IDENTIFICATION OF MEASURES TO IMPROVE / INTRODUCE FOOD TECHNOLOGY COURSES IN TECHNICAL & VOCATIONAL INSTITUTES

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ABBREVIATIONS AND ACRONYMS

UNIVOTEC	- University of Vocational Technology
TVEC	- Tertiary and Vocational Education Commission
TVET	- Technical and Vocational Education and Training
NVQ	– National Vocational Qualification
NAITA	– National Apprentice and Industrial Training Authority
NYSC	– National Youth Services Council
VT	– Vocational Training
VTA	– Vocational Training Authority
R& D	- Research & Development

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EXECUTIVE SUMMARY

This Report Presents The Findings of The **Identification of measures to improve / introduce Food Technology Courses In Technical & Vocational Institutes :Student Awareness, Participation, New areas of Study,** undertaken By University of Vocational Technology, During January – December 2009 For The Tertiary And Vocational Education Commission

The **objectives of the Study** were to (i) find out reasons for low participation in Food related courses (ii) identify opportunities/ difficulties in introducing new Food related courses in public and private sector TVET institutes (iii) identify the available opportunities and required skills need in getting employment in Food Industry and (iv) formulate recommendations to improve participation and suggest new areas of vocations that should include in vocational Training

The **purpose of the Study** was to gain understanding of possible barriers in student participation and to recommend new subject areas of training in Food Technology that could include in the curriculum that is important to meet the current market demand.

This Report is supported by four Appendixes which present (i) the list of sample of TVET training providers who deliver Food related training. (ii) The list of sample of Food industries representing different sectors of food sector who deliver Food related training. (iii) The survey questionnaires

Under the Study, (i) Sample of 35 Training Institutions drawn from government and non-governmental TVET institutions who deliver food related training which have registered under TVEC was surveyed by visiting them and conducting interviews using a structured questionnaire to collect data on student participation, course details, available resources etc. (ii) A sample of 40 Food processing companies drawn from the industry representing various food sectors, e.g.; Tea & beverages, Dairy, Meat products, Food packaging , food export , food processing & manufacturing , confectionary companies & curry mixes & spices etc to collect information on possible career opportunities , knowledge and skill levels expected in hiring employees.
(ii) A sample of 150 students was drawn from those who already participating in the Food courses in both government & non governmental TVET institutions representing the three provinces of interest: Western, Southern, Central.
 (iii) A sample of 150 of school leavers was drawn from of those who have sat for GCE O/L of A/L representing the three provinces of interest: Western, Southern, Central.
Data was collected by visiting the institutes and conducting interviews using a structured questionnaire.

The subsequent data analysis reveals the following findings:

School leavers' perspective:
Computer, Management and Engineering Jobs were the preferred choices among school leavers, contributing to more than 60% of the responses. Hotel trade occupations are known to many school leavers contributing to about 40% responses and many lack knowledge on other food related job categories. Although Local job market known to some extent the awareness on international Food industry job market is deficient Many replied as Food

related jobs lack recognition.(53.3%) Opinion on self employment after completion of a course in food trade showed positive response (43%) School leavers have a considerable awareness on popular TVET institutes. Many identified Hotel schools as primary training institutions which deliver food sector training. Teacher contribution is minimal with regard to career guidance and possible motivation in obtaining vocational training.

TVET food Trainee perspective:
According to the data analysis, Male participants dominate the trainee population (71.7%) and trainee age limit falls 18-25 with a percentage of 66% responses. Trainees had G.C.E O/L and GCE A/L qualifications with responses through 50% and 49.1% respectively. Baking and professional cookery had higher responses 40%and 32% responses respectively. Food trainees have answered that food trade jobs are with positive social recognition. The intention of following the course pointed out 50% aiming for foreign job and 30% aim for self employment. The course had been recommended by a friend or passed out trainee for most of the trainees. Trainees responded with 8.7% on lecturers' subject knowledge and 9.2% on practical knowledge.

TVET Institute- perspective
Student involvement in food training -Government TVET :Number of student applied , participated, completed and employed Figures tend to increase in 2005,2006 and 2007 but shows decline in year 2008 No employed show continuous increase. Student participation - Private TVET Institutes: Number of student applied show clear continuous increment values tend to increase in 2005 and 2006 for student participation & completion but shows stagnant value for completed and employed categories in year 2007 & 2008.75% of organizations conduct training on curriculum developed in their institutes 20% NVQ curriculums and 5% institutes use international curriculums. Staff qualifications shows that 65% of organizations have diploma qualified trainers and 18% institutes have Certificate holder trainers. Only 15% institutes have degree holders as food trainers. Minority of institutes has industry trainers. 80% of institutes responded of insufficient Laboratory, teaching equipment quality raw material.
Industry perspective:
When recruiting employees the persons with previous experience are preferred but also with high responses to On the Job Training. Lack of suitable staff and poor quality raw material contribute to 60%of challenges face by industries. 82% responses show poor relationship with TVET institutions But 78% illustrates enthusiasm to collaborate.

Findings of research reveal that the reasons for low participation in food related courses is due to lack or limited awareness of food trade occupations, food training opportunities and job market demand (local & foreign). Some school leavers feel that lack of social recognition on food industry vocations make them to choose other popular vocations like Computer, Engineering, management etc. School teacher's assistance in career guidance is not adequate.
In considering the opportunities/difficulties in introducing new Food related courses in TVET institutes, it was observed that TVET lacks standard curriculum material specific for different food related occupations. Government TVET institutes face insufficient infrastructure facilities (equipment& material) to introduce new courses compare to private TVET institutes. TVET lacks coordination with the industry and its updated requirements regarding needs of human resource. State TVET's marketing strategies are poor and attract fewer participants. Also limited support is given by state TVET in helping trainees to find employment. Private TVET institutes perform better in terms of marketing and

providing help in seeking jobs. Trainees stated of poor performance in lecturers' subject knowledge and practical knowledge irrespective of institute's ownership (state/private)

In identifying available opportunities and required skills need in getting employment it was found out that Food Industry lacks persons with suitable training for specific job categories and most of the skills training and upgrading have been conducted as on the job training and as in-house apprenticeship training in the industry. Unfortunately, at present training on food Technology is mainly conducted at the university level, which addresses the top hierarchy of the job chain. Middle level occupations which could sustain by Vocational Training are not properly dealt with. Due to this only a few trainees are able to undergo formal training and not sufficient to fulfill the market demand.

Our research findings suggest in formulating recommendations to improve participation, student could be given more awareness on available food courses, by conducting workshops seminars at school level. Giving school children an overview of the food industry, possible training and job opportunities will provide the food sector with necessary social recognition. School Teachers should be given career guidance training and awareness in order to motivate students to take up proper training opportunities. TVET institutes should have procedure to direct students who finish training for employment by strengthening contacts with the industry. Those who follow food tech courses could be directed to leading companies to ameliorate the industry. In identifying new training categories, first a need analysis should be done to identify possible areas of study with the involvement of the industry.

The Food industry and TVET lacks overall coordination and collaboration with regards to human resource development. Although diverse, the food processing industry has many commonalities among sectors and businesses that could benefit from a shared training and information forum. E.g.: Development of Information portal /hub where TVET, Industry and Trainees meet together. There are several common needs among the various food industries in Sri Lanka with regards to human resources. These needs may be characterized into three pillars: Communication, Market Knowledge and Training and Skills Development. Each of these areas is vital to preparing the industry's workforce to meet the diverse challenges of today's global environment.

Our recommended approach includes state TVET organizations that should be responsible for take up the initiation in advancement of communication, market knowledge and training and skill development. A collaborative, state and Government and industry initiative is recommended for training delivery as it increases the competitiveness of the greatest number of firms and sectors; thus better positioning the industry for success.

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1. Map Showing TVEC Registered Food Technology Training Providers
2. List of TVET Institutions Surveyed
3. Questionnaires

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SECTION- I INTRODUCTION

1.1   Overview

Food Industry is a major player in the economy of Sri Lanka, with its substantial contribution towards the Gross Domestic Product (GDP) and employment generation. Currently this sector along with associated segments such as agriculture, livestock, and fisheries etc. contributes to about 18% of the GDP and 30% of the employment.
 (*Source:* *Central Bank of Sri Lanka: 2006)*

Today Food industry is diversified and complexed and strives for efficiency in terms of cost effectiveness. However, for most of the food industries, increasing labor productivity is the key in term for profitability. Recruitment and retention of general and skilled labour as well as the changing occupational composition of the labour force with regards to skills development are some of the key challenges the industry faces in terms of human resource development.
In order to successfully meet these evolving needs, a flexible workforce with a new set of essential and transferable skills require in addressing the growing needs of industry.

Therefore, it is evident that the continuous upgrading of skills in the Food Industry is essential for the survival and also to face the future challenges in the local and international marketplace

The primary objective of Technical Education and Vocational Training (TEVT) in Sri Lanka is to prepare trainees for productive employment and to enhance their prospects of employment in the local and foreign job market.

This sector includes not only the technical colleges and other state owned technical and vocational training organizations, but also a large number of enterprise-based in-plant and other training facilities together with private sector companies and NGO's. Other activities of the sector include retraining and upgrading of unskilled, semi-skilled and other categories of workers in the industry.

Unfortunately, at present training opportunities provided by TVET sector for skill enhancement in food sector is at minimum level with regard to variety of courses offered and quantity in enrollment.

Due to this reason only a few trainees are able to undergo vocational training I Food Technology at this level.. Therefore it is high time to identify the human resources requirements of the Food industry of Sri Lanka and to develop a short and medium term Vocational Education and Training programmes, to address the needs of the industry.

Further it was observed that participation in the available food Technology Courses offered by government TEVT is declining during past few years (*Training data VTA, NYSC)*

So to find out what factors would contribute to the low participation rate has become an important issue. Also it's imperative to evaluate the practicability of the TVET Institutes in introducing new courses which satisfies necessary skills training and upgrading in fulfilling the future challenges of the industry.

On this perception, the University of Vocational Technology has initiated this research Study for the purpose of understanding the possible barriers in student participation, introduction of new courses and to recommend new subject areas of knowledge & skills in Food Technology that could include in the curriculum which is important to meet the current & future market demand**.**

1.2   Objective of the Study

The objectives of the study include

- Find out reasons for low participation in Food related courses
- Identify opportunities/difficulties in introducing new Food related courses in public and private sector TVET institutes
- Identify the available opportunities and required skills need in getting employment in Food Industry
- Formulate recommendations to improve participation and suggest new areas of vocations that should include in vocational Training

1.3   Methodology & Approach

Four questionnaires were developed intend for gathering primary data from

- School leavers
- Students who already participating in Food Training at TVET Institutes.
- Head of the institute/Instructors of TVET Institutes which offer food Training.
- Head of the organization -Food Industries

1.3.1   Population of the Study & Sample

- **School leavers**

Population: School leavers of the three provinces: western, southern & central

Sample: A sample size of 150 of school leavers was drawn from of those who have sat for GCE O/L or A/L representing the three provinces of interest: Western, Southern, Central. Here, representing two districts in each province, one rural and one urban. 25 samples were selected to make a total of 50 samples for each province.

Data was collected by visiting the career guidance centers of TVET institutions where school leavers pay routine visits   and conducting interviews using a structured questionnaire. By posting questionnaires also some data was gathered.

- **Training Institutes:**

Population: TVEC registered training providers who deliver food related training.

Sample: Total population is considered as the sample. A sample size of 35 Training Institutions have drawn from government and non-governmental TVET institutions who deliver food related training accordingly.

Data was gathered by visiting institutes and conducting interviews using a structured questionnaire to collect data on student participation, course details, available resources etc.

- **Students already participating in Food Training at TVET**

Population: Food Tech trainees of the three provinces: western, southern & central

Sample: A sample of 150 students was drawn from of those who are already participating in the Food courses in both government & non governmental TVET institutions representing the three provinces of interest: Western, Southern, Central.

Data gathered by visiting them and conducting interviews using a structured questionnaire to collect data on reasons for participation, difficulties, Courses etc

- **Food Industry Participation**

Population: food industries registered under industry development ministry.

Sample: A sample of 40 Food processing companies drawn from the industry representing various food sectors: Tea & beverages, Dairy & Meat products, Food packaging, Bakery, Food processing & manufacturing, Confectionary, Curry mixes & Spices companies etc

Collected information on possible career opportunities, knowledge and skill levels expected in hiring employees

Structured questionnaires were used as the data collection tool. Data collection was assigned to the group of research members formed from academic and development assistants of the institute. The pilot data collection was conducted with each questionnaire for purpose of validation. Based on the experience of the pilot survey, the questionnaire was further modified and presented to the TVEC for approval.

1.3.2 Secondary Data collection

To get an understanding of the Food industry of Sri Lanka, A secondary data was collected from the following sources.

- Department of Census and Statistics
- Ministry of Industry & Investment Promotion
- Board of Investment
- Ministry of Fisheries & Aquatic Resources
- Export Development Board

1.4 Organization of the Report

The section I deal with a brief introduction regarding the study. It also includes the research objectives, methodology and sample selection. An executive summary of the study also incorporated under section I. Section II covers the background information which supports the research study. Section III will deal with the human resource aspects of the industry and will explain the details regarding the existing supply of training with respect to the food industry. Section IV will discuss data analysis and research findings. Section V describes conclusions and possible suggestions on the research study.

Section II - LITERATURE REVIEW

2.1 Overview of Food Industry

Food industry covers a series of industrial activities directed at the processing, conversion, preparation, preservation and packaging of food and beverage products. The raw materials used are generally of vegetable or animal origin and produced by agriculture, farming, breeding and fishing.

