


No. 1

平成12年度
特別案件調査団報告書
一般特設「農畜水産食品の安全管理」

平成12年10月

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国際協力事業団
北海道国際センター（札幌）

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平成12年度 特別案件調査団報告書 一般特設「農畜水産食品の安全管理」

平成12年10月

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序 文

国際協力事業団は、新規研修コースの開設にあたり、当該コースの研修ニーズ把握を目的として特別案件等調査団を派遣しております。

本報告書は、北海道国際センター（札幌）が酪農学園大学のご協力のもと、平成12年度から実施する一般特設「農畜水産食品の安全管理」コースの現地調査結果を取りまとめたものです。

本書が、今回の研修コースの計画策定のみならず、当該地域における食品安全管理の実状・問題点について、関係各位の一層のご理解の一助となればと願うものです。

終わりに、今回の調査業務に当たり、多大のご支援・ご協力を賜った外務省、在外公館関係者、酪農学園大学ならびにその他関係各位に対し、心より感謝の意を表します。

平成12年10月

国際協力事業団
北海道国際センター（札幌）
所 長 小 森 毅



〈ザンビア〉

Soweto市場

市場で魚を売る婦人。魚体が乾かないように、時おり洗面器の水をかけている。当然無数のハエがたかる。



UNZA獣医学部での調査

