover?	1.yes 2.no	/_/
411	Do all workers engaged in delivering food handle money?	1.no 2.yes	/_/

5. For selected/ sampled food handlers			
5.1 General information			
Sr.no	Question	Response	Code
501	Sex	1. male 2. female	/_/
502	Age	year _____	/_/
503	Marital status	1.single 2.married 3.divorced 4.widowed 5.separated	/_/
504	Educational status	1.illiterate 2.literate__(grade__)	/_/
505	For how long have you been practicing food preparation?	Year __ month __	/_/
506	Do you have given any training about sanitary handling of food?	1.yes 2, no	/_/
507	It you given any training, who gives you the training?	1 formal certification from approved organizations 2.Town health office 3, manager/owner of the establishment. 4. others (specify__)	/_/
508	Have you ever suffered with disease symptoms like vomiting, diarrhea, skin infection and continuous coughing during the period of your food handling?	1.yes 2.no	/_/
509	If you suffered from any of these disease symptoms, have you reported to your managers?	1.yes 2 .no	/_/
510	Status of sick leave and resting after suffer of these diseases.	1.taken sick leaves till become free of sign & symptoms 2.not taken rest and have been on their normal work 3. others __	/_/
511	How do you supervised with manager /owner on normal work of food handling practice?	1. regularly supervised 2. intermittently Supervised 3. never supervised	/_/
5.2 observational type of practice related question for selected food handler			
512	Does the worker wear appropriate over coat?	1. yes 2. no	/_/
513	Does the worker wear appropriate hair cover?	1.yes 2.no	/_/
514	Do nail short trimmed and clean?	1.yes 2.no	
515	Cleanness of over coat and visible body during visit	1.kept 2.not kept	/_/
516	Discharging from nose, eye, ear and cough during visit	1.not observed 2.observed	/_/
517	Any visible skin rash, boil, cut and wound at time of visit	1.not observed 2. observed	/_/
518	If any visible cut and wound seen	1.plastered with water impermeable bandage 2.openely left 3.others specify__)	/_/
519	Wear of any jewelry or ring at time of visit	1.observed 2. not observed	/_/

520	Does nail paint observed?	1.yes 2.no	/_/_
5.3 practice related inter view			
521	Have you washed your hands be for starting work today	1. Yes 2. no	
522	Do you smokes?	1.yes 2.no	/_/_
523	If you smoke, do you smoke during your normal work of food handling?	1.yes 2.no	/_/_
524	After smoking, do you wash your hands before handling food during your food handling practice?	1.yes 2.no	/_/_
5.4 knowledge related questions to food handlers			
525	Do you ever heard about food borne disease?	1.yes 2.no	/_/_
526	If you heard about food borne disease what is your source of information?(circle all responses)	1. Formal training certification 2.health professional 3.written display. 4.mass medias 5.others (specify__)	/_/_
527	How can food borne disease be transmitted?(circle all responses)	1. contaminated food 2.contaminated hand 3. contaminated water 4.vectors 5. I don't know 6. other (specify _____)	/_/_
Sr.no	Question	Response	Code
528	How food can contaminated (what factors can affect cleanness /safety of foods)? (circle all responses)	1. Exposure to flies 2.Handling in contaminated environment (area) 3.Using of dirt equipment 4. Using of contaminated water for equipment washing and preparation 5. Dirt hands 6. Using the same container for cooked and raw foods. 7 .other (specify __)	/_/_
6. sanitary facilities and water supply			
6.1 water supply			
601	source of the water for the establishment	1. privately instilled from municipal supply 2.from communal distribution 3. buy from privately instilled pipe 4.others specify_____	/_/_
602	Is there any tanker for storage of water for shortage time?	1.yes 2.no	/_/_
6.2 Toilet			
603	Types of toilet	1. flush type 2.dry pit latrine 3.other specify (__) 4.no latrine	/_/_
604	Its services at time of visits	1. it gives services 2.locked and not gives service 3. not give service as filed/ fire of fall 4.others (specify-)	/_/_
605	Separation for male and females?	1 yes 2. no	/_/_
606	Number of seats	_____	/_/_
607	Owner ship Of the latrine	1.privately owned by the establishment 2.in communal services 3.instilled for public 4.others (specify_____)	/_/_
608	Is the latrine clean &comfortable to use at time of visit?	1.yes 2.no	
609	Flies infestation at time of visit?	1.not seen 2.seen	/_/_
610	Does hand wash basin provided to use after toilet near toilet?	1.yes2 no	/_/_
6.3 hand washing facility for dining			
611	Is hand washing facility present?	1.yes 2. no	/_/_
612	If present type of hand washing facility?	1 piped fountains 2.welded metals 3.discarded object 4.other (specify__)	/_/_
613	Is soap provided for hand washing?	1.yes 2.no	/_/_
614	Receptacles of liquid waste from hand washing basin	1. Properly designed, drained and connected to main sewerage system of the establishment 2. Not drained and the site is filth and dirt.	/_/_
6.4 shower services			