Table 1: *Overview of Food Industry*

Industry	Materials Processed	Storage Requirements	Processing Techniques	Preserving Techniques	Packaging of Finished Products
Meat processing & preserving	Beef, lamb, pork, poultry	Cold stores	Slaughtering, cutting up, boning, comminuting, cooking	Salting, smoking, refrigeration, deep-freezing, sterilization	Loose or in cans, cardboard
Fish processing	All types of fish	Cold stores or salted loose or in barrels	Heading, gutting, filleting, cooking	Deep-freezing, drying, smoking, sterilization	Loose in refrigerated containers or in cans
Fruit and vegetable preserving	Fresh fruit and vegetables	Processed immediately; fruits may be stabilized with sulphur dioxide	Blanching or cooking, grinding, vacuum-concentration of juices	Sterilization, pasteurization, drying, dehydration, lyophilization (freeze drying)	Bags, cans or glass or plastic bottles
Milling	Grains	Silos may be fumigated in storage	Grinding, sifting, milling, rolling	Drying cooking or baking	Silos (conveyed pneumatically), sacks or bags to other processes, or boxed for retail trade
Baking	Flour and other dry goods, water, oils	Silos, super sacks and bags	Kneading, fermentation, laminating surface treatments of seasoning	Baking, cutting surface treatments and packaging	Packaged for wholesale trades, restaurants and retail markets

Industry	Materials Processed	Storage Requirements	Processing Techniques	Preserving Techniques	Packaging of Finished Products
Biscuit making	Flour, cream, butter, sugar, fruit and seasoning	Silos, super sacks and bags	Mixing, kneading, laminating moulding	Baking, cutting surface treatments and packaging	Bags, boxes for institutional and retail trades
Pasta manufacture	Flour, eggs	Silos	Kneading, grinding, cutting, extrusion or moulding	Drying	Bags, packets
Sugar processing and refining	Sugar beet, sugar cane	Silos	Crushing, maceration, vacuum concentration centrifuging, drying	Vacuum cooking	Bags, packets
Chocolate making and confectionery	Cocoa bean sugar, fats	Silos, sacks, conditioned chambers	Roasting, grinding, mixing, conching, moulding	-	Packets
Brewing	Barley, hops	Silos, tanks, conditioned cellars	Grain milling, malting, brewing, filter pressing, fermentation	Pasteurization	Bottles, cans, barrels
Distilling and manufacture of other beverages	Fruit, grain, carbonated water	Silos, tanks, vats	Distillation, blending, aeration	Pasteurization	Barrels, bottles, cans
Milk and milk products processing	Milk, sugar, other constituents	Immediate processing; subsequently in ripening vats, conditioned vats, cold store	Skimming, churning (butter), coagulation (cheese), ripening	Pasteurization, sterilization or concentration, desiccation	Bottles, plastic wrapping, boxes (cheese) or unpacked
Processing of oils and fats	Groundnuts, olives, dates, other fruit and grain, animal or vegetable fats	Silos, tanks, cold stores	Milling, solvent or steam extraction, filter pressing	Pasteurization where necessary	Bottles, packets, cans

The food and beverage industry today has become highly diversified, with manufacturing ranging from small, traditional, family-run activities that are highly labour intensive, to large, capital-intensive and highly mechanized industrial processes. Many food and beverage industries depend almost entirely on local agriculture or fishing. In the past, this meant seasonal production and hiring of seasonal workers. Improvements in food processing and preservation technologies have taken some of the pressure off workers to process products quickly to prevent spoilage. This has resulted in a decrease in seasonal employment fluctuations. However, certain industries still have seasonal activities, such as fresh fruit and vegetable processing and increases in production of baked goods, chocolate and so forth for holiday seasons. Seasonal workers are often women and foreign workers.

There is an increased demand for processed food and beverages, especially in developing countries where the market has not yet been saturated. This increase in output of food and beverage products, however, has not resulted in increased employment because of intensified competition, which has resulted in decreased employment in many food and beverage industries. This is due to increased productivity and mechanization in many of these industries.

2.1.1 Composition of the Industry

Table 2: *Composition of Food & Beverage sector by industrial sub category*

Type of Industry	No. of Establishments
Food Industries	
Slaughtering & preserving meat	6
Dairy products	38
Canning fruit & vegetables	14
Canning & processing fish	28
Vegetables, Animal oils & Fats	44
Grain mill products	490
Bakery products	462
Cocoa, Chocolate & Confectionery	62
Food products	810
Total	**1954**
Beverage Industries	
Distilling, Rectifying spirits	8
Wine Industries	16
Malt liquors & Malt	4
Soft drinks & Carbonated waters	9
Total	**37**
Grand Total	**1991**

Source: Department of Census & Statistics

2.1.2 The geographical distribution of food & beverage factories in Sri Lanka is as follows.

Table 3: *Total population of food & beverage industries with respect to districts*

District	Food Industries	Beverage Industries	Total
Colombo	183	9	192
Gampaha	211	2	213
Kalutara	53	7	60
Galle	92	-	92
Matara	100	-	100
Hambantota	37	-	37
Kandy	225	1	226
Nuwara Eliya	127	1	128
Matale	53	-	53
Kegalle	54	1	55
Ratnapura	96	-	96
Kurunegala	207	-	207
Puttalam	103	14	117
Anuradhapura	79	-	79
Polonnaruwa	76	-	76
Badulla	115	1	116
Monaragala	143	1	144
Total	**1954**	**37**	**1991**

Source: Department of Census & Statistics

Table 4: *Distribution of Food & Beverage Industries according to industrial category and size*

Industry Category	No. of Establishments				
	Large	**Medium**	**Small**	**Micro**	**Total**
Slaughtering & preserving meat	2	4	-	-	6
Dairy products	2	8	10	18	38
Canning fruit & vegetables	1	5	4	4	14
Canning & processing fish	-	2	8	18	28
Vegetables, Animal oils & Fats	5	15	10	14	44
Grain mill products	-	18	200	272	490
Bakery products	3	30	205	224	462
Cocoa, Chocolate & Confectionery	2	7	20	33	62
Food products (n.e.c)*	53	372	110	275	810
Total Food Industries	**68**	**461**	**567**	**858**	**1954**
Distilling, Rectifying spirits	3	5	-	-	8
Wine Industries	-	-	6	10	16
Malt liquors & Malt	-	1	1	2	4
Soft drinks & Carbonated waters	3	3	3	-	9
Total Beverage Industries	**6**	**9**	**10**	**12**	**37**
Grand Total	**74**	**470**	**577**	**870**	**1991**

n.e.c* = not elsewhere classified

2.1.3. Composition of Private and Public Sector Industries

Table 5: *Relative Percentage Composition of Private and Public Sector Industries*

Category	Year									
	2001		**2002**		**2003**		**2004**		**2005 (a)**	
	Pvt.	**Public**	Pvt.	**Public**	Pvt.	**Public**	Pvt.	**Public**	Pvt.	**Public**
Food, beverage & tobacco products	99	1	99	1	99	1	99	1	99	1
Average for all the industries	95	5	95	5	96	4	96	4	96	4

(a) Provisional ***Source:*** *Central Bank of Sri Lanka*

According to table 5, 99 percent of the food and beverage industry is comprised of the private sector organizations. This scenario is evident throughout the period from 2001 to 2005 where the maximum average private industry composition is only 96 percent.

2.2   Basic economic aspects with respect to the food industry in Sri Lanka.

2.2.1   Contribution to the economic growth

The output of factory industries, which accounted for over 80 per cent of manufacturing output, grew by 6.2 per cent in 2005. This was achieved despite several challenges such as volatile oil prices, the abolition of the Multi-Fibre agreement and devastation caused by the tsunami. The entire growth in factory industry has come from private sector industries, as output in public sector industries declined by 6.2 per cent in 2005. The growth in factory industry was broad based across all industrial categories. However food and beverage sub-sector became the second highest contributor in this regard. The output of the food, beverages and tobacco category grew by 4.8 percent in 2005 and contributed 17 per cent to factory industry growth in 2005. Higher production was witnessed in all sub-sectors of food processing (5.1 per cent), beverages (3.3 per cent), tobacco (3.0 per cent), and liquor (7.5 per cent). Growth in the food sub-sector in 2005 is attributed to the improved performance in a wide range of products such as milk products, soy products, ice cream and fruit and vegetable processing and canning. The rising consumer expenditure due to relatively lower interest rates, increased salaries and increased harvest in agricultural areas has stimulated domestic demand for these products. The output of liquor has increased by 7.5 per cent with growing domestic demand, despite an upward revision of excise duties. The output of mineral water

also achieved a high growth. Contribution of food and beverage sub-sector to industrial production in 2005 is as show in Chart 1.
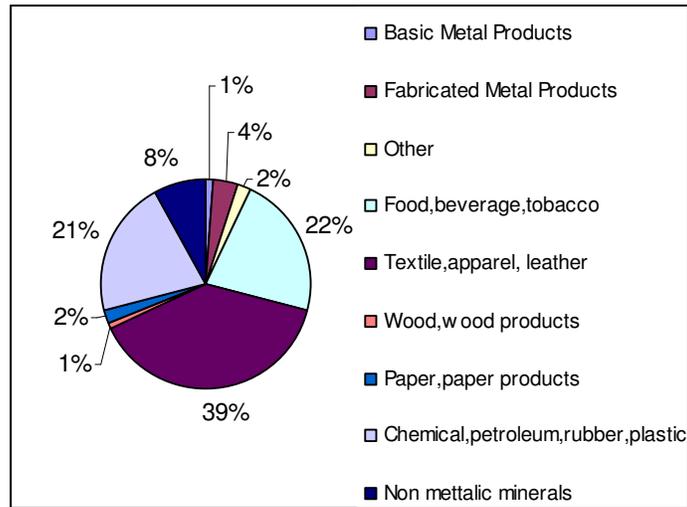
Source: Central Bank of Sri Lanka

Chart 1: *Composition of Industrial Production-2005*

Table 6: Value of Industrial Production (1990 Constant Prices) (Rs. million)

Category	Year				
	2001	*2002*	*2003*	*2004*	*2005 (a)*
Food & Other	*29,146*	*30,428*	*32,649*	*34,249*	*35,980*
Liquor	*3,478*	*3,659*	*4,098*	*4,389*	*4,720*
Beverages	*7,548*	*7,888*	*8,409*	*8,652*	*8,940*
Total	*40,172*	*41,975*	*45,156*	*47,290*	*49,640*
Share of Industrial Production %	*19.6*	*19.9*	*20.5*	*20.3*	*20.0*
Share of Overall GDP %	*4.8*	*4.9*	*4.9*	*4.9*	*4.8*

Source: *Central Bank of Sri Lanka   Board of Investment of Sri Lanka*

Chart 2: **Sector Share of GDP 2005 (at 1996 Constant Factor Cost Prices)**

17.2%
Agriculture

55.8%
Services

27.0%
Industry

■ **Agriculture** ■ **Industry** ■ **Services**
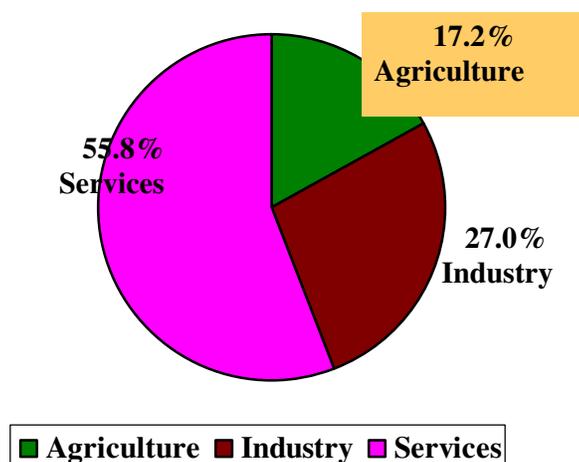
2.2.2. Industrial Exports

Table 7: *Industrial Exports (Rs. million)*

Category	Year				
	2001	**2002**	**2003**	**2004**	**2005 (a)**
Food, Beverages and Tobacco	11,389	11,799	13,994	17,730	32,047
(i) Cocoa Preparations	28	9	26	15	23
(ii) Fruits, tinned and bottled	277	383	328	442	358
(iii) Fruits and vegetable juices	98	102	147	173	213
(iv) Fish , fresh and frozen	3200	2888	3364	4563	6413
(v) Fish, salted	298	280	411	427	265
(vi) Crustaceans and Molluscs	4929	4285	5179	3834	3211
(vii) Animal fodder	725	1443	925	1875	1523
(viii) Manufactured tobacco	195	185	805	1638	2018
(ix) Other	1639	2224	2809	4763	18023

(a) Provisional

Source: Sri Lanka Customs

The industrial exports have increased throughout the period and in 2005 there is a substantial increase. As far as single item exports are concerned exportation of fresh and frozen fish dominate the exports in 2005.

Table 8: *Export Value of Food Processing*

Year	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Annual	
	Index	Point to Point % Change	Index	Point to Point % Change	Index	Point to Point % Change	Index	Point to Point % Change	Index	Point to Point % Change
1998	Rs. Mn. 1770=100		Rs. Mn. 1949=100		Rs. Mn. 2273=100		Rs. Mn. 1595=100		Rs. Mn. 7586=100	
1999	75.0	-25.0	72.1	-27.9	63.5	-36.5	120.0	20.0	80.3	-19.7
2000	140.9	87.8	122.5	70.0	136.2	114.4	225.1	87.6	152.5	89.9
2001	173.2	22.9	148.9	21.5	142.0	4.2	137.5	-38.9	150.1	-1.6
2002	139.7	-19.3	115.0	-22.7	144.5	1.8	238.2	73.1	155.5	3.6
2003	230.2	64.8	151.9	32.1	144.6	0.1	230.0	-3.4	184.4	18.6
2004	261.1	13.4	184.5	21.4	179.4	24.1	340.2	47.9	233.6	26.6
2005	326.9	25.2								

Source: Sri Lanka Customs

2.3 Importance in addressing the unemployment of the Country.

Table 09 : **Percentage Distribution of Unemployed Persons by level of Education and age group - 2008**

Level of Education	Less than 29 Years	30 - 39 Years	40 + years	Total
Below G.C.E. (O/L)	68.7	15.3	16.0	100.0
G.C.E. (O/L)	77.1	10.9	12.1	100.0
G.C.E (A/L)	85.1	12.6	2.3	100.0
Total	76.1	13.4	10.5	100.0

Source: Special Analysis of QLFs ", Excluding northern province

Percentage Distribution of Unemployed Persons by Level of Education and Age Group - 2008
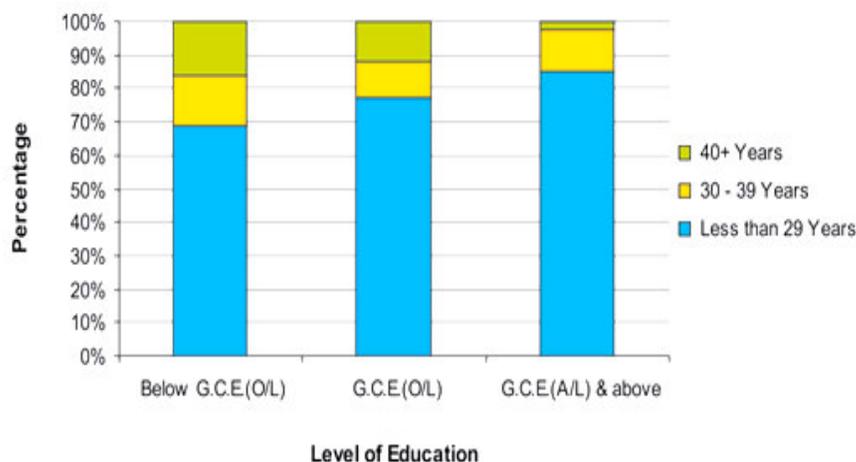
Above figures reveal that the youth aged less than 29 years contribute to more than 70% of the unemployment of the country. This unemployment niche could be addressed by empowering youth to take up the occupations in the food industry which lacks qualified middle layer workers.