ザンビア大学の関係者が本研修に参加した場合、大きな裨益効果が期待できるとの発言もあった。左から3人目が獣医学部長のDr.Samui。



ZAPP(Zambia Pork Products)加工工場
ミンチ肉を腸詰めにするケーシング作業。手袋をした作業員はいなかった。

ZAPPで作業を行う検査官
週数回の頻度で地方保健局の保健官が
巡回してくる。



〈ケニア〉

Farmer's Choice 工場
帽子・手袋の着用が徹底されているこ
とが分かる。当工場は、手洗い、靴の
洗浄等も励行していた。

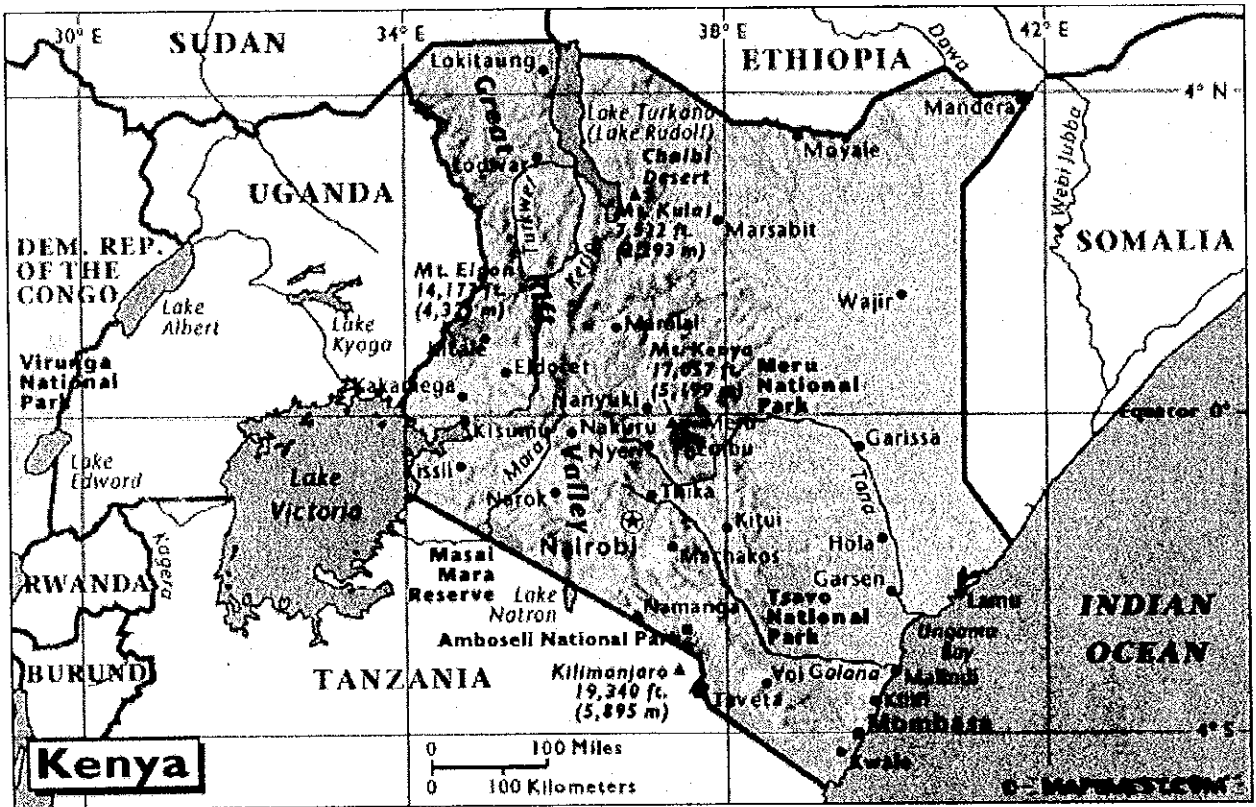
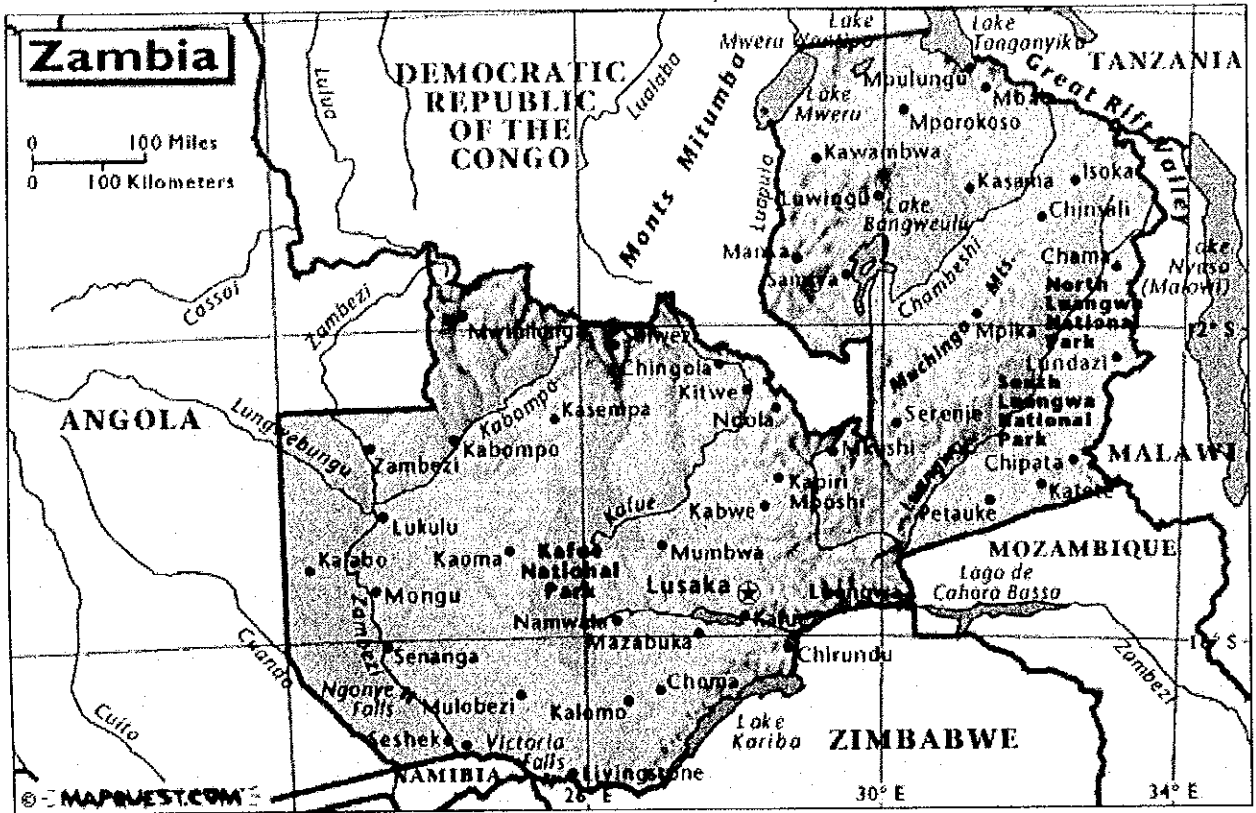
国立公衆衛生研究所調査
微生物と化学分析の2セクションから
なる。学部卒レベルの研究者は12名。





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図. 1 アフリカ地図



1. 新設コースの概要

<経緯>

近年、サブサハラアフリカ諸国^{注1}では食糧問題の解決を目的として、従来は食糧の増産といった量的な対策に重点が置かれてきたものの、食品の安全管理といった質的な対策は相対的に優先順位を下げられていた。結果、当該諸国では食品衛生管理体制が未熟であり、住民の健康状態を悪化させる一因となっている。

一方、日本では相次ぐ食中毒事件の発生等を機に食品衛生管理に対する関心がさらに高まっており、もとは宇宙食の製造管理手法であったHACCP（Hazard Analysis and Critical Control Point：食品に関する総合衛生管理製造過程）などの食品衛生管理に関する知見が、食品製造加工業者を中心に蓄積されつつある。