615	Is there shower availability for worker?	1. yes 2.no	/_/_
6.5 cloak room			
616	Is there separate room for clothing, resting and placing of clothes for workers?	1.yes 2.no	/_/_
7.Washing basins/facility for utensils and conditions of equipment			
701	Is there basin for washing of utensils used for food and drinking displaying and preparation?	1.yes 2.no	/_/_
702	If present, how much is its compartment? Write the number of compartment	_____	/_/_
703	What type of basin present?	1.fixed smooth surface with 2.fixed rough concrete with water tap water tap 3 dish bowls/bucket 4 other(specify-)	/_/_

704	Cleanness of the basin and area around it	1.kept 2.not kept	
705	Way of Cleaning and sanitizing of utensils	1. hot and cold water and detergent used for cleaning 2. Only cold water with detergent used 3. Only hot and cold water used 4. Only cold water used 5. only local soap and cold water used	/_/_
Sr.no	Question	Response	Code
706	Do sanitized equipments & utensils socked with sedex at the end	1.yes 2.no	/_/_
707	Is there drying racks for sanitized and cleaned utensils?	1.yes 2.no	/_/_
708	Do utensils and equipment stored in containers, on shelves under conditions which can protect against contaminations?	1.yes 2.no	/_/_

8. Waste handling and disposal

8.1 solid waste handling and disposal

801	Does appropriate refuse receptacles placed in appropriate place?	1.yes 2.no	/_/_
802	If refuse receptacles placed, does it durable type?	1.yes 2.no	/_/_
803	Does the receptacles fit to cover and tight?	1.yes 2.no	/_/_
Sr.no	Question	Response	Code
804	Does the receptacles filled and splashed in the area in a manner that can aid spreading of flies?	1.no 2.yes	/_/_
805	Does the refuse transported to final disposal before over filing?	1.yes 2.no	/_/_
806	Where dose the refuse Disposed at final?	1. Supplied to municipal service 2. Burn at site (open burn) 3. disposed on street 4.thrown in to rivers 5.other specify(_____)	/_/_

8.2 Liquid waste collection and disposal system

807	Is there installation of drainage system for collection and handling of liquid waste?	1.yes 2.no	/_/_
808	If drainage system present what type?	1. Closed type which can collect all generated liquid waste 2.open trench that can collect fraction of generated waste 3. other specify _____	/_/_
809	where liquid waste disposed at final?	1. open dumping in the area 2. to septic tank 2. dump in Latrine 4.discharge in to the river 5. other (specify _____)	/_/_
810	Is there stagnation of liquid waste due to blockage or careless handling which can aid fly breading and can affect sanitary condition of the establishment?	1.yes 2.no	/_/_

9.Messilenous

901	Year of services of the establishment	Year__ month__	/_/_/
902	How much can be the average number of customers per day?	_____	/_/_/

903	Dose manager trained about basic food safety	1.yes 2.no	/_/
904	Visiting/inspection in the past with sanitarians/an authorized body	1 .visited 2.not visited	/_/
905	If visited how long after last visit?	Year ___ month ___	/_/
906	Licensing status of the establishment.	1.licensed 2.unlicensed	/_/
907	If licensed	1. It gives service for which it is licensed 2. It gives other services exclusively 3.it gives other services in addition of its license.	/_/

Remarks _____

Annex: 3

Code no _____

Yunivarsiit Finfinee, Fakaliti fayyatti qajeelcha fayyaa hawasumaa

Motumaa nannoo oromiyaa godina shawaaa dhiyaa magalaa Ambo kessat Kan argaman dhabille mana nyataaf dhugaat wa`ee qulqulinaaf fayyaa ilaalchisee qorannoo adeemsisuuf gafilee qophaa`e Guraandhala 1999 A.L. H