2.4   Local & foreign job demand for Food related Occupations.

Table 10: Employment by Industry (Thousands)

Indus. Group No.	Industrial Group	2003**	2004***	2005#	2006*	2007*	2008* 1st Qtr.	2008* 2nd Qtr.	2008* 3rd Qtr.
01	*Agriculture Forestry and Fishery*	2,384	2,475	2,306	2,287	2,202	2,272	2,265	2,495
02	*Manufacturing*	1,157	1,307	1,385	1,363	1,331	1,334	1,437	1,370
03	*Construction, Mining & Quarrying, Electricity, Gas & Water supply*	455	474	543	527	542	557	632	509
04	*Wholesale and Retail Trade*	867	911	904	955	932	971	1,019	882
05	*Hotel and Restaurants*	122	121	139	129	119	94	133	92
06	*Transport, Storage and Communication*	363	417	485	430	457	434	430	398
07	*Financial Intermediation and Real Estate, Renting and Business activities*	191	176	234	221	215	236	247	246
08	*Public Administration and Defence*	541	535	513	401	433	448	506	465
09	*Education*	262	274	297	277	259	309	339	262
10	*Health and Social work*	98	104	129	110	116	108	115	113
11	*Other Community, social and personal service Activities Extra Territorial Organizations & bodies*	111	122	134	124	105	116	148	125
12	*Private Households with Employed Persons*	76	69	53	80	87	84	85	88
13	*Miscellaneous Labour work*	333	323	324	180	220	168	184	138
14	*Industries not Adequately Described*	52	86	71	21	23	16	24	10
All Groups		**7,012**	**7,394**	**7,518**	**7,105**	**7,042**	**7,148**	**7,564**	**7,192**

Table 11: Higher Demand for Local Jobs, 2008   Craft & Related Workers Category

Food Sector job Demand	2007		2008	
	Orders	Departures	Orders	Departures
Baker	452	38	886	65
Bakery staff	5	-	51	1
Butcher	250	4	566	31
Chef	488	40	676	51
Cook -Chef	49	4	62	1
Cook Chinese	-	-	5	-
Cook continental	72	6	72	4
Cook –diet	5		23	2
Cook Domestic	33350	330	44743	538
Cook General	6138	432	6283	720
Cook Head	69	3	181	13
Cook Hotel	56	10	273	13
Cook Pastry	136	13	363	10
Cook safari boat	40	-	10	1
Maker - salad	44	2	265	5

Table 12: Higher Demand for Foreign Jobs, 2008   Food Category

Maker - sandwich	**34**	**1**	**36**	**-**

Table 13: Monthly Average Remuneration of Service Workers & Shop & Market Sales Workers

Job / Occupation	Rank
Mason	1
Welder	2
Baker General	3
Carpenter (General)	4
Kotthumaker	5
Hopper Maker	6
Painting Building / House	7
Mechanic (General)	8
Mechanic Motor Vehicle / Motor Cycle	9
Carpenter Construction	10

Job/Occupation	Average Monthly Remuneration	
	(Rs.)	(US$)
Beautician	298,243	2,619.39
Chef	117,782	1,034.45
Sales Representative	68,964	605.70
Captain	67,940	596.69
Head Waiter	59,606	523.50
Barman	56,081	492.54

Cook Commis	52,002	456.72
Salesman (Shop)	48,646	427.24
House Keeper(General)	47,217	414.69
Sales Assistant	45,659	401.01
Bartender	42,415	372.52
Bell man	41,501	364.49
Room Boy/Maid	41,164	361.53
Stewards (Hotels,Restaurants.etc)	39,060	343.05
Security Officer	37,171	326.46
Waiter	36,375	319.47
Security Guard	35,236	309.47
Attendant Pool	33,823	297.05
Assistant Cook	32,532	285.72

Table 14: Monthly Average Remuneration of Craft and Related Workers

Job / Occupation	Average Monthly Remuneration	
	(Rs.)	(US$)
Pastry Maker	77,002	676.28
Painter Spray (Except Construction)	70,734	621.24
Machinist	68,156	598.60
Rigger & Cable Splicers Other	68,108	598.18
Mechanic (General)	67,731	594.86
Mechanic Fuel Pump	64,683	568.09
Heavy Vehicle Equipment Mechanic	62,331	547.44
Baker General	59,883	525.93
Service Man	58,994	518.13
Mechanic Motor Vehicle /Motor Cycle	58,506	513.85
Painter Automotive	57,945	508.91
Fitters	55,766	489.78
Welder	50,171	440.64
Fabricator	49,217	432.26
Butcher	48,369	424.81
Salad Maker	36,714	322.45
Tea Maker	31,267	274.61

Source: Newspaper Advertisements Survey, LMI Unit

SECTION III –FOOD INDUSTRY CURRENT TRAINING PROFILE

3.1   Overview

This section will basically cover the skill standards and tests available by occupation and current supply of training with respect to pre-employment training and skills upgrading giving due regard to aspects on annual training output for different occupational categories. It will also discuss the aspects on deficits and excesses in the training provisions.

3.2 National Skill Standards

National Skill Standards are an essential element for the implementation of a unified Technical and Vocational Education & Training System for Sri Lanka and forms the bass for the National Vocational Qualifications (NVQ) Framework of Sri Lanka, which provide for the award of nationally recognized qualifications. The National Skills Standards are developed in consultation with the industry and are designed using a nationally agreed specific format to maintain uniformity and consistency of standards amongst occupations.

The National Skills Standards specify the standards of performance of a competent worker and the various contexts in which work may take place. They also describe the knowledge, skills and attitudes required for the particular occupation. They provide explicit advice to assessors and employers on the above aspects to be demonstrated by the candidates seeking formal recognition for the competencies acquired either following training or through work experience. The lead organization for the development of National Skills Standards is the NAITA. The standards so developed are endorsed by the TVEC as National Documents.

NAITA has developed National Skill Standards (NSS) for two occupations under the food and beverage industry with the sponsorship of the Skills Development Project (SDP) (ADB Loan 1707 – SRI (SF)). They are

- Fruit & Vegetable Processor
- Baker

3.3 Modes of Training in the Food & Beverage Sector

Training in this sector is conducted in two modes, namely:
- Formal Institutional Training
- On-the-job Training

3.3.1 Normal Institutional Training

Formal Institutional Training with respect to the food and beverage industry of Sri Lanka is conducted by the following sources.

- University Programmes
- Public Sector Vocational Training Institutes
- Private Sector Training Institutes and NGOs
- Public Sector Research and Extension Services Agencies
- Sri Lanka Standards Institution (SLSI)

3.3.1 (a)   University Programmes

Food and beverage training programmes conducted by Universities that lead to Diplomas, Degrees and Post Graduate qualifications mainly provides higher level theoretical and technological knowledge and skills. A very low percentage of trainees have the opportunity to enroll for the said programmes. Table 29 gives a summary of the University programmes in the food and beverage sector.

Table 15: *University programmes in the food and beverage sector*

University	Course Title	Duration	Intake
Peradeniya	B. Sc in Food Science & Technology	4 years	50
	M.Sc in Food Science and Technology	3 semesters	
	M. Sc. in Food and Nutrition	3 semesters	
Sri Jayawardenapura	B.App. Sc. in Food Science and Technology	4 years	50
	M.Sc in Food Science and Technology	2 years fulltime	50
Sabaragamuwa	B.Sc (Agricultural Sciences)		
	B.Sc. in Food Sciences and Technology		
Wayamba	B.Sc. in Agriculture	4 years	

Source: Sri Lankan Universities

B.Sc. Agricultural Technology & Management programme conducted by the University of Peradeniya also constitute a module on food science & technology.

3.3.1 (b)   Public Sector Vocational Training Institutes

Basic craft level courses of six months duration are conducted by the Vocational Training Authority (VTA) and National Youth Services Council (NYSC) under this category. These courses mostly cater to school leavers and unemployed youth especially in the rural areas, for

assisting them to find employment or encourage them to engage in self employment. Table 30 shows the details of the basic craft level courses conducted by the VTA.

Table 16: *Basic Craft Level Courses Conducted by VTA*

District	Training Centre	Course Title	Duration	Intake
Colombo	RVTC Kalubowila	Baker	6 months	13
Galle	NVTI Niyagama	Fruit & Dairy Based Product Manufacturer	6 months	19
	RVTC Yakkalamulla	Baker	6 months	10
	RVTC Ginimellagaha	Fruit & Dairy Based Product Manufacturer	6 months	05
Matara	DVTC Thallala	Baker	6 months	08
Badulla	RVTC Divitotawela	Baker	6 months	15
Monaragala	RVTC Kachcheri	Fruit & Dairy Based Product Manufacturer	6 months	14
Total				**84**

Source: Vocational Training Authority

The following Vocational Training centres implement the courses in the newly introduced Competency Based Training (CBT) mode.

- RVTC Kalubowila - Baker
- RVTC Yakkalamulla – Baker
- DVTC Thallala - Baker
- RVTC Divitotawela – Baker

Table 17 shows the details of the basic craft level courses conducted by the National Youth Services Council.

Table 17: *Basic Craft Level Courses Conducted by NYSC*

District	Training Centre	Course Title	Duration	Intake
Colombo	Maharagama National Youth Centre	Baker (CBT)	6 months	06
Kalutara	Vocational Training Centre, NYSC, Panadura	Baker (CBT)	6 months	12
Kandy	Polgolla Training Centre, NYSC, Polgolla	Food Management	6 months	10
Galle	Vocational Training Centre, NYSC, Kahawa	Food Management	6 months	10
Anuradhapura	NYSC, Yovun Nikethanaya, Anuradhapura	Cake Making & Preparation	6 months	06
Total				**44**

Source: National Youth Services Council

- The National Diploma in Agriculture (Two years fulltime) conducted by the Department of Technical Education & Training at Kuliyapitiya and Dambulla Technical colleges include modules relevant to food science and food technology.

- The Higher National Diploma in Technology (HNDT) in Agriculture (four semesters) conducted by the Sri Lanka Institute of Advanced Technological Education (SLIATE) at Ampara and Nilwala centres includes a module on Food & Dairy Technology in the 3rd semester.

3.3.1 (c) Private Sector Training Institutes and NGOs

Several private sector training institutes and non governmental organizations conduct short term training programmes and workshops with regard to the food and beverage industry. Sarvodaya Economic Enterprise Development Services (SEEDS) through its entrepreneur development programmes conducts short term training workshops and seminars for entrepreneurs throughout Sri Lanka. Training relevant to food & beverage sector is as given table 32.

Table 18: *Training Programmes conducted by SEEDS*

Training Programmes (2004-2005 Financial year)	No. of Programmes	No. of Clients
Food Technology	34	766
Dehydrated Products	06	115
Mushroom Production	02	39
Total	**42**	**920**

Source: SEEDS

Enterprise Service Division of the SEEDS has opened a resource centre of food technology in Galle district to provide,

- Training and information to support micro-scale food processing entrepreneurs in the district.
- Training on growing, post harvest management and processing of some underutilized crops such as Beli, Jak and Anona.
- Business counseling, information on the technology and market linkages.

Three awareness programmes and three training programmes were conducted in Galle, Matara and Hambantota by SEEDS. Industrial Technology Institute provided technology training to 125 clients. The project is being partially funded by the International Centre for Underutilized Crops (ICUC) UK and partially by the Business Services Support Facility (BSSF) Project. The Enterprise Promotion Centre (EPC) Galle is presently carrying out the activities of the centre.

The Cathy Rich Memorial Food Processing Training Centre at Yodhagama, Embilipitiya has multilateral programmes to develop the rural based food processing industries in Sri Lanka. Training, research and development and dissemination of information for entrepreneurs are the three main programmes coordinated by the Centre. The Cathy Rich Centre has a range of training programmes depending on the requirement and target group. Presently the Centre has the capacity to train 25 participants at a time, providing seminar facilities as well as a modern, spacious processing unit with machinery and other equipment needed for all aspects of food processing.

There are three categories identified as potential target groups, such as small and medium scale rural based food processing industries, trainers and industrial extension workers who are working for other business development organizations and students who are following food science courses. Since 1997 the UNDP has selected the training centre as a resource centre for their Technical Cooperation among Developing Countries (TCDC) programme and so far it has conducted three international training programmes consecutively. However, it has considered the training needs of each category separately and developing training modules in order to fulfil their technological gaps.

The Centre has coordinated a network of past trainees who followed the Training of Trainers (TOT) programme. That makes a very effective network among those business development organizations that also are working for small-scale food processing industries.

3.3.1 (d) Public Sector Research and Extension Services Agencies

Short term training programmes conducted by the Department of Agriculture and Industrial Technology Institute (ITI) fall into this category. The Department of Agriculture has established the Agro Enterprises Development and Information Service (AgEDIS) to provide technical assistance in planning and implementation of agro industries. Its main functions include

- Assist in establishing linkages among producers, processors, dealers, exporters and government officials.
- Collect information on production processing, marketing and disseminating such information to clients rapidly.
- Conducting training programmes on selected fields to promote business.

A summary of training programmes conducted by AgEDIS is given in table 19.

Table 19: *Short Courses Conducted by AgEDIS*

Course Title	Duration	Medium of Instruction
Production of fruits and vegetables with desired marketing quality by adopting post harvest preservation techniques.	One day	Sinhala
Preservation methods of fruits and vegetables (Cordial, Pulp, Dehydration of vegetable & fresh cut)	Two days	Sinhala/Tamil
Mushroom Production	One day	Sinhala

Source: AgEDIS

Courses are conducted at the In-Service Training Institute (ISTI), Food Research Institute, Gannoruwa, Peradeniya.

The Industrial Technology Institute (successor to the CISIR) also offers individual and group training programmes for imparting the technology involved. ITI has established a separate division for Agro and Food Technology and its main goal is to promote the growth of the Agro and Food industrial sector through technological support services, Research and Development and internationally competitive analytical services. Table 20 shows some of the training programmes conducted by the ITI.