このような背景から、当該諸国の食品衛生管理を管轄する行政官および技術者を対象に、同分野に関する最新の知見と出身各国の実情に即した対処方法を移転できれば、かかる諸国の農畜水産業、食品製造加工業の振興に貢献できる可能性があり、酪農学園大学と検討を重ねてきた結果、今年度新規コースを開設する運びとなった。

<コースの概要>

コース名：農畜水産食品の安全管理

期 間：平成13年1月15日から同3月11日

定 員：8名

対 象：サブサハラアフリカの中央・地方政府もしくは大学において、農業生産、食品加工、食品流通もしくは公衆衛生に従事する技官

コース目的：研修プログラムを通じ、以下の目的が達成されることを目的とする。

- (1) 食品安全管理システムに関する基礎知識を得る。
- (2) 日本の食品安全管理システムにおける先進的な技術を理解する。
- (3) HACCPに関する知識を得る。
- (4) それぞれの出身国における適切な衛生管理手法を検討する。

^{注1} アフリカ大陸のうちサハラ砂漠以南の地域。具体的にはアフリカ53ヶ国中、エジプト、リビア、チュニジア、アルジェリア、モロッコ、スーダンを除く47ヶ国を指す。近年順調に経済発展を遂げる国がある一方、依然として貧困・低開発、紛争等の問題に悩む国も多い。

2. 特別案件等調査団の派遣

2-1. 派遣の目的

平成12年度より北海道国際センター（札幌）にて新規開設が予定されている一般特設「農畜水産食品の安全管理」コースの効果・効率的な実施のため、サブサハラ諸国（ケニア・ザンビア）に調査団を派遣する。当該諸国では農畜水産物の製造、加工および流通現場を視察し、それぞれの組織概要、業務内容等の現状と関係者が抱える問題点を把握した上で、現地ニーズに即した研修カリキュラムを作成することを調査目的とする。

2-2. 調査項目および対処方針

- 1) 要請背景をふまえ、各機関における研修ニーズを確認する。また、研修カリキュラムに関する協議を行い、要望を聞き取る。
- 2) 農畜水産物の製造、加工および流通過程における現状と課題を把握する。
- 3) 農畜水産物の安全管理に関する改善計画につき把握する。
- 4) 調査結果を取りまとめ、現地大使館およびJICA事務所に概要報告を行う。また、本邦に帰国後、関係者に対し調査結果の報告を行う。

3. 調査団構成

(1) 総括	堀内 一男	酪農学園大学酪農学科 教授
(2) 技術指導	塩見 徳夫	酪農学園大学食品科学科 教授
(3) 研修計画	武市 二郎	JICA札幌センター業務課 職員

4. ザンビア

4-1. 日程（平成12年9月10日～9月17日）

日順	月日	曜日	日 程
1	9/10	日	札幌14:30→(JL562)→16:00 成田 17:50→(JL735)→21:20 香港 23:40→
2	11	月	(CX749)→06:50 ヨハネスブルク 11:05→(SA064)→13:05 ルサカ 15:20 JICA事務所打ち合わせ 16:10 日本大使館表敬
3	12	火	08:45 保健省表敬, 保健省および中央保健委員会調査 10:15 ノルウェー大使館意見交換 14:30 食品・薬品管理研究所 15:50 農業省調査
4	13	水	09:15 ザンビア大学調査(獣医学部, 農学部) 11:15 大統領府人材育成部表敬 14:45 ルサカ市保健局調査 15:55 国家食料栄養委員会調査
5	14	木	09:20 農畜産品(食肉)加工工場視察
6	15	金	09:15 天然資源開発大学調査 JICA事務所報告, 市場視察(青空市場, スーパー等)
7	16	土	資料整理
8	17	日	ルサカ(LUN)11:55→(KQ424)→15:03ナイロビ(NBO)

4-2. 主要面談者

保健省 (Ministry of Health)

Mr. Malijani Alfred Deputy Permanent Secretary

Mr. S.T. Chisanga Chief Health Inspector

中央保健委員会 (Central Board of Health)

Mr. Fordson Nyirenda Environmental Health Specialist

ノルウェー大使館 (Royal Norwegian Embassy)

Mr. Magne Grova Second Secretary (agriculture/natural
resources)

食品・薬品管理研究所 (Food & Drug Control Laboratory)

Ms. Gerhude Muncha Microbiologist

Ms. Mercy Sangelo Chief Laboratory Technologist

農業省 (Department of Research and Specialist Services)

Dr. M.P.C. Mangani Deputy Director (animal production and health)

Mr. David E. Daka Chief Animal Production Officer

ザンビア大学 (University of Zambia)