Maqaa dhabbatichaa _____

Ganda/Goxii _____

Lakkofsa dhabatichaa _____

Qorannoo adeemsisuun dura haayama /fedhii irmaatota gafachuuf gaffii qophaa`e

Maqaan Koo obbo/adde _____ Jedhama. Kanan dhufeef Yunvarsitii Finfinee qajeelcha fayyaa hawasaan magalaa Ambo kessat dhabillee mana nyataaf dhugatii irrat wa`ee fayyaaf qulqulinaa ilaalchisee qorannoo adeemsifamuuf gaffii gochuuf .Dhaaban mana nyaata/dhugaat keessan qorannoo adeemsifamuuf filatamee jira. Firiin qoranchaas qaama biraaf darbee hin kenamu kanaafu gaafii siniif dhiyaatu fedhaan yaada/deebi sirrii ta`e akka na kenitan issin gaafadha, iddoo barbachiseef meeshaale nyaan ittiin qophaa`u kan ilaaluun barbachisuuf ilaaluuf haayama keessan gaafadha. Hirmanaan keessan fedha irratti kan hunda`eedha. Yeroo barbaadan dhabbu/addaan kutuu ni dandeesu. Haata`u malee gaafii dhiyatuuf yaada dhugaa/sirrii ta`e deebisuuf iddoo barbaachisetti qaamaan ilaaluuf haayamuun keesan haala dhabileen nyaataaf dhugatii magalaa kana kessat argaman hubachuuf nu gargaara.

Hirmaachuuf fedha qabduu

1 Eeyye yoota`e fuula itti anuut darbi.

2 Kan hin hayamne yoo ta`e dhaabata itti anuut darbi.

1. Maqaa nama gaaficha adeemsisee _____ Mallatoo _____

2. Guyyaa gafiin adeemsifamee _____ Sa`aa Jalqabe _____ Sa`aa xumurame _____

3. Maqaa to`ataa/supervisor _____ Mallatoo _____

Qajeelfama

Gucci kun gaafi duwaa gaafachuuf qaaman iddoo ilaalamuu qabu ga`anii ilaalanii hubachuun kan guutamu qaba. Gaaf duwaa gafachuun kan guutamuuf deebii ta`a jedhamee kan yaadame filanoo qopha`e waan jiruuf kanuma bareefame duwaa dubbisiif deebi hirmaaton deebisan filanoo qophaa`e jiru keessa itti mari. Kan ilalamee hubachuun guutamuuf iddoo ilaalamuu qabu qamaan bira ga`ii ilaalitii kan hubate filanoo qopha`ee jiru keessaa itti mari.

Lakka	Gaafi	Deebi	Kodii
1. yaada waliigalaaa			
101	Gossa dhabbatichaa	1. hoteela 2.mana bunaa 3.mana nyaata 4.mana dhugatii 5.mana ciree 6.mana foonii 7.mana booka 8.mana cuunfa kuduralee 9. mana shayii	/_/
102	Tajaajila dhabatichi kenu	1.nyaata duwaa 2.dhugatii duwaa 3.nyaataaf dhugatii 4.tajaajila siree nyaataaf dhugatii wajiin 5.kan biraa ibsi ___	/_/
103	Saala abbaa qabenyaa/bulchaa	1. dhi 2. dha	/_/
104	Umurii abbaa qabenyaa/bulchaa	Wagaa _____	/_/
105	Sadarkaa barumsaa abbaa qabeenyaa/bulchaaa	1. Kan hin baratiin 2. kan barate (kutaa ___)	/_/
106	Haala fudhaaf eeruma abbaa qabenyaa/bulchaaa	1.kan hinfuune/eerumine 2.kan fuudhe/eerumte 3. kan waliikan 4.abbaan/aatti manaa kan du`e/ duute 5. iddoo adda addaa kan jiraatan	/_/
107	Bulchaa dhabatichaa	1.abbaa qabenyaa 2.fira abbaa qabenyaa 3.kan qacarama 4.kan biraa ibsi _____	/_/
108	Abbaa qabenyumaa dhabatichaa	1. kan dhunfaa 2. kan gurma`inaa 3. kan biraa	/_/
109	Abbaa qabenyumaa ijaarsa manchaa	1.kan dhunfaa 2.kan kireefame	/_/
110	Baayina hojjetoota	1.dhi___ 2.dha___ 3.Walitti qabaatti ___	/_/
111	Dhabatichi tajajila/gurgurtaa nyaata ni adeemsisaa	1.eeyye 2.lakkii	/_/
2. Haala mana nyaan itti qopha`uu (haluwadaa) dhaabata nyaata qopheesaniif.			
201	Dhabatichi mana nyaata itti qopheesan qabaa? *(ilaal)	1. eeyye 2. lakkii	/_/
202	Hojetoon nyaata qopheesan hundinuu ucuu hojii ufataniiru?ilaal.	1.eeyye 2.lakkii	/_/
203	Hojetaaf haala qulqulin nyaataa itti eegamu irratti mana keessatti leenjiin ni kenamaa?	1. eeyye 2.lakkii	/_/
204	Bulchaan dhabatichaa hojjetoon haala nyaata qulqulinaan qophesanii ni to`ataa?	1.eeyye 2.lakkii	/_/
205	Gossa gola/lafa mana	1.kan simintoon hojetame 2.Biyoo 3.dhagaa/shakilaa simintoon	/_/