Table 20: *Programmes Conducted by ITI*

Programme Title	Duration	Target Group
Training Programme on Dehydrated fruits and vegetables	2 days	Potential Entrepreneurs and school leavers (30 participants)
Seminar on New Food Regulations	1 day	Managers and Supervisors in the Food Industry
Workshop on Bakery Technology	2 days	Bakery Owners, potential entrepreneurs and school leavers (25 participants)

Source: ITI

3.3.1 (e)   Sri Lanka Standards Institution

The following short term programmes on food and beverage sector are conducted by the SLSI.

Table 21 : *Short Courses Conducted by SLSI*

Course Title	Duration	Target Group
Training Programme on Food Hygiene	2 days	Managers and Supervisors in the Food Industry
Training Programme on the Application of Hazard Analysis and Critical Control Points (HACCP) Systems in Food Industry	2 days	Senior and Middle Managers and Supervisors in Food Processing and Food Handling Industries
Training Programme on Quality and Safety Assurance Systems in Food Industry (Integration of HACCP + ISO 9001 as per ISO 15161)	1 day	Managers and Executives who have a basic knowledge on ISO 9001 Quality Management System and HACCP Safety Systems in Food Industry.
Certificate Course on Food Quality Assurance	15 days	Managers and Supervisors involved in production and in quality assurance of foods

Source: SLSI

SECTION IV – AN OVERVIEW OF FOOD INDUSTRY OCCUPATIONS

Provided below is a listing of some of the more common food industry Occupations:

Production Workers

Production workers in the food processing industry can account for up to fifty percent of the workforce. Production workers can be divided into two categories:

1) Skilled and precision workers

2) less-skilled machine operators and labourers.

Less-skilled labourers generally start as helpers to experienced workers and learn skills on the job. Many less skilled jobs can be learned in a few days or a week. From our industry interviews, there is a scarce supply of skilled workers.

Sanitation Workers

Sanitation workers perform hygienic roles within processing plants to ensure cleanliness standards are in place and enforced. Although an important job, it requires less skilled labourers who are not very difficult to find.

Machinists and Maintenance Workers

As the presence of technology increases in the food manufacturing industry, more and more workers are operating machinery. In the future, the food processing industry will require additional workers to maintain this new equipment to ensure it is in good working order. Electricians are one component of this category which are the most in demand by industry.

Butchers

Butchers and meat cutters prepare standard cuts of meat and poultry for sale in retail or wholesale food establishments. They are employed in supermarkets, grocery stores, restaurants and butcher shops. There is currently a lack of qualified butchers in the food processing industry.

Bakers

Bakers mix and bake ingredients to produce end-user products according to recipes. In an effort to increase product shelf life, par and batch bakery has become increasingly popular. Par bakers increase the labour and technology necessary at the factory level, but reduce labour time at the food service, retail and consumer levels as all is needed is to place the par baked ingredients in the oven. Although baker positions are seen as less skilled, harsh working conditions (including extreme temperatures) make these positions difficult to source at times.

Shipper/Receivers

Perishable food may spoil if it is not properly packaged and delivered before shelf life expiry, so packaging and transportation employees play a vital role in the industry. The level of skill required to complete shipping and receiving duties makes the position available to a wide variety of skill levels and is thus not difficult to source.

Packaging Technicians

Similar to shippers and receivers, packaging employees play a vital role in the industry as food may spoil if it is not properly packaged. In addition, ensuring the proper labeling regulations have been followed is a critical role of any food manufacturer. This requires an additional level of skill and expertise and thus qualified packaging technicians are in somewhat of a shortage in the industry.

Sales and Marketing Representatives

Sales representatives are responsible for securing sales outlets for food processors and include product sales and technical sales. Products sales consist of selling the product produced by the processor, while technical sales are more industrial focused and consist of selling the process and product costing. Technical sales require very detailed product knowledge. As sales opportunities become increasingly global, the sales force within the food processing industry will need to be more sophisticated and professional. Sales representatives who can speak more than one language will be an asset to manufacturers.

Administration Workers

The role of administration workers will become more important as food safety and traceability measures become imperative. Traceability programs deal with tracking and tracing, product recalls, crises management and identity preservation. Administrative workers will be responsible for tracking product through the supply chain and will thus require increasing levels of product knowledge.

Research & Product Development

Food scientists and technologists work in research laboratories or on production lines to develop new products, test current ones, and control food quality. Food scientists and researchers often need masters or doctoral degrees and are thus difficult to source.

The role of researchers and product developers is becoming pivotal as food processors receive pressure to launch new and innovative products that respond to global competition. Similarly, new processes that allow for cost reduction in existing products are the jobs of researchers and product developers.

Quality Assurance (QA)/Quality Insurance (QI)

Quality assurance staff is becoming increasingly important to meet the requirements of customers and government regulations. Quality insurance staff inspects product quality and consistency, rather than food safety. The role of QI workers is to ensure the long term integrity of a company's brand.

Engineering and Management

Many of the management and engineering positions in the food processing industry are filled at the undergraduate and graduate level and represent an important link in the transfer of new technology to industry.

SECTION V : DATA ANALYSIS AND RESEARCH FINDINGS

The data collected by the questionnaires was analyzed using SPSS statistical software for graphical and statistical interpretation. Whenever appropriate frequencies and percentage values were calculated and suitable data tables were prepared. The data presented in the graphical form using mostly the charts and graphs.

5.1 School leavers' perspective:

5.1.1 Preferred job area:

As shown in the chart 3, Computer, Management and Engineering Jobs were the preferred choices among school leavers, contributing to more than 60% of the responses. For the Food Technology area. Responses were around 13%.

choice of employment

various fields

no idea-The field of
3.7%

others-The field of
17.9%

computer-The field o
24.1%

food tech-The field
13.0%

management-The field
20.6%

engineering-The fiel
20.8%

school students
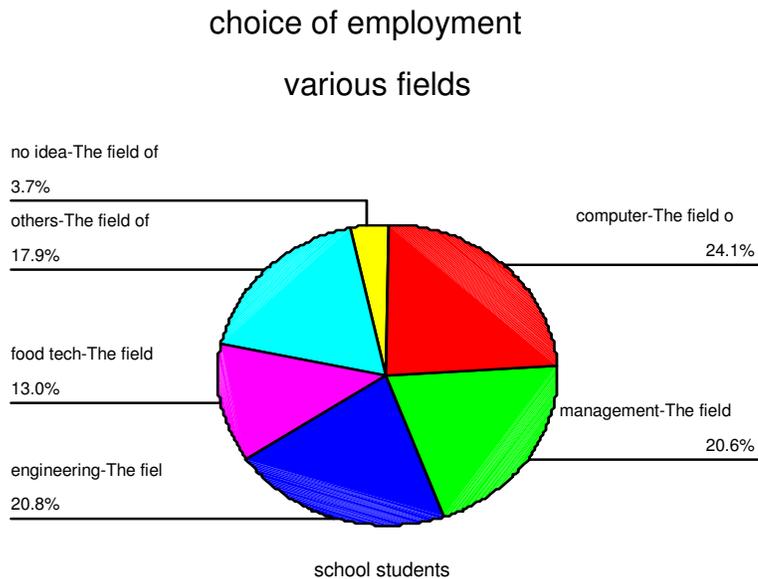
Chart 03: Choice of employment

5.1.2 . Awareness on Food related job categories:

Hotel trade occupations are known to many school leavers contributing to about 40%. Many youth lack knowledge on other food related job categories

The Awareness of Food Trade employments
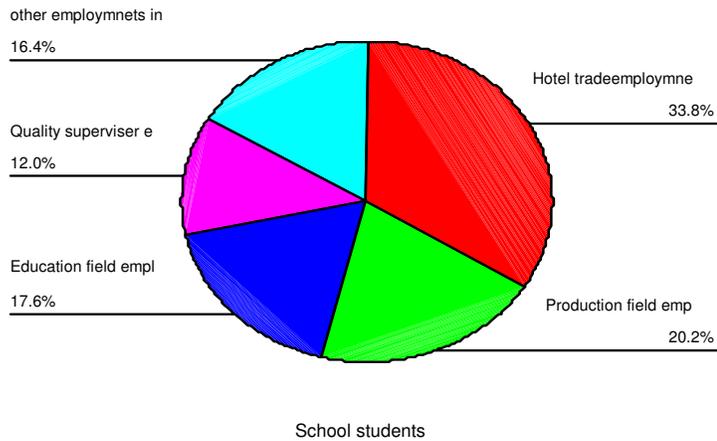
Chart 04: Awareness on Food related job categories:

5.1.3. Awareness on employment opportunities related to food Local & foreign market:

Although Local job market known to some extent the awareness on international Food industry job market is deficient.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-yes	49	21.6	21.6	21.6
	2-no	83	36.6	36.6	58.1
	3-up to an extent	94	41.4	41.4	99.6
	5	1	.4	.4	100.0
	Total	227	100.0	100.0	

Table 22 : Knowledge of school leavers on Employment in local food Industry
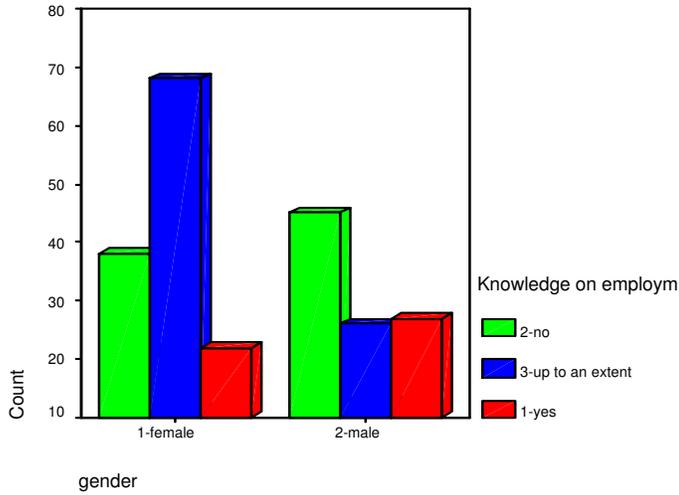
Chart 05: Knowledge on local job market –Food Technology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	13	5.7	5.7	5.7
	1-no demand	52	22.9	22.9	28.6
	2-there is a great demand	80	35.2	35.2	63.9
	3-no idea	82	36.1	36.1	100.0
	Total	227	100.0	100.0	

Table 23: The Awareness of the foreign demand for jobs in food trade
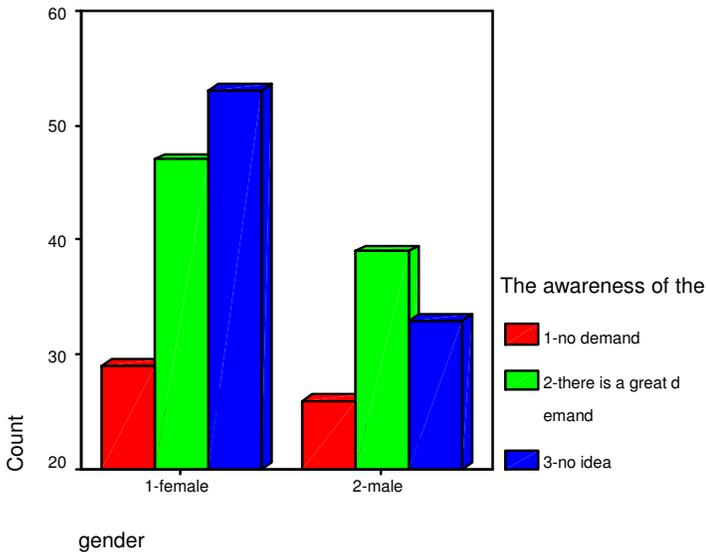
Chart 06: Knowledge on International job market –Food Technology

5.1.4. .**Social recognition on food related jobs:**

The findings reveal that youth perception on Food related jobs lack social recognition.(53.3%)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	There is a recognition	80	35.2	35.2	35.2
	no recognition	41	18.1	18.1	53.3
	no idea	83	36.6	36.6	89.9
	other	23	10.1	10.1	100.0
	Total	227	100.0	100.0	

Table 24 : The social recognition on food related jobs
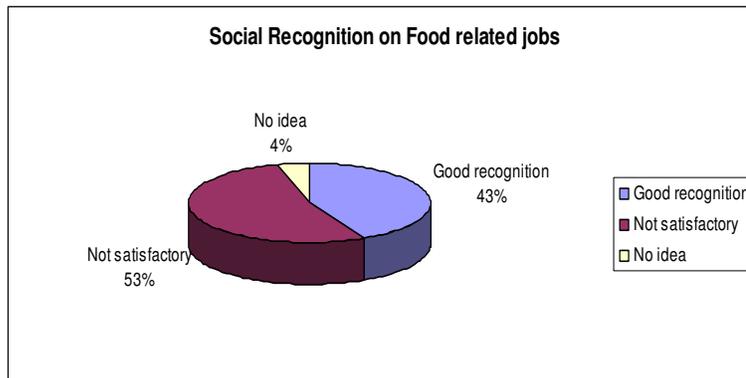
Chart 07: Social recognition o food related jobs.

5.1.5   Knowledge   on   Major TVET Institutes of Sri Lanka

School leavers have a considerable awareness on popular TVET institutes. Many identified Hotel schools as primary training institutions which deliver food sector training.
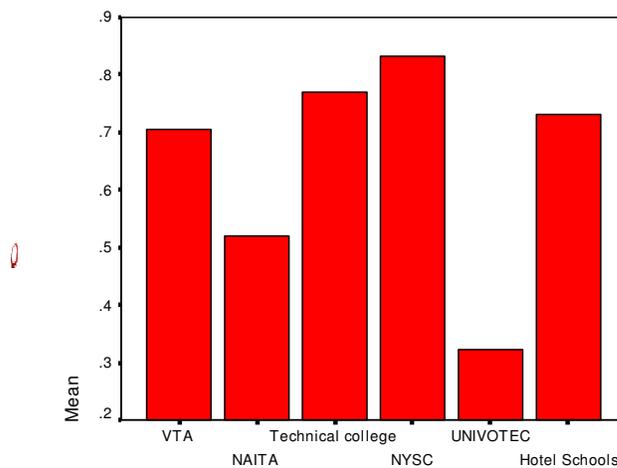
Chart 08: School leavers' Knowledge   on Major TVET Institutes of Sri Lanka

5.1.5   Teacher support on selecting a training Programme /career guidance:

Teacher contribution is minimal with regard to career guidance and possible motivation in obtaining vocational training.

Awareness of the teacher on courses conducted by Vocational Inst
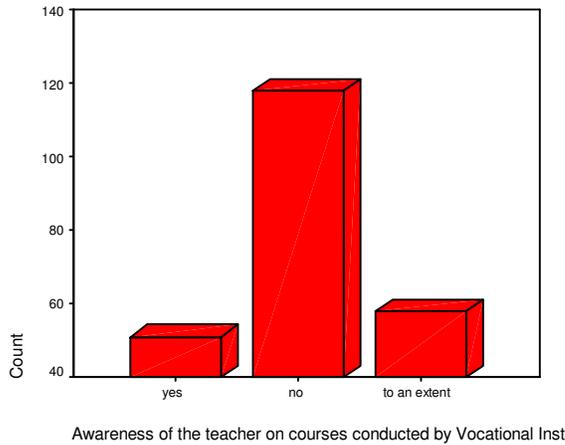
Chart 09: Teacher support on selecting a training Programme /career guidance:

5.2   TVET-Food Trainee perspective

5.2.1 Corse selection by students

Baking and professional cookery had higher responses 40%and 32% responses respectively.
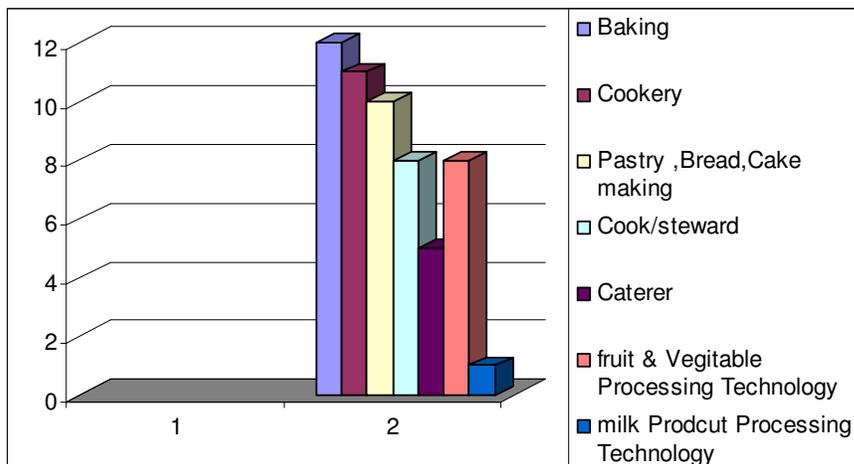
Chart 10: course selection by students.

5.2.2 Gender distribution among trainees.

According to the data analysis, Male participants dominate the trainee population (71.7%)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	female	30	28.3	28.3	28.3
	male	76	71.7	71.7	100.0
	Total	106	100.0	100.0	

Table 25: Gender Distribution

5.2.2 Trainee Age limit.

Trainee age limit falls 18-25 with a percentage of 66% responses

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15 to 18	24	22.6	22.6	22.6
	18 to 25	70	66.0	66.0	88.7
	25 to 30	12	11.3	11.3	100.0
	Total	106	100.0	100.0	

Table 26: Trainee Age limit

5.2.3 Method of Enrollment

The course had been recommended by a friend or passed out trainee for most of the trainees.
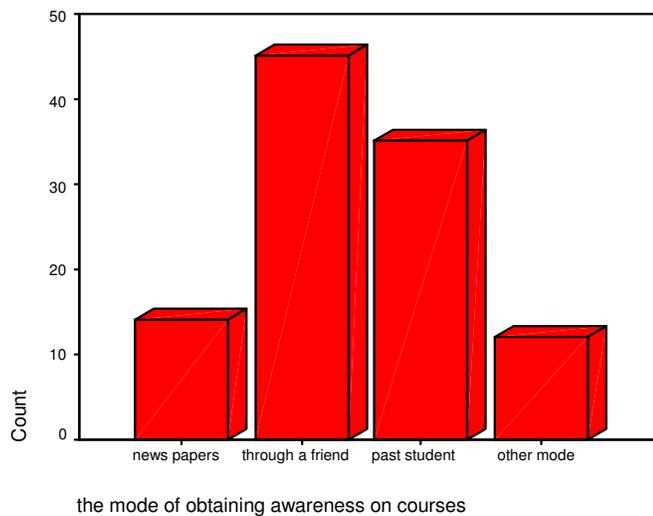
Chart 11: Mode of obtaining awareness on courses:

36

5.2.4　Intention in following the particular course:

The intention of following the course pointed out 50% aiming for foreign job and 30% aim for self employment

Reason to follow the course

Apply for a local job
16%

Hobby
4%

Self employment
30%

Foreign job
50%

- Self employment
- Foreign job
- Apply for a local job
- Hobby
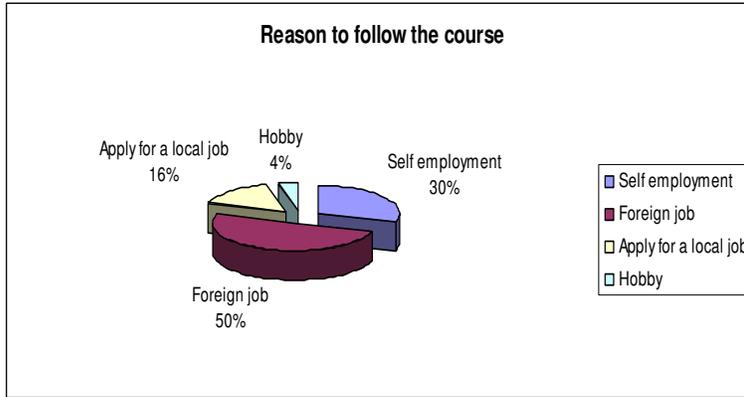
Chart 12: Intension of following the course

5.2.5　Recognition on food related jobs

Food trainees have answered that food trade jobs are with positive social recognition

Count

there is recognition   no idea
        no recognitin   other

the recognition in society with regard to food tech jobs
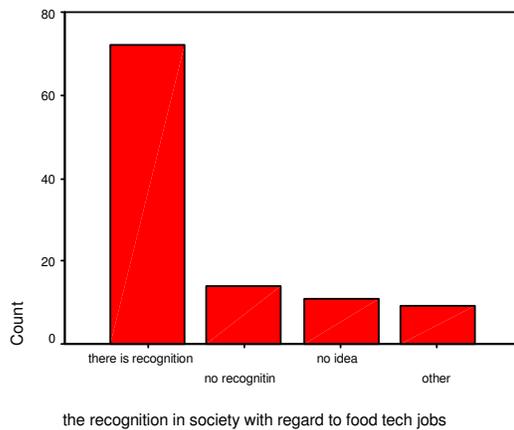
Chart 13: Recognition on food related jobs

5.2.6   Course evaluation

Trainees responded with 8.7% on lecturers' subject knowledge and 9.2% on practical knowledge
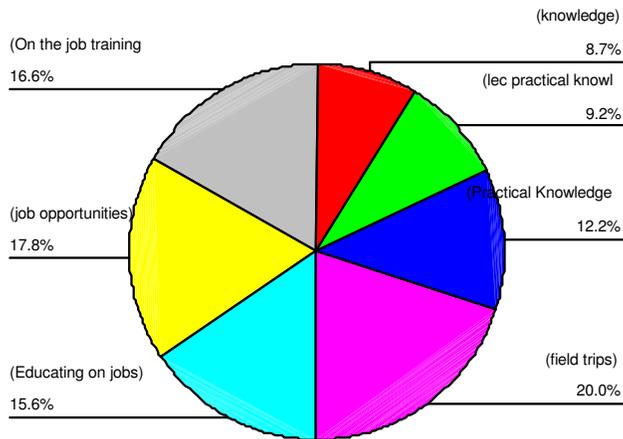
Chart 14: Course evaluation

5.2.7   Opinion on self employment after completion of a course in food trade

 Youth believe that there is a possible self employment opportunities once a Food course is followed.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	successful	98	43.2	43.2	43.2
	not successful	40	17.6	17.6	60.8
	no idea	89	39.2	39.2	100.0
	Total	227	100.0	100.0	

Table 27 : Opinion on self employment after completion of a course in food trade

5.2.8. Difficulties face in participation

- Lack of standard equipments, utensils, etc.
- Lack of suitable places for on the Job Training
- Unsuccessful on the job training
- Poor English knowledge
- Difficult to attend while working -Fulltime course
- Financial inconveniences
- Government Institutes lack of good quality raw material
- Time duration for some courses not sufficient to acquire necessary skills.

5.3 TVET Head of the Institute- perspective

5.3.1   Average participation in food training programmes:

a) Govt. TVET Institutes-

Number of student applied , participated, completed and employed Figures tend to increase in 2005,2006 and 2007 but shows decline

In year 2008 No employed show continuous increase
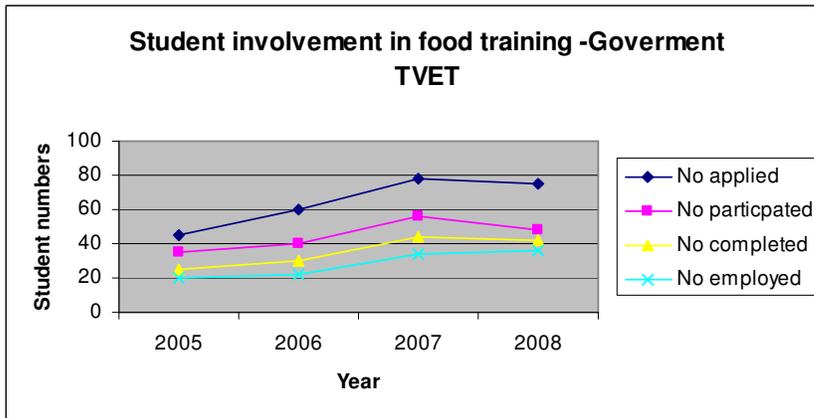
Graph 15: Average participation in food training programmes: (Govt. TVET Institues)

b) Private TVET Institutes :

Number of student applied show clear continuous increment. Values tend to increase in 2005 and 2006 for student participation & completion but shows stagnant value for completed and employed categories in year 2007 & 2008
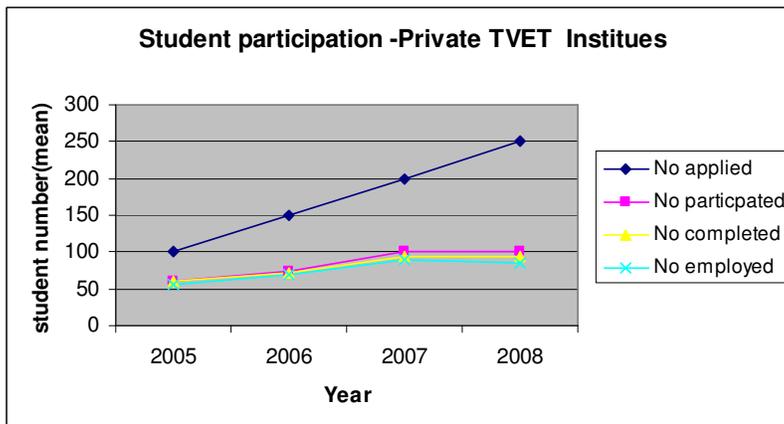
Graph 16 : Average participation in food training programmes: (private . TVET Institutes)

5.3.2 Nature of the Curriculum used in food training programmes:

Out of 35 training organizations in the sample, 20 of organizations conduct training on curriculum developed in their institutes Only 07 institutes use NVQ curriculums and 4 institutes use international curriculums

Chart 17: Nature of the Curriculum

5.3.3 Staff Qualifications:

Out of 35 training organizations in the sample, 15 of organizations has diploma qualified trainers and 08 institutes have Certificate holder trainers. Only 07 institutes have degree holders as food trainers. Smaller proportion of institutes has industry trainers

Chart 18: Staff Qualifications

5.3.4 Laboratory equipment availability

Out of 35 training organizations in the sample, 30 organizations has replied that lack of lab equipments is a barrier. Only 05 institutes have replied that equipment are in sufficient number to conduct practical
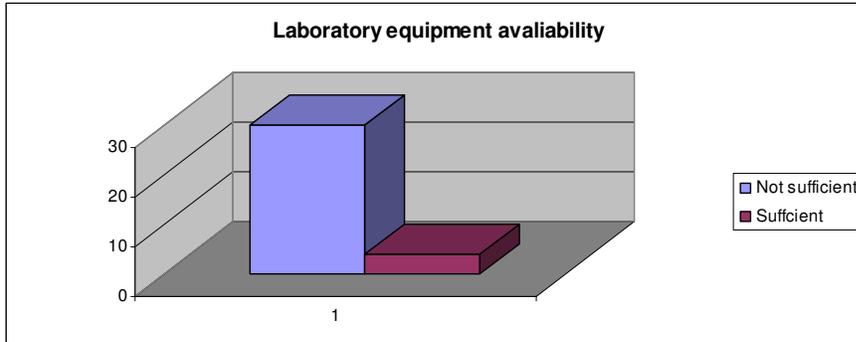
Chart 19: Laboratory equipment availability

5.4 Industry perspective

5.4.1 Employee recruiting procedure:

When recruiting employees the   persons with previous experience are preferred but also On the Job Training gave high responses
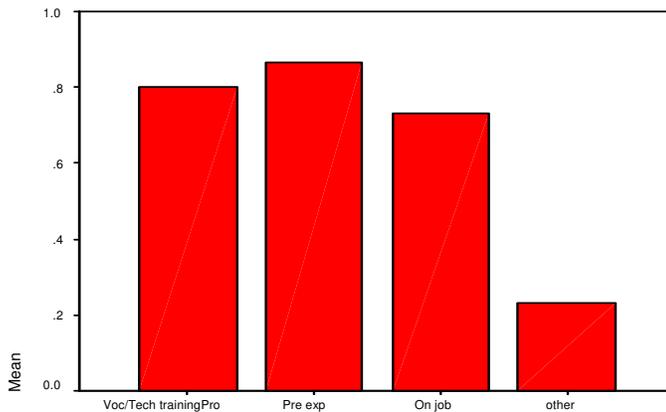
Chart 20: Employee recruiting procedure