	nyaan itti qopa`uu ilaal	walqabsiifame 4.kan biraa ibsi	
2.2 Qulqulinaaf haala suphaa golichaa			
206	Yeroo to`anoon adeemsifamu qululin golichaa kan eegameedha? ilaal	1.eeyye 2.lakkii	/_/_
207	Golchi haala gariin kan suphameedha? ilaal	1.eeyye 2.lakkii	/_/_
2.3 Qulqulinaaf suphaa girgidaa (kenyaa) fi baxii			
208	Qulqulin kenyaa/girgidaaf baxii kan eegameedha yeroo to`anoon adeesimafu? ilaal	1.eeyye 2.lakkii	/_/_
209	Kenyaa/girgidaaf baxiin kan haala gariin suphameedha? ilaal	1.eeyye 2.lakkii	/_/_
210	Mani nyaan itti qophaa`u(aluwadaan) ifa ga`aa qabaa? ilaal	1.eeyye 2.lakkii	/_/_
2.4 haala qileensa aluwadaan/ mana nyaan itti qopaa`u argatuu			
211	Qaawi/ugumoonaa aara baasu hojetameera? ilaal	1.eeyye 2.lakkii	/_/_
2.5 haala itti faydama golchaa			

lakka	gaafi	deebi	Kodii
212	Goli/mani nyaan itti qophaa`u tajaajil biraa ni kenaa? Ilaal	1.eeyye 1. lakkii	/_/_
213	Kan goli/mani nyaan itti qophaa`u tajaajila _____ Biraa kenu yoota`e gossa issa ibis ____		/_/_
2.6 ittisa ilbiisotaa			
214	Yeroo to`anon adeemsifamu ilbiisaan weraramuun argammera? ilaal	1.eeyye 2.lakkii eeyye yoota`e gossa ibs----	/_/_
2.7 haala godaa nyaanifii itti qopha`uuf nyaanif dhugatiini itti dhiyaatu			
215	Qodawaan sakaraa kan hin taane,cabaa kan hin qabne,jiidhina kan hin Xuuxaneef qulquleesuuf kan mijatuudha?	1.eeyye 2. lakkii	/_/_
216	Qodaan yeroo to`annoon adeemsifamu qulqulin kan eegammeedha? ilaal	1. eeyye 2.lakkii	/_/_
217	Bishaan ujumoon diriire nyaata qophesuuf qodaa dhiquuf mana nyaan itti qophaa`u kessa jiraa?ilaal	1.eeyye 2.lakkii	/_/_
218	Nyaan bilchaate haala sirii ta`een qulqulin eegamee kuufameera?ilaal	1.eeyye 2.lakkii	/_/_
219	Kushinaa keessat haala kosiin itti qabamuuf maqsamu sirridhaa?ilaal	1.eeyye 2.lakkii	/_/_
3.mana kusaaf firjii			
301	Firjiin jiraa?	1.eeyye 2.lakkii	/_/_
302	Yoo firjiin jiraate nyaan yeroo gababaa kessat badu/tortoru kan yeroo gababaa kessat hin badneen waliin kuusameera?ilaal	1.eeyye 2.lakkii	/_/_
303	Firjiin yoo jiraate haala qileensa nanahuu dhorkuun guuttee jiraa?ilaal	1.eeyye 2.lakkii	/_/_
304	Haala nyaan dheedhiif bilchaataan firjii keessa Kuusamu?ilaal	1.bilchataaf dhedhiin firjii adda addaa keessat 2.firjii tokko keessat bilchaataa shelfii gara olii irrat 3.firjii tokko keessat walmadiit /dhedhii shelfii olii irrat 4.kan biraa ibsi __	/_/_
305	Firjichi termomeetira qabaa? ilaal	1.eeyye 2.lakkii	/_/_
306	Yoo qabaate yeroo to`atamu temperecheriin issaa meeqa? ilaal	_____	/_/_
307	Dhabatich kutaa mana kuussaa adda ta`e qabaa?ilaal	1.eeyye 2.lakkii	/_/_
308	Yoo mani kuusa adda	1.kan simintoon hojetame 2.dhagaa/shakilaa simintoon	/_/_