5.4.2   Challenges faced by Industry

Lack of suitable staff and poor quality raw material contribute to 60%of challenges face by industries.
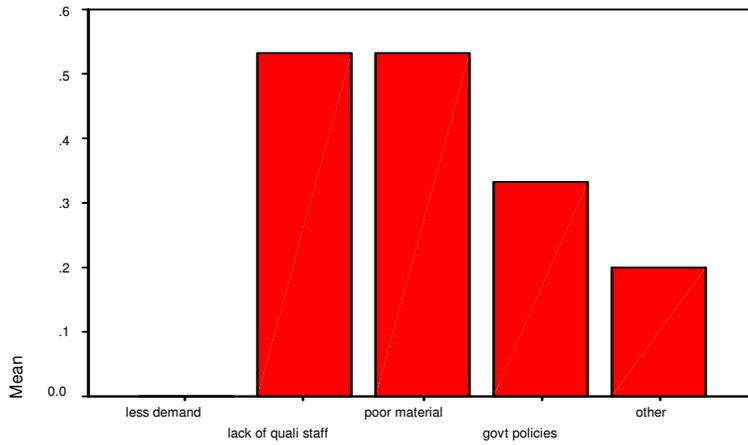
Chart 21: Challenges faced by Industry

5.4.3   Relationship with the TVET sector

82% responses show poor relationship with TVET institutions But 78% illustrates enthusiasm to collaborate
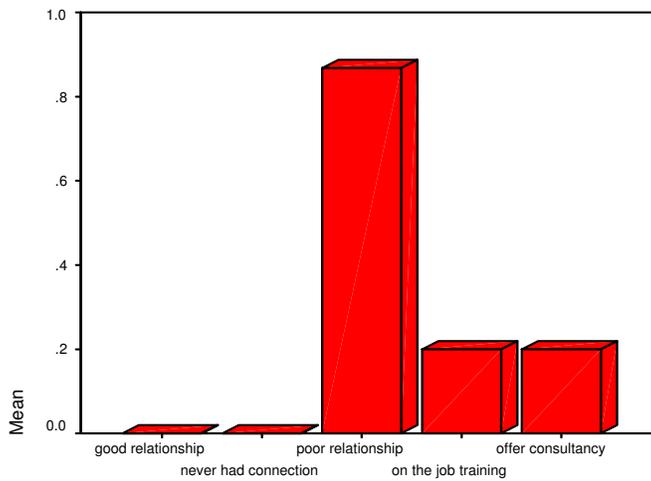
Chart 22: Relationship with the TVET sector

5.4.4 Relationship of Social recognition in Food trade jobs with gender
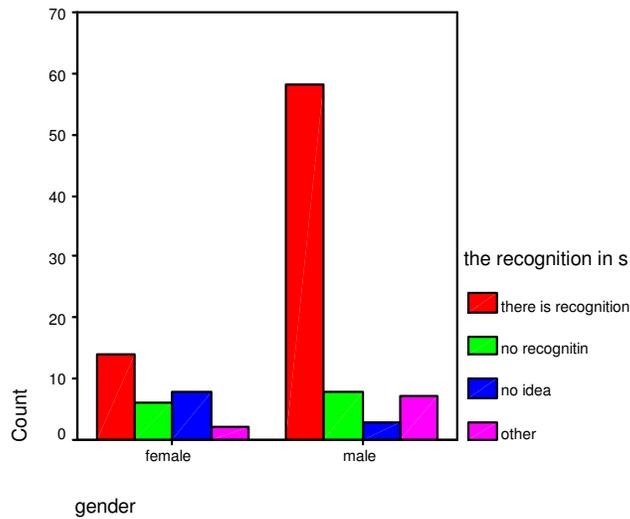
Chart 23: Relationship of Social recognition in Food trade jobs with gender

A chi –square test was performed to evaluate whether there is a relation ship between the Gender and Social recognition in food Jobs

Findings revealed that there is a significant relationship between the two parameters as resultant "p" value for the test is below 0.05

the recognition in society with regard to food tech jobs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	there is recognition	72	67.9	67.9	67.9
	no recognitin	14	13.2	13.2	81.1
	no idea	11	10.4	10.4	91.5
	other	9	8.5	8.5	100.0
	Total	106	100.0	100.0	

gender

	Observed N	Expected N	Residual
female	30	53.0	-23.0
male	76	53.0	23.0
Total	106		

Chi-Square Test

the recognition in society with regard to food tech jobs

	Observed N	Expected N	Residual
there is recognition	72	26.5	45.5
no recognitin	14	26.5	-12.5
no idea	11	26.5	-15.5
other	9	26.5	-17.5
Total	106		

Test Statistics

	gender	the recognition in society with regard to food tech jobs
Chi-Square a,b	19.962	104.642
df	1	3
Asymp. Sig.	.000	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 53.0.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 26.5.

5.5 Research findings

5.5.1 School leavers' perspective:

- Computer, Management and Engineering Jobs were the preferred choices among school leavers, contributing to more than 60% of the responses.
- Hotel trade occupations are known to many school leavers contributing to about 40% responses and many lack knowledge on other food related job categories.
- Although Local job market known to some extent the awareness on international Food industry job market is deficient Many replied as Food related jobs lack recognition.(53.3%)
- Opinion on self employment after completion of a course in food trade showed positive response (43%)
- School leavers have a considerable awareness on popular TVET institutes.
- Many identified Hotel schools as primary training institutions which deliver food sector training.
- Teacher contribution is minimal with regard to career guidance and possible motivation in obtaining vocational training.

5.5.2 TVET food Trainee perspective

- Male participants dominate the trainee population and trainee age limit falls 18-25 with a percentage of 66% responses.
- Trainees had G.C.E O/L and GCE A/L qualifications with responses through 50% and 49.1% respectively.
- Baking and professional cookery had higher responses 40%and 32% responses respectively.
- Food trainees have answered that food trade jobs are with positive social recognition.
- The intention of following the course pointed out 50% aiming for foreign job and 30% aim for self employment.
- The course had been recommended by a friend or passed out trainee for most of the trainees. Trainees responded with 8.7% on lecturers' subject knowledge and 9.2% on practical knowledge.

5.5.3 TVET Institute- perspective

- Student involvement in food training -Government TVET :Number of student applied , participated, completed and employed Figures tend to increase in 2005,2006 and 2007 but shows decline in year 2008
- No employed show continuous increase. Student participation -Private TVET Institutes: Number of student applied show clear continuous increment values tend to increase in 2005 and 2006 for student participation & completion but shows stagnant value for completed and employed categories in year 2007 & 2008.
- 75% of organizations conduct training on curriculum developed in their institutes 20% NVQ curriculums and 5% institutes use international curriculums.
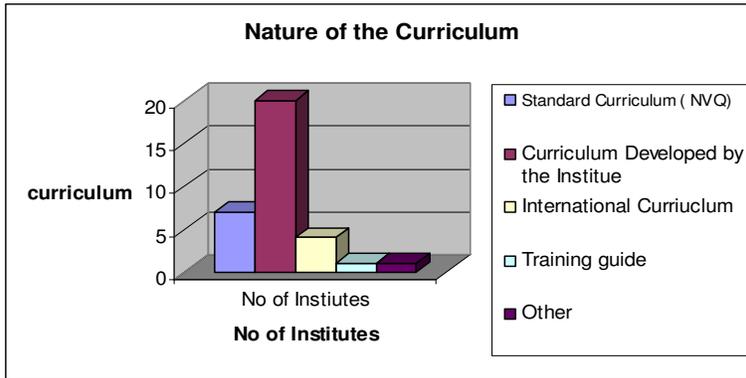- Staff qualifications shows that 65% of organizations have diploma qualified trainers and 18% institutes have Certificate holder trainers. Only 15% institutes have degree holders as food trainers. Minority of institutes has industry trainers.
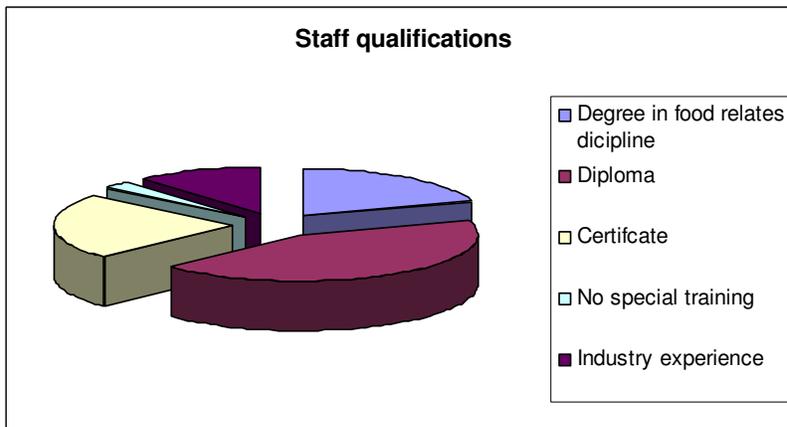- 80% of institutes responded of insufficient Laboratory, teaching equipment quality raw material

5.5.4 Industry perspective

- When recruiting employees the   persons with previous experience are preferred
- Mostly practiced way of training - On the Job Training.
- Lack of suitable staff and poor quality raw material contribute to 60%of challenges face by industries.
- 82% responses show poor relationship with TVET institutions
- But 78% illustrates enthusiasm to collaborate

SECTION VI   CONCLUSIONS AND DISCUSSION

6.1 Conclusions

6.1.1   School leavers' perspective

- Findings of research reveal that the reasons for low participation in food related courses is due to lack or limited awareness of food trade occupations, food training opportunities and job market demand (local & foreign).
- Some school leavers feel that lack of social recognition on food industry vocations make them to choose other popular vocations like Computer, Engineering, management etc.
- School teacher's assistance in career guidance is not adequate

6.1.2 Opportunities/difficulties in introducing new Food related courses in TVET institutes

- TVET lacks standard curriculum material specific for different food related occupations.
- Government TVET institutes face insufficient infrastructure facilities (equipment& material) to introduce new courses compare to private TVET institutes.
- TVET lacks coordination with the industry and its updated requirements regarding needs of human resource.
- State TVET's marketing strategies are poor and attract fewer   participants.
- Also limited support is given by state TVET in helping   trainees to find employment.
- Private TVET institutes perform better in terms of marketing and providing help in seeking jobs.
- Trainees stated of poor performance in lecturers' subject knowledge and practical knowledge irrespective of institute's ownership (state/private)

6.1.3 Food Industry perspective

- Food Industry lacks persons with suitable training for specific job categories and most of the skills training and upgrading have been conducted as on the job training and as in-house apprenticeship training in the industry.
- Industry and TVET have poor coordination & collaboration.

6.2 Discussion:

In identifying available opportunities and required skills need in getting employment it was found that Food Industry lacks persons with suitable training for specific job categories and most of the skills training and upgrading have been conducted as on the job training and as in-house apprenticeship training in the industry. Unfortunately, at present training on food Technology is mainly conducted at the university level, which addresses the top hierarchy of the job chain. Middle level occupations which could sustain by Vocational Training are not properly dealt with. Due to this only a few trainees are able to undergo formal training and not sufficient to fulfill the market demand.

Our research findings suggest in formulating recommendations to improve participation, student could be given more awareness on available food courses, by conducting workshops seminars at school level. Giving school children an overview of the food industry, possible training and job opportunities will provide the food sector with necessary social   recognition. School Teachers should be given career guidance training and awareness in order to motivate students to take up proper training opportunities. TVET institutes should have procedure to direct students who finish training for employment by strengthening contacts with the industry. Those who follow food tech courses could be directed to leading companies to ameliorate the industry. In identifying new training categories, first a need analysis should be done to identify possible areas of study with the involvement of the industry.

The Food industry and TVET lacks overall coordination and collaboration with regards to human resource development. Although diverse, the food processing industry has many commonalities among sectors and businesses that could benefit from a shared training and information forum. E.g.: Development of Information portal /hub where TVET, Industry and Trainees meet together. There are several common needs among the various food industries in Sri Lanka with regards to human resources. These needs may be characterized into three pillars: Communication, Market Knowledge and Training and Skills Development. Each of these areas is vital to preparing the industry's workforce to meet the diverse challenges of today's global environment.

Our recommended approach includes state TVET organizations that should be responsible for take up the initiation in advancement of communication, market knowledge and training and skill development. A collaborative, state and Government and industry initiative is

recommended for training delivery as it increases the competitiveness of the greatest number of firms and sectors; thus better positioning the industry for success.

Industry- Human resource development

Human resource development is a major issue in the food business. Recruiting and training is difficult and time consuming; high employee turnover impairs productivity; and experienced workers are aging, vacating roles that are vital to plant efficiencies.

While facing these human resource challenges, food industries are under constant pressure from both the domestic and worldwide marketplace to improve efficiencies,

reduce costs, and implement higher food safety standards. Meeting these advancing needs of the industry relies on a flexible workforce with a new set of essential and transferable skills.

Commonalities with regards to human resource issues range from recruitment and retention, through to training and skills development despite the size and sector of an operation. The true impact of human resource deficiencies does not seem to be realized by the industry as they struggle with other solutions such as increasing capacity and advancing technology in order to remain competitive in an increasingly global market.

It is imperative that food processing stakeholders begin examining the evolving human resource and skills development issues facing the industry. Similarly, new communication mediums and frequencies are necessary to increase each industries competitiveness in a continuously changing environment.

Nearly half of all workers in the food industry are in occupations that are common to all manufacturing. As the food processing industry becomes an increasingly complex environment, managing the industry's workforce becomes more of a challenge. Increased skills requirements for workers in most sectors will change how work is completed. More training courses will need to be completed, more documents and regulations will need to be followed, and more communication will need to be facilitated. The recent increase in industry technology has created a need for higher skilled labour, particularly in skilled trades such as electricians, mechanics, machinists and more technically oriented supervisory level employees. The challenge often sited is the higher salaries commanded by the skilled trades and their ability to find work in other industries, some with better work conditions.

Needs

• Conduct a study to determine general and skilled labour needs focusing on specific areas (i.e. maintenance, online supervisors, R&D, HACCP, electricians, etc.)

• Set standards for each occupational profile

• Workshops for key people on the line including communication, process efficiency,

Lack of Awareness/Promotion of Industry

There is currently limited promotion and knowledge of the food processing industry with respect to specific job opportunities. Most employees enter by default, and few actually plan careers within the sector. Other successful sectors that have promoted their industry have allowed them to be recognized as preferred employment destinations.

Few job fairs, courses or educational institutions, highlight food technology or food research and development. The education system has not caught up to the times according to many industry stakeholders. Increased advertising and other promotional materials (i.e. brochures, posters, and websites) need to be created to fuel interest in the sector. Employers perceive that TVET is not currently offering programs that meet the current needs of the industry.

Needs

• Work with academic institutions and industry stakeholders for a collaborative approach to promoting the industry and need for specific skills sets

• Liaise with government to work on training needs by sector and hold job fairs at schools and other promotional campaigns to promote the industry as a viable option for employment

Working Conditions

Many sectors within the food processing industry present less than ideal working conditions. Extreme temperatures as those in bakeries deter more skilled workers from the industry. Similarly, the cold and damp environments of meat and poultry processing plants often attract less skilled labour.

Due to the need for processing facilities to maximize capacity, this often requires split shifts and weekend work that allow for maximum production. Monotonous line work, combined with a less than attractive work environment contributes to high turnover.

Needs

• Consult with employees and employee groups to identify working conditions issues and Collaboratively provide feedback to employers regarding suggestions for improvement

Retention

Keeping and retaining a qualified workforce is a challenge in any industry. The food industry is often referred to as a "stepping stone" to other jobs in better paying sectors. It is imperative that retention become a key mandate of food processing industries. Employee retention may be improved through a variety of tools including succession planning, internal promotions, job rotation, and skills and training development.

Employers tend to invest in training that is company and job specific, however training in skills that are transferable are less often invested in – skills that can be utilized in a variety of roles and companies. These skills are desirable by employees as it provides them with greater flexibility and increased marketability. Employers are leery to invest in transferable skills as employees may be trained and then leave to join another firm.

Many small and medium sized processors are trying hard to remain competitive and keep up to the changing industry, that they lack the time to train their staff. "We're so small and hands-on that we're understaffed. With so much to do and being in a growth mode, we can't afford to do much training other than on-the-job." Most processors are too preoccupied with immediate issues than to prepare strategic plans for human resource development.

Needs:

• Work with employers to develop incentive programs which improve skills and are tied into Staged wage increases based on skill development and production efficiencies
• Make training and skill development a priority – especially in small and medium sized operations

Employee Training and Skills Development

Employee Training and Skills Development is essential to meeting the evolving and increasingly sophisticated demands of the food industry. Common standards for key positions would be helpful to implementing training initiatives among diverse sectors. Improving the knowledgebase throughout the industry as well as harmonizing the roles and requirements of various positions would provide employers with a greater pool of qualified workers from which to source. Some positions will be more critical in preparing food processors for

success in the future. HACCP, research and development, key line workers and skilled trades (such as electricians) are all positions that will require marketing in order to attract qualified and interested candidates. Management as well as engineers and cost accountants will also be vital to increasing the efficiency, and overall

competitiveness, of food processors.

Industry identified the following *training and skills development* needs:

• Training has been identified as a major cost to the industry. Work with government to develop subsidy programs for training to help offset the initial costs to companies

• Work with unions to understand needs in the industry and utilize the structure to implement training

• Approach training needs with a strategic focus so skills sets are matched with technology advancements and industry requirements

• Conduct a study to determine general and skilled labour needs focusing on specific areas (i.e. maintenance, on-line supervisors, R&D, HACCP, electricians, etc.)

• Harmonized guidelines for HACCP coordinators and quality assurance/insurance inspectors

 • Set standards for each strategic occupational profile

• Workshops for key people on the line including communication, process efficiency, and general line maintenance

• Identify recruitment and orientation challenges by sector and region

• Determine needs regarding skilled trades and implement standards for improving knowledge base and offers employees a basis for hiring

Government

Government involvement includes heightening their awareness of the skills and labour development issues facing the food industry. This includes reviewing the impact of regulations and working collaboratively with industry to increase their understanding of necessary protocols. Building this alliance will help to create discussion of issues that can further assist in growing the food sector such as food safety standards and harmonizing regulations for export markets.

Action Plan - Government

• Provide support to the food processing industry by collaborating with businesses to build a sustainable infrastructure for human resource development

• Address gaps in current academic and training centre programs, including apprenticeship programs, and develop them to ensure they meet the needs of the current and future direction of the industry

• Review regulatory issues affecting the competitiveness of the food industry, including export, food safety. Etc.

• Participate in collaborative discussions with industry, academic and training centres, industry experts and unions

• Support the development of a communication system that promotes information transfer among industry stakeholders

Academic and Training Institutions

Academic and Training Institutions will review and examine training programs that they have developed and use this as a building block or base for fulfilling industry needs. Consultation with industry experts and assessment of other country's training and development programs may offer insight into building a sustainable labour and skills development structure for Sri Lanka.

Action Plan – Academic and Training Institutions

• Participate in collaborative meetings with industry to identify the training and skill Development needs

• Communicate within the training sector regarding possible solutions that may be adapted to the food industry

• Prepare recommendations that can be discussed with industry and government to develop a sustainable infrastructure for the food processing sector

• Define areas that require additional resource support and be progressive in updating and adapting to the needs of the industry

Map showing
TVEC registered Food Technology Training Providers
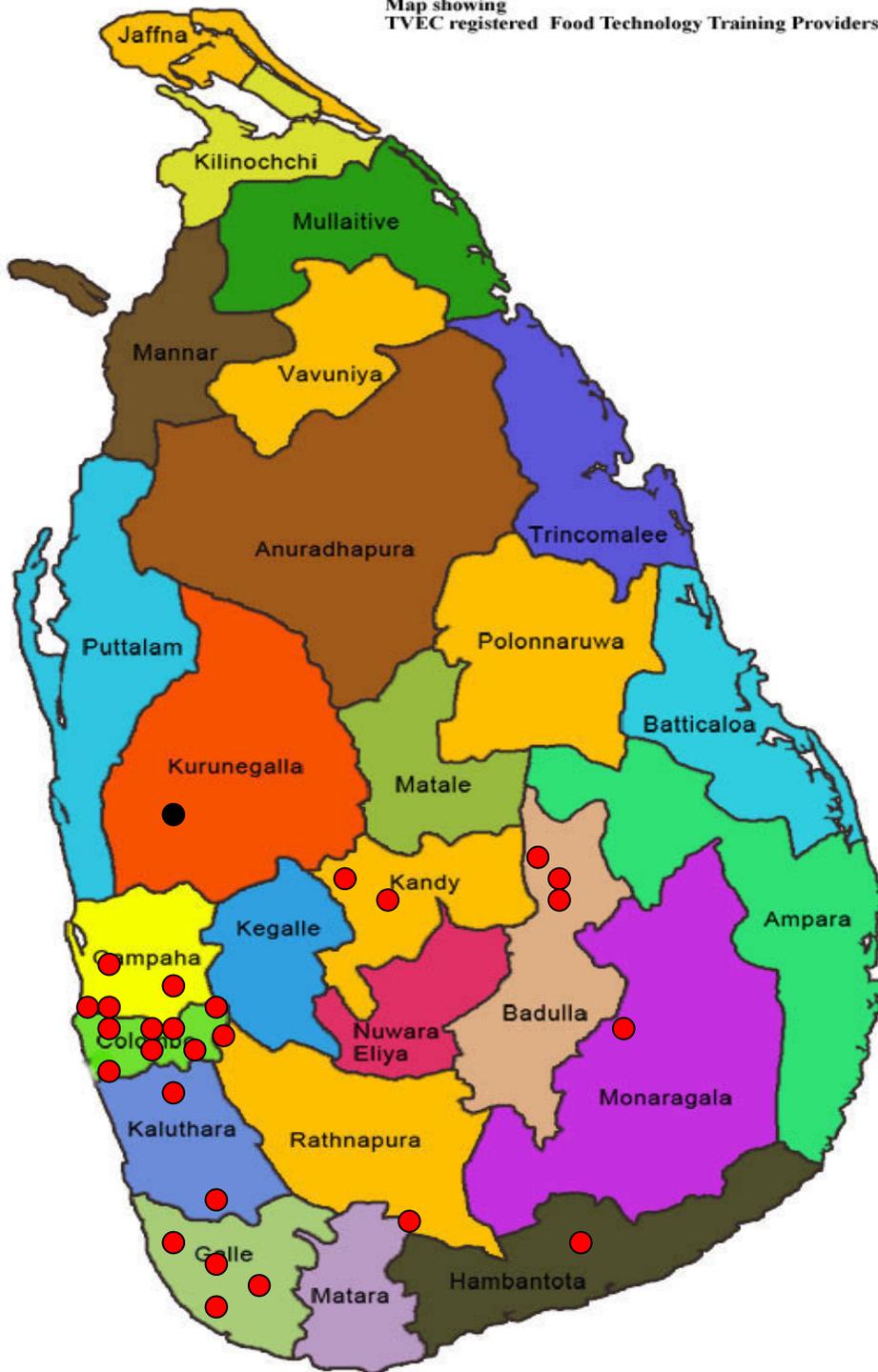
TVET Training providers in Food Technology (TVEC Registered)

#	Institutes Name	District
01	National Youth Services Council	Colombo
02	Lasallian Community Education Services	Colombo
03	National Vocational Training Center	Colombo
04	Sri Lanka Standards Institution	Colombo
05	Kolonnawa Vocational Training Centre	Colombo
06	Diyagala Boys' Town	Colombo
07	Swiss Lanka Hotel School	Colombo
08	Asia Lanka Vocational and International Training Centre	Colombo
09	Prima Ceylon Ltd	Colombo
10	Lakviru Sevana Rural Vocational Training Center	Colombo
11	Western Lanka Hotel School	Colombo
12	Rural Vocational Training Centre - Rajagiriya	Colombo
13	Shanaas Wonder for Needle and Home Economics	Colombo
14	Rural Vocational Training Centre	Colombo
15	Adicure school of hotel management	Colombo
16	South Asia Partnership Sri Lanka	Colombo
04	Felix R. Dias Bandaranayake Vocational Training Centre	Gampaha
17	Asia Ceylon International Hotel School	Kalutara
18	Bulathsinghala Vocational Training Center	Colombo
19	Ceylon Hotel School & School of Tourism	Kandy.
20	Rural Vocational Training Center	Kandy
21	Rural Vocational Training Centre	Moneragala
22	Super International Hotel School	Matale
23	Don Bosco Technical Centre	Kandy
24	Pilot Vocational Training Centre	badulla
25	Kantha Sanwardhana Padanama	badulla,
26	Vocational Training Center	Hambantota
27	National Vocational Training Institute	Galle
28	Wimaladharmarama VTC	Galle
29	Explore International Hotel School	Galle.
30	Special Vocational Training Center - Ginimellagaha.	Galle
31	Training Centre	Kahawa
32	Training Centre	Kahawa
33	Yovun Nikethanaya	Anuradhapura
34	Cathy Rich Memorial Food Processing Training Centre (Guarantee) Ltd.	Ratnapura
35	Asia Ceylon International Hotel School	Kurunagala

Appendix -02
Questionnaire 01

University of Vocational Technology(UNIVOTEC)
No100, Kandawala Road Ratmalana

Research title: Identification of necessary measures in Improving /Introducing Food Technology courses in TEVT institutes in Sri Lanka.

Questionnaire for Head of the TEVT institutes
Confidential Policy: Information you provided in this questionnaire is used only for the research Purposes.

Province: ………………………… District: ……………………………
Contact person:……………………………………………………
Name of the
Institute:…………………………………………………………………………………
Address : …………………………………………….Tel:...
Private/State owned: …………………………………

Instructions: Please put a Tick (√) in appropriate box or else write suitable answers in the given space

PART A-Training Institutes which conduct food technology related courses

1. Do you conduct any food technology related courses at your institute Yes ☐ No ☐

2. If your answer is yes please provide the following details of the particular course
   • Course details

Course Diploma/Certificate	Duration	Fee	Age	Entry Qualifications

   • Participant details:

Year	2005		2006		2007		2008	
	M	F	M	F	M	F	M	F
No applied								
No participated								
No Completed								
No Employed								

3. What is the curriculum you are using for the Food Technology course?

   1. Standard curriculum (NVQ) ☐
   2. Curriculum developed by the institute ☐
   3. Curriculum obtained from some other country ☐
   4. No curriculum ☐
   5. Other (please mention)…………………………………… ☐

4. Do you have trained staff to conduct food technology courses?

Yes ☐   No ☐

5. What are their qualifications?
   1 Degree in food related discipline   ☐
   2 Diploma in food related discipline   ☐
   3 Certificate in food related discipline ☐
   4 Special Training on food science   ☐
   5 No such qualifications   ☐

6. Do you have sufficient laboratory equipments to conduct practical in food science

Yes ☐   No ☐

7. How many field visits have you planned and carried out during last year?

No of Planned field visits	No of field visits carried out

8. Do you provide On the Job Training or In plant training for students

Yes ☐   No ☐

If yes give details

Place	Area to be covered	Duration

9. Do you provide labour market information in the field of food Technology?
   If yes how? Tick (√) the appropriate answer

Method	Tick the answer
Career guidance programme	
Expertise lecturer	
Labour marker bulleting	
Field visit	
Sharing International etc..	
Other	

11 What is the response of students about employment in the field of food technology?

(Write an estimation)

1 They prefer to have a job in government or private sector industry   percentage ☐

2 Prefer to be self employed   percentage ☐

3 No idea of current job market   percentage ☐

10. Are you satisfied with the student participation in food related courses compared to fields like IT, Accountancy etc? if not what would be the possible reasons for less participation? (please give your comments)

Eg : attitude, expenses, no opportunities, No awareness, etc..

……

………

PART B

11. What are the other courses that conduct at your institute?

Information Technology ☐

Accountancy/management ☐

English Language ☐

Engineering (Civil/Electrical/Mechanical) ☐

Craft level (masonry/carpentry/ plumbing) ☐

Others :……………………………………………………

……………………………………………………

12. Participant details:

Course		2005		2006		2007		2008	
	No participated	M	F	M	F	M	F	M	F
IT									
Accountancy/Mgt									
English									
Engineering									
Craft level									
Others(mention below)									

13. How do you enroll students for your courses?

1. Gazette ☐

2. Paper Advertising ☐

3. Internet ☐

4. TV/radio advertising ☐

5. Other ☐

(Please mention)

…………………………………………………………

14. How do you provide your trainee details to the industry?

…………………………………………………….

59

…………………………………………………………

15. Your relationship with the industry

(Tick all relevant answers)

1. We always contact them to update our courses to match industry needs ☐
2. Industry represents in our Governing Council ☐
3. Industry requests skilled students from us to recruit as employees ☐
4. We arrange filed visits/training with them ☐
5. Other …………………………………………………………………………………….

16. Do you have employment record of your pass out students?

If yes please give percentage values of following

Wage employed ☐

Self employed ☐

Unemployed ☐

17. What actions have you taken to encourage self employment?

Action	Tick
Conduct workshop on entrepreneurship development skills while the training period	
Case studies on success stories	
Conduct a self employment module as a subject	
Loan scheme	
Link with financial institute	

Any other answer …………………………………………………………………………

18. What are the difficulties that you would face if your Institute is going to conduct food technology related course

Please give your comments:

Difficulties	Tick
Relevant equipment	
Infrastructure	
Less student	
Cost of training materials etc	

....
....
....
....