	ta`e jiraate gosa gola/ lafa issa. ilaal	walqasiifame 3.xa`ulaa 4.biyoo 5.kan biraa ibsi _____	
309	Yeroo to`annoon adeemsifamu kutchi ilbisotaan weerarame argameera ? ilaal	1.eeyye 2.lakkii	/_/_
310	Keemikaal haala nyaataaf qodaa faluu danda`uun kuufame jiraa?ilaal	1.eeyye 2.lakkii	/_/_
311	Yoo keemikaal nyaataaf qodaa faluu dana`uun kuufame jiraate gosa issaa ibsi	1._____ 2._____	/_/_
4. kutaa nyaan itti dhiyaatu/nyaatamu			
401	Gossa gola/lafa issaa	1.xubii/tile 2.simintoo 3.xa`ulaa 4.dhagaa/sishakilaa simintoon wal qabsiifame 5.biyoo	/_/_
402	Golchi haala gariin kan suphameedha? ilaal	1.eeyye 2.lakkii	/_/_
403	Kutich ifa ga`aa qabaa	1.eeyye 2.lakkii	/_/_
lakka	gaafi	deebi	Kodii
404	Gossa keenyaa issaa	1.qulqulesuuf kan mijatuuf kan wal dadarbaa hin qabne 2.wal dadarbaa kan qabuuf qulquleesuuf kan hin mijane 3. kanbiraa ibsi _____	/_/_
405	Kenyaan/girgidchi haala gariin kan supmeedha? ilaal	1.eeyye 2.lakkii	/_/_
406	Qulqulin kenya yeroo to`annoon adeemsifamu kan eegmeedha? ilaal	1.eeyye 2.lakkii	/_/_
407	Kornisiin haala garrin kan suphameedha? ilaal	1.eeyye 2.lakkii	/_/_
408	Kornisiin qulqulin issaa kan eegameedhaa?	1.eeyye 2.lakkii	/_/_
4.2 haala hojetoota			
409	Hojetoon nyaata dhiyeesan hundi ucuu hojii ufataniiru? ila	1.eeyye 2.lakkii	/_/_
410	Hojetaa nyaata dhiyeesan hundinuu qobii/shashii rifeensa mataa ittiin aguugan godhataniiru? ilaal	1.eeyye 2.lakkii	/_/_
411	Hojetaa nyaata dhiyeesan hundinuu qarshii ni qabatuu?	1.eeyye 2.lakkii	/_/_
5. hojetaa nyaata qopheesan kan filataman/sampilii fudhataman iilalchisee kan qortamu			
5.1 yaada walii galaa			
501	saala	1.dhi 2.dha	/_/_
502	umurii	Wagaa_____	/_/_
503	Haala fudhaaf eerumaa	1.kan hinfudhiin/erumiin 2.kanfudhee/eerumtee wallin jiran 3.kan wal iikan 4.abbaan/aat manaa kan du`e/duute 5.iddoo adda addaa kan jiraatan	/_/_
504	Sadarkaa barumsaa	1.kanhin baratiin 2.kan barate/barate(kutaa__)	/_/_
505	Wagaa meeqa erga hojii nyaata qopesuu jalqabidee	_____	/_/_
506	Wa`ee haala nyaan qulqulinaan qabamuu leenjii lenjetee?	1.eeyye 2.lakkii	/_/_
507	Yooleenjite ta`e eenyu si leenjise?	1.dhabata bekama ta`e leenjisu 2.waajira fayya annaa 3.bulchaa/abbaa qabeenya dhabatchaa 4.kan biraa __	/_/_
508	Kana dura dhibee kan akka hooqisiisu, garaa kasaa, qaama madesuuf kan yeroo dheraaf qufaasisu dhukubsateeta erga hajii nyaata qophesuu jalqabdee?	1.eeyye 2.lakkii	/_/_
509	Yoo dhukubsateeta ta`e bulchaa/abbaa qabenya dhabatichaaat gabasteeta?	1.eeyye 2.lakkii	/_/_
510	Haala boqonaa yeroo dhukubchaa	1.hanga dhibee sana irraa bilsa ta`aniit boqonaa fudhataniiru 3.boqonaa oddoo hinfudhane hojii irra turan 3.kan biraa__	/_/_

511	Haala to`annoo abbaa qabenaan/bulchaa dhabatchaan adeemsifamuu yeroo nyaata qopheesan	1.haala murta`een yeroo hunda 2.darbe darbee 3.gonkumaa hin to`atan	/_/_
5.2 gaaf gochaan wal qabate iluunkan guutamuhajetaa filatameef (ilaal)			
512	Hojetchi ucuu hojii sirii ta`e ufateera?	1.eeyye 2.lakkii	/_/_
513	Hojetch qobii/shashii ittiin refeensa mataa aguguu ufateera?	1.eeyye 2.lakkii	/_/_
514	Qeensa hojetchaa qulquluuf kan gababsameedha?	1.eeyye 2.lakkii	/_/_
515	Qulqulin ucuu hojiif qaamiin iddoon mulatu kan eegameedha?	1.eeyye 2.lakkii	/_/_
516	Yeroo to`annoon adeemsifamu qufaan, Dhangalahaan funyaan,ijaaf gura keesa arca`u	1. hin mulane 2. mulate	/_/_
517	Qaama hojetcha yeroo to`anoon adeemsifamu shifitaa finisaaf madaan	1.irrat hin mulate 2.mulate	/_/_
518	Yoo qaamin madaera ta`e	1. pilastarii bishan hin dabarsineen huwfame 2.omanuu hin uwfamine 3. kanbiraa ibis ____	/_/_

lakka	gaafi	deebi	Kodii
519	Hojetchi qubelaa arka irrat godhatee jiraa?	1.eeyye 2.lakkii	/_/_
520	Hojetaan qeensa issaa irrat qalam dibateera?	1.eeyye 2.lakkii	/_/_
5.3 gochaa hojetchaa ilalchsee kan gafatamee guutamu			
521	Hara ganama hojii Jalqabuun dura arka kee dhiqateeta	1.eeyye 2.lakkii	/_/_
522	Ni xuuxa?	1.eeyye 2.lakkii	/_/_
523	Yoo ni xuuxa ta`e yeroo nyaata qopheesitu xuuxa?	1.eeyye 2.lakkii	/_/_
524	Yoo yeroo nyaata qopheestu xuuxa ta`e erga xuuxee rawate oddo nyaata hin qabatiin arka dhiqataa?	1.eeyye 2.lakkii	/_/_
5.4 beekumsa issaa qorachuuf hojetaa nyaata qophesuuf kan dhiyaate			
525	Dhukuba nyaatan dhufu dhageese beektaa?	1.eeyye 2.lakkii	/_/_
526	Yoo dhageese ta`e essaa Dhageese(deebi hojetaan deebisu hunda itti mari)	1.dhabata beekama wa`ee qulqulina nyaata leenjii kenu irraa 2.oggeesa fayyaa irraa 3.bareefama adda addaa dubisuun 4.radioo ykn televiziyiii irra 5. kanbiraa ibsi ____	/_/_
527	Dhukubiin nyaatan darbu atamiin dadarba? (deebi hojetaan deebisu hunda itti mari)	1 Nyaata faalame nyachuun 2.hin beeku 3.kanbiraa ibsi__	/_/_
528	Nyaan attamiin faalamuu danda? (deebi hojetaan deebisu hunda itti mari)	1.tisisaan 2.mana/iddoo kosatii ophesuun/qabachun 3.qodaa xura`aan 4.bishaan faalame nyaata qopeasuuf qodaa dhiquuf faydamuun 5. arka xura`een qabachuun 6.qodaa tokkon yaata dheedhiif bilchataa kusuuf/ka`uuf fayydamun 7.kan biraa ibsi____	/_/_
6.kununsa qulqulinaaf haala bishaan dhiyaatu			
6.1 haala bishaan dhiyaatu			
601	Bishaan eessa argata dhaabatchi?	1.ujumoon kan dhaabatchaaf diriire irra 2. boonnoo nannoo jiru irraa3.ollaa irraa bitama 4.kanbiraa ibsi____	/_/_
602	Yeroo bishanii dhabame itti fayidamuuf tankariin/kusaan bishanii jiraa?	1.eeyye 2.lakkii	/_/_
6.2 mana fincanii/booli			
603	Gosa mana fincanii ilaal	1.kan bishaniin hojetu 2.bishaniin kan hin hojene/kan adaa 3.kan biraa ibsi____ 4 mani fincanii hin jiru	/_/_