19. What type of food technology related courses would be suitable to conduct in TVET institutes?
    (What content should be included / new areas / new developments)

Please give your comments:

Course/subject Area/content	Duration

....
....

Thank You for your cooperation

Questionnaire -02

University of Vocational Technology (UNIVOTEC)
No100, Kandawala Road Ratmalana

Research title: Identification of necessary measures in improving /Introducing food technology courses in TEVT institutes in Sri Lanka.

Questionnaire for Heads of the popular industries related to food sector.
Privacy Policy: Information you provided in this questionnaire is used only for the research purposes.

Province: ....   District: ....

Contact person:……………………………………………………

Name of the company:

…………………………………………………………………………………………
…………………………

Address : …………………………………………….Tel:...

Private/State owned: …………………………………

Instructions: Please put a Tick (√) in appropriate box or else write suitable answers in the given space

1. What is /are the major product/s of your company?

…………………………………………………………………………………………………
……………………………………………………………….…………………….

2. Production scale: Small – (No of employees<10) ☐

                                Medium-No of employees 10-100 ☐

                                Large scale (No of employees >100) ☐

3. Market: Local ☐   Foreign ☐

4. Nature of the production facility

       In-house ☐   out sourced ☐

5. What are the occupations and required education and professional expertise

Occupation	No	Category *1/2/3/4	Education level	Experience	English

        *1 –skilled   2 -semi skilled 3- trainee   4 -executive

6.   The procedure adopted for employee recruitment:

      (Please tick all relevant answers)

            a.   Priority is given to persons who had under gone vocational/technical training in the relevant field

            b.   Prefer persons having previous experience

            c.   prefer persons without any knowledge or experience but recruit and train them on the job

            d   other (please mention)

            ………………………………………………………………………………

7.   Have you recruited any students pass out from TVET institutes? If Yes what would you think about the quality of the pass out student from Govt. technical & vocational institutes? (Please tick all relevant answers)

        a. very good -both theoretically and practically

        b. Theory knowledge is good but need to develop skills.

c . With little training they can adapt very well to the working environment

d. They are of low quality and not acceptable

Please comment:

………………………………………………………………………………………

8. Collaboration between technical and vocational training institutes and your company
   (Tick all applicable ones)
   a. We have a good relationship throughout.
   b. We never had connections with technical and vocational training institutes and think its not necessary for our business.
   c. We have poor relationship but willing to improve the connections as that will benefit both parties.
   d. We like to offer "on the job" training opportunities and in plant training opportunities for students of those institutes.
   e. We like to offer our consultancy on the events of curriculum development and making students aware of the current market demand and job opportunities.

9. According to your knowledge what are the challenges faced by the food industry in Sri Lanka?
   (Please tick all relevant ones)
   1. Less market demand
   2. Lack of qualified employees
   3. Poor Quality raw materials
   4. government policy
   5. Any other
   Please comment

   ………………………………………………………………………………………

10 what are the suggestions you can make with relevant to development of food sector and what subjects/areas Do you suggest to introduce in to the curriculum?

   ………………………………………………………………………………………
   ………………………………………………………………………………………

Thank You for your corporation

Questionnaire -03

University of Vocational Technology (UniVoTec)

No100, Kandawala Road Ratmalana

Research Title: Identification of necessary measures in Improving /Introducing Food Technology Courses in TEVT institutes in Southern, Central and Western provinces in Sri Lanka.

ආහාර තාක්ෂණ විෂය ආර්ථික හා වෘත්තිය පුහුණු ආයතන වලට හඳුන්වා දීමේ හැකියාව හා පවතින පාඨමාලා වැඩිදියුණු කිරීමේ කුමවේදයන් පිළිබඳව සොයා බැලීමේ පර්යේෂණය

Questionnaire for school leavers

මෙම ප්‍රශ්ණාවලියෙන් ලබා ගන්නා තොරතුරු වල රහස්‍යභාවය ආරක්ෂා කරන අතර පර්යේෂණය සඳහා පමණක්ම යොදාගනු ලැබේ.

Province: ………………………………………………………..

District: ………………………………………………………..

අදාල ස්ථානයේ හරි සලකුණ :√* හෝ ඉඩ තබා ඇති ස්ථානයේ පිළිතුරු ලියන්න

1   ඉගෙනුම ලැබූ පන්තිය

අ. පො. ස (සා. පෙළ) ☐   අ. පො. ස.(උ. පෙළ) ☐

☐   63

2 ඔබගේ වයස් මට්ටම   12-16   17-22   ☐

3 ස්ත්‍රී / පුරුෂ භාවය   ස්ත්‍රී ☐   පුරුෂ   ☐

4 ඔබ අ. පො. ස. සා. පෙළ /අ. පො. ස. උ. පෙළ. අවසන් වීමෙන් පසුව රැකියාවක් කිරීමට
   බලාපොරොත්තු වන විෂය ක්ෂේත්‍රය (විශ්ව විද්‍යාල සුදුසු කම් නොලැබුවහොත්)

   පරිගණක ක්ෂේත්‍රයේ රැකියාවක්

   කළමණාකරන ක්ෂේත්‍රයේ රැකියාවක්   ☐

   ඉංජිනේරු ක්ෂේත්‍රයේ රැකියාවක්   ☐

   ආහාර තාක්ෂණ ක්ෂේත්‍රයේ රැකියාවක්   ☐

   වෙනත (සඳහන් කරන්න)   ☐

   අදහසක් නොමැත   ☐
   ....

5 ආහාර තාක්ෂණ විෂය පිළිබඳව ඔබ දැනුවත්ද?

   ඔව් ☐   නැත ☐   තරමක් දුරට ☐

6 ඔබ දන්නා ආහාර තාක්ෂණ ක්ෂේත්‍රයේ රැකියාවන් වන්නේ මොනවාද?
   1 ....
   2...
   3 ....

7 ආහාර තාක්ෂණ ක්ෂේත්‍රයේ රැකියාවන් සඳහා දෙස් විදෙස් වල ඇති ඉල්ලුම පිළිබඳ ඔගේ අදහස
   ?

   ඉල්ලුමක් නැත ☐   විශාල ඉල්ලුමක් ඇත ☐   නොදනී ☐

8 ආහාර තාක්ෂණ විෂය හැදෑරීමෙන් පසු ස්වයං රැකියාවක් කිරීම ගැන ඔගේ අදහස?

   එය සාර්ථක විය හැක ☐   සාර්ථක විය නොහැක ☐
   අදහසක් පැවසීමට තරම් විෂය ගැන දැනීමක් නොමැත   ☐

9 ආහාර තාක්ෂණ ක්ෂේත්‍රයේ රැකියාවන් සඳහා සමාජ පිළිගැනීම කෙබඳුද යන්න ගැන ඔබේ
   අදහස?

   1 හොඳ පිළිගැනීමක් ඇත   ☐
   2 හොඳ පිළිගැනීමක් නොමැත   ☐
   3 නොදනී   ☐
   4 වෙනත් පිළිතුරු ....

10 පුහුණුවකින් පසුව රැකියාවක් සඳහා ඔබ ආහාර තාක්ෂණ විෂය හැදෑරීමට කැමතිද?
    පිළිතුර ඔව් නම් ඊට හේතු
    ....
    ....
    ....
    ....

නැත නම් ඊට හේතු (ඔබගේ අදහස් දක්වන්න)
……
……
……
…………………

11 පහත සඳහන් වෘත්තිය පුහුණු ආයතන පිළිබඳව ඔබ අසා ඇත්ද ?
අදාල සියලු පිළිතුරු ඉදිරියේ (√) ලකුණ යොදන්න
        1 වෘත්තිය පුහුණු අධිකාරිය(VTA)
        2 ජාතික ආධුනිකත්ව හා පුහුණු කිරීමේ අධිකාරිය (NAITA)
        3 කාර්මික විද්‍යාල (Technical Colleges)
        4 ජාතික තරුණ සේවා සභාව (NYSC)
        5 වෘත්තිය තාක්ෂණ විශ්ව විද්‍යාලය (UNIVOTEC)
        6 Hotel Schools

12 වෘත්තිය පුහුණු ආයතන හා ඒවාහි පවත්වන පාඨමාලා පිළිබඳව ඔබගේ දැනුවත් බව ප්‍රමාණවත්ද?

     ඔව් ☐   නැත ☐   තරමක් දුරට ☐

13 වෘත්තිය පුහුණු පාඨමාලා පිළිබඳව ඔබගේ ගුරුවරුන් ඔබව දැනුවත් කරනවාද?

     නැත ☐   ඔව් ☐   තරමක් දුරට ☐

14 වෘත්තිය පුහුණු පාඨමාලා පිළිබඳව හා නව රැකියා අවස්ථා පිළිබඳව ඔබගේ දැනුම වර්ධනයට කවර ක්‍රමයක් අනුගමනය කල යුතුදැයි ඔබ සිතන්නේද?
උදා : වෘත්තිය මාර්ගෝපදේශණ සැසි
………

මෙම ප්‍රශ්ණාවලියට පිළිතුරු සැපයීම ගැන ඔබට අපගේ ස්තූතිය

Questionnaire -04
       University of Vocational Technology (UNIVOTEC)
       No100, Kandawala Road Ratmalana

Research Title: Identification of necessary measures in Improving /Introducing Food Technology Courses in TEVT institutes in Sri Lanka.
ආහාර තාක්ෂණ විෂය කාර්මික හා වෘත්තිය පුහුණු ආයතන වලට හඳුන්වා දීමේ හැකියාව හා පවතින පාඨමාලා වැඩිදියුණු කිරීමේ ක්‍රම වේදයන් පිළිබඳව සොයා බැලීමේ පර්යේෂණය

Questionnaire for students who already participating In Food Technology courses

මෙම ප්‍රශ්ණාවලියෙන් ලබා ගන්නා තොරතුරු වල රහස්‍යභාවය ආරක්ෂා කරන අතර පර්යේෂණය සඳහා පමණක්ම යොදාගනු ලැබේ.

Province: ……………………………………………………..
District: ……………………………………………………..
Name of the Training
Center…………………………………………………………………………………
State /Private owned ……………………………………

65

අදාල ස්ථානයේ හරි සලකුණ (√) හෝ ඉඩ තබා ඇති ස්ථානයේ පිළිතුරු ලියන්න

10 ඔබගේ වයස් මට්ටම   15-18 ☐   18-25 ☐ 25-35 ☐   35ට වැඩි ☐

11 ස්ත්‍රී පුරුෂ භාවය   ස්ත්‍රී ☐   පුරුෂ ☐

12 ඔබගේ අධ්‍යාපන සුදුසුකම්

1. 8 සමත්
2. අ. පො. ස. සා. පෙළ
3. අ. පො. ස. උ. පෙළ

13 ඔබ හදාරන ආහාර තාක්ෂණ පාඨමාලාව කුමක්ද එය තෝරා ගැනීමට හේතු?
ආහාර තාක්ෂණ පාඨමාලාව:…………………………………………………………………

……
ඔබ හදාරන ආහාර තාක්ෂණ පාඨමාලාව පිළිබඳව ඔබ දැනුවත් වූයේ කෙසේද?

1 පුවත්පත් වලින්   ☐
2 මිතුරෙකු මාර්ගයෙන්   ☐
3 පාඨමාලාව හැදෑරූ කෙනෙකු මගින්   ☐
4 වෙනත් ………………………………………

14 ආහාර තාක්ෂණ ක්ෂේත්‍රයේ රැකියාවන් සඳහා දෙස් විදෙස් වල ඇති ඉල්ලුම පිළිබඳ ඔගේ අදහස
?

ඉල්ලුමක් නැත ☐   විශාල ඉල්ලුමක් ඇත ☐   නොදනී ☐

15 ආහාර තාක්ෂණ විෂය හැදෑරීමෙන් පසු ස්වයං රැකියාවක් කිරිම ගැන ඔබේ අදහස?

1 ස්වයං රැකියාවක් කිරීමට අදහස් කරමි   ☐
2 රජයේ හෝ පෞද්ගලික ආයතනයක රැකියාවක් කිරීමට අදහස් කරමි   ☐
3 අදහසක් පැවසීමට තරම් ස්වයං රැකියා ක්ෂේත්‍රයේ ගැන දැනීමක් නොමැත ☐

4 වෙනත් පිළිතුරු
……………………………………………………………………………………………

16 ආහාර තාක්ෂණ ක්ෂේත්‍රයේ රැකියාවන් සඳහා සමාජ පිළිගැනීම කෙබඳුද යන්න ගැන ඔබේ අදහස?
අදාල පිළිතුර ඉදිරියේ (√) ලකුණ යොදන්න

1 හොඳ පිළිගැනීමක් ඇත   ☐
2 හොඳ පිළිගැනීමක් නොමැත   ☐
3 නොදනී   ☐
4 වෙනත් පිළිතුරු ………………………………………………

17 ආහාර තාක්ෂණ පාඨමාලාව හැදෑරීමේ දී ඔබ මුහුණ පාන ගැටළු මොනවාද?
උදා : පාඨමාලාවට අවශ්‍ය ප්‍රායෝගික උපකරණ
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…………………………………………………………………………………

15 ඔබ හදාරන ආහාර තාක්ෂණ පාඨමාලාවේ ගුණාත්මය ගැන ඔබේ අදහස ?
(1 ඉතා හොඳ 2 හොඳයි 3 සතුටුදායකයි 4 සතුටුදායක නැත)
සුදුසු ඉලක්කම කොටුවේ සඳහන් කරන්න

1 දේශකයාගේ විෂය දැනුම හා ඉදිරිපත් කිරීම
2 දේශකයාගේ ප්‍රායෝගික දැනුම
3 ලබා දෙන ප්‍රායෝගික ක්‍රියාකාරකම්
4 ආයතනයේ පවතින පර්යේෂණාගාර පහසුකම්
5 ක්ෂේත්‍ර චාරිකා
6 රැකියා අවස්ථා පිලිබඳව දැනුවත් කිරීම
7 රැකියා අවස්ථා ලබා දීම
8 රැකියාව තුල පුහුණුවක් ලබා දීම (On the Job Training)

16 ආහාර තාක්ෂණ පාඨමාලා පිළිබඳව හා නව රැකියා අවස්ථා පිළිබඳව පාසල් හැර යන්නන්ගේ
දැනුම වර්ධනයට කවර ක්‍රමයක් අනුගමනය කල යුතුදැයි ඔබ සිතන්නේද?
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මෙම ප්‍රශ්ණාවලියට පිලිතුරු සැපයීම ගැන ඔබට අපගේ ස්තූතිය

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