604	Haala tajaajila kenuu mana fincanii yeroo to`anoon adeemsifamu.ilaal	1.tajaajila kenaa jira 2.waan qolofameef tajaajila hin kennu 3.gutee/jiguuf waan sodachuuf tajaajila hin kenu 4. kan biraa ibsi ____	/_/_
605	Dhiraaf dhalaaf mana fincanchaa adda basameera?ilaal	1.eeyye 2.lakkii	/_/_
606	Mani fincancha kutaa meeqa qaba? (lakkaa`i)	_____	/_/_
607	Abbaa qabenyumaa mana fincanchaa?	1.kan dhunfaa dhabatchaa 3.kan ollaa wajjin itti faydaman 3.kanuumataa 4.kan biraa ibsi ____	/_/_
608	Yeroo to`annoon adeemsifamu qulqulin mana fincanchaa egmeera? Ilaal	1.eeyye 2.lakkii	/_/_
609	Yeroo to`annoon adeemsifamu mani fincanchaa tasiisan werarameejiraa? ilaal	1.eeyye 2.lakkii	/_/_
610	Akka mana fincaan booda itti arka dhiqataniif haali mijaawe jiraa? ilaal	1.eeyye 2.lakkii	/_/_
6.3 tajaajila arka dhiqanaa wara nyaata qopheesaniif			
611	Arrka akka itti dhiqataniif haali qopha`e jiraa? ilaal	1.eeyye 2.lakkii	/_/_
612	Yoo jiraate gosa tajaajila arka itti dhiqataniif? ilaal	1.kan ujumoon tajaajila bishaniin walqabate 2.sibiila bayadame 3.qodaagatame* 4kan biraa ibsi____	/_/_
lakka	gaafi	deebi	Kodii
613	Samunaan akka arka itti dhiqataniif dhiyatee jiraa? ilaal	1.eeyye 2.lakkii	/_/_
614	Haala kosii dhangala`aan iddoo arka itti dhiqataniif sasaabamu? ilaal	1.haala gariin diriiree kosii unda sasabuun kan dhabatichaaf kosii dhangala`aa akka sasabuuf wal qabsiifame 2.kan haala gariin hin dirrireef iddoo kosa`aa/dhoqa`aa	/_/_
6.4 Iddoo qaamma ittit dhiqatan/shaworrii			
615	Hojetaaf iddoo qaama itti dhiqatan jiraa? Ilaal	1. eeyye 2. lakkii	/_/_
6.5 kutaa iddoo boqonaaf ucuu itti jijjiratan/kayatan			
616	Kutaan iddoo boqonaaf ucuu itti jijjiratan hojetaaf qopa`ee jiraa? Ilaal	1.eeyye 2..lakkii	/_/_
7.iddoo qodaan nyaataaf dhugaatii itti dhiqamuuf haala qodaa nyaataaf dhugatii			
701	Qodaa nyaatiif dhugattiin itti qopha`uuf itti dhiyaatu itti dhiquuf kan qopa`ee jiraa? ilaal	1.eeyye 2..lakkii	/_/_
702	Yoo jiraate kutaa meeqaq? Lakkoofsa issaa barees	_____	/_/_
703	Gossaa iddoo qodaan itti dhiqamuuf? ilaal	1.gandaa simintoon hojetamee ujuumoo bishaniin diriireen kan walqabateef qulesuuf kan mijatu 2.gandaa simintoon hojetammee ujumoo bishaniin walqabatee kan qulesuuf hin mijaane 3.qodaa iddoodha iddoot socha`uu danda`u(bayina ibis__) 4.kan birraa ibis____	/_/_
704	Qulqulina gandichhaaf iddoo issaa? ilaal	1. eegame 2. hin eegamne	/_/_
705	Haala qodaan itti qulquleefamuuf Miicamu? ilaal	1. bishaan qoraa, ohaaf omoon 2.bishaan qoraaf omoon 3.bishaan qoraaf ohaa duwaan 4. bishaan qoraa duwaan 5.samunaaf bishaan qoraan	/_/_
706	Qodaan dhiqamee yeroo raawatu bishaan barakinaa qabuun cuuphammee turaa? Ilaal	1.eeyye 2..lakkii	/_/_
707	Meshaa qaqawaan qodaa dhiqame qorsuuf/gogsuuf fayidu jiraa?	1.eeyye 2..lakkii	/_/_
708	Qodaan dhiqame meshaa qadaadame/shelfii qulquluu irra haala faalama ittisuun kuufammee jiraa? ilaal	1.eeyye 2..lakkii	/_/_
8. haala kosiin itti qabamuuf maqsamu			
8.1 haala kosiin gogogaan itti qabamuuf maqsamu			
801	Qodaan kosiin gogogaan itti kuusamu sirrii kan ta`e iddoo sirrii ta`e keewameera? ilaal	1.eeyye 2..lakkii	/_/_

802	Yoo qodaan kosiin itti kuufamu jiraate kan yeroo dheraaf tajajiluudha? ilaal	1.eeyye 2..lakkii	/_/_
803	Qodichi haala gariin qadaduuf/aguguuf mijatadhaa?ilaal	1.eeyye 2..lakkii	/_/_
804	Qodchi guttee haala ilbiisota/tisiisa horsisuu danda`uun faca`ee jiraa?ilaal	1.eeyye 2..lakkii	/_/_
805	Qodchi guttee kosiin oddoo hin facanee maqsamaa?	1.eeyye 2..lakkii	/_/_
806	Kosiin gogogaan dhuma irratti eessatti gatama?	1.dhabata tajajila kosii maqsaa maagalchaat laatama 2.godaa irratti gatu 3. godaa irratti gubu 4. lagat gatu 5. kan biraa ibis ____	/_/_
807	Kosii dhangalaa sasabuuf maqsuuf bo`oon/ujumoon haala gariin dirree jiraa? ilaal	1.eeyye 2..lakkii	/_/_
808	Yoo bo`oon jiraate gosa issaa?	1.ujumoon dirree kossii dhangalaa maduu hundaa kan sasaabu 2. bo`oo banaa ta`ee ba`ee kossii madu gimaasha duwaa kan sasaabu 3. kan biraa ibis _____	/_/_
809	Kossii dhangalaan eessat maqisama? ilaal	1.godaa irrat facaasu 2.saptik tankii kanaaf qopha`ee naqama 3.mana fincaniit naqama 4. lagat gadi lakisu 5. kan biraa ibis____	/_/_
lakka	gaafi	deebi	kodii
810	Haala tisiisa orsisuuf mijatuuf qulqulina dhabatchaa irrisuu danda`uun kosiin dhangala`aan nannoo/moraa kessat ciisee jiraa?ilaal	1.eeyye 2.lakkii	/_/_

9. Kan biraa

901	Dhaban kun tajaajla amma kenna jiru kana erga kenuu jalqabee amam?	Wagaa _____	/_/_
902	Tilmamaan guyaa tokko kessat dhabata kanat namoon tajajlaman meeqa ta`u? gaafadhu	Bayinaan_____	/_/_
903	Bulchaan dhabatchaa haala qulqulin nyaata eegamu barumsa/lenjii barateera/leenji`eera? gaafadhu	1.eeyye 2..lakkii	/_/_
904	Dhaban kun kana durra to`ataa fayaan/abbaa hangoo dhimilaluu kan biraan to`atameera?	1.eeyye 2..lakkii	/_/_
905	Yoo to`atame ta`e erga to`atamee ammam ture?	Wagaa __ji`a__	/_/_
906	Eeyama hojii dhabatchi qabaa?ilaal	1.eeyye 2..lakkii	/_/_
907	Yoo eeyama Hojii qabaate? ilaal	1.tajaajli dhabatch kenu kanma eeyamsiifateef duwaadha 2.gonkuma tajaajla biraa kena 3.tajaajla biraa dabalataan kena	/_/_

Yaada _____

Annex 4: Selected point for grading the establishments

1. conditions of kitchens			
Sr.no	Questions	Response	Code
101	Does all workers those prepare food worn over coat?	1. yes 2. no	
102	Do managers supervise the workers on normal work?	1. yes 2. no	
103	Does kitchen floor clean at time of visit?	1. yes 2. no	
104	Does kitchen floor in good repair?	1. yes 2. no	
105	Does kitchen wall clean at time of visit?	1. yes 2. no	
106	Does kitchen wall in good repair?	1. yes 2.no	
107	Does kitchen room provided with adequate lighting?	1. yes 2. no	
108	Does hood and chimney installed for ventilations?	1. yes 2. no	
109	Does the kitchen room gives other services in a manner it can degrade food safety?	1. yes 2. no	
110	Does the kitchen room infested with insect and vermin's at time of visit?	1. yes 2. no	
111	Does processing equipments all smooth and easily cleanable type?	1. yes 2. no	
112	Does processing equipments clean at time of visit?	1. yes 2. no	
113	Is there running water tap in the kitchen for washing and preparations?	1. yes 2.no	
114	Does cooked food properly handled in the kitchen?	1. yes 2. no	
115	Is there appropriate refuse receptacles in the kitchen?	1.yes 2.no	
2.Refrigerators			
201	Does refrigerators available?	1. yes 2. no	
3.Dinning room			
301	Does the floor in good repair?	1.yes 2. no	
302	Does the floor provided with adequate lighting?	1.yes 2. no	
303	Does the wall in good repair?	1. yes 2. no	
304	Does the wall clean at time of visit?	1. yes 2. no	
305	Does the ceiling in good repair?	1.yes 2. no	

306	Does the ceiling clean at time of visit?	1. yes 2. no	
307	Does all workers engaged in delivering food worn appropriate over coat?	1. yes 2.no	
4. Sanitary facilities and water supply			
401	Water source for the establishment?	1.privately owned water tap 2. get from other source	
402	Is there water tanker/ reservoir for storage of water to use during shortage of water?	1. yes 2. no	
403	Does latrine available?	1.yes 2.no	
404	Does shower available to be used with food handlers?	1. yes 2.no	
405	Is there separate room for clothing, resting and placing of clothes for workers?		
5. washing basin for utensils and conditions of utensils			
501	Is there washing basins for washing of utensils?	1. yes 2. no	
502	Is there drying racks for drying of washed equipments?	1. yes 2. no	
503	Does sanitized equipments stored in proper manner?	1.yes 2. no	
6. Waste handling and Disposal			
601	Does refuse receptacles placed in the compound for onsite storage of generated sold waste?	1. yes 2. no	
602	Is there drainage system for collection and handling of liquid waste?	1.yes 2. no	
809	Is there stagnations of liquid waste due to blockage or careless handling which can aid fly breading and can affect sanitary conditions of the establishments?	1.yes 2.no	