獣医学部 (School of Veterinary Medicine)

Dr. Kenny L. Samui Dean

Dr. Aaron Mweene Assistant Dean for Undergraduate

Dr. L.M. Tuchili Assistant Dean for Postgraduate

Dr. A. Nambota Head of Disease Control Department

中里 幸和 個別派遣専門家 (獣医学研究指導)

農学部 (School of Agriculture)

Dr. Yakub Deedat Senior Lecturer (Acting Dean)

Dr. Drinah B. Nylienda Senior Lecturer (Food science & technology)

Dr. John Shindano Lecturer

大統領府 (Department of Human Resources Development)

Mr. E.K. Katongo Director

Mr. Joseph Zimba Human Resources Information Officer

ルサカ市役所 (Lusaka City Council)

Mr. Misheck Zyuulu Acting Director of Public Health

国家食料栄養委員会 (National Food and Nutrition Commission)

Ms. Priscilla Likwasi Acting Executive Director

Ms. Dilly Mwale Head of Public Health and Community Nutrition

Mr. Ward Siamusantu Senior Nutritionist (Vitamin A supply
coordinator)

Zambia Pork Products Limited

Mr. Webster C. Musukwa Chief Executive

Luscold

Mr. Nigel Lacey Managing Director

天然資源開発大学 (Natural Resources Development College)

Mr. C. Tonga Vice Principal

Mr. Samuel Hungu Training Officer of Animal Sciences

Mr. Simon Mawyerete Head of Agriculture Business Management
Department

在ザンビア日本国大使館

新沼 敬 一等書記官

木村 孝司 二等書記官

JICA事務所

石川 満男 所長

太田 孝治 次長

本間 一成 所員

Mr. Festus Lubinga National staff

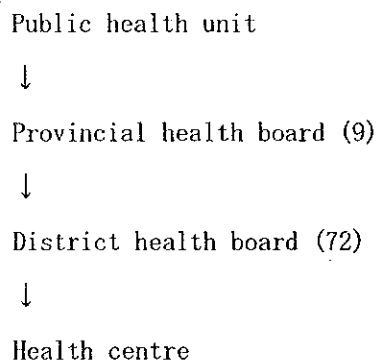
4-3. 協議事項

(1) 保健省

保健省内にあるDepartment of Planning and Developmentに2名のChief Policy Analystが配置されており、それぞれ環境保健および食品安全に関する政策決定を行っている。保健省内に配置された公衆衛生関連のofficerはこの2名のみである。

一方、保健省でのPolicy makingを受けて、実際に公衆衛生にかかる活動（研究、監視等）を行っているのがCentral Board of Health（中央保健局）である。局内には公衆衛生、診断、技術普及、保健計画の4unitがあり、公衆衛生unitが食品衛生に関する業務を担当している。

また、この公衆衛生unitの下には、以下のとおり地方保健局が組織されている。（カッコ内は各地方保健局数）



地方保健局には一名づつofficerが配置されており、各地方で食品、水質、廃棄物の監視とサンプリングを行っている。

一連の組織は、業務量に比して人材、機材、予算が恒常的に不足している。また、今年10月から発効するCOMESA（Common Market for Eastern and Southern Africa：東南部アフリカ共同市場）の自由市場に対応するためにも、政府内の公衆衛生管理の機能を強化する必要があり、研修コースは非常に有益であるとの発言があった。

(2) 農業省

農業省Department of Research（研究部）内に家畜生産、作物土壌、水産の3研究科がある。このうち家畜生産科を例に取れば、研究科内には生産普及、疾病管理、飼料研究、ツェツェ蠅防除、獣医研究の5部門があり、それぞれの分野で政策研究、技術アドバイス、普及活動、NGOや私企業間の調整などを行っている。

現在の関心は、牛生産については乾期の良質飼料の確保や口蹄疫への対応、鶏生産についてはニューカッスル病が大部分を占めている。

食品衛生に関しては、生産現場において農家が登録された農薬のみを使っているか監視している。今後、食肉の衛生管理を含め、獣医公衆衛生分野を農業省が所管する計画はあるも

の、現在の所食品衛生管理は保健省の管轄であり、特段の活動は行われていない。

農業省は動植物の検疫を担当しており、国際空港に検疫施設を持っているが、国境における検疫活動は現在準備中である。検疫システムにおけるテストは、簡便、迅速、ローコストな方法が求められている。

(3) ザンビア大学

・獣医学部

Biomedical science, Clinical studies, Disease control, Paraclinical studiesの4学科からなり、修業年限は6年。

年間ほぼ16名の卒業生を送り出しており、主な就職先は政府機関である。また現在はマラウイやコンゴからも学生を受け入れている

依然、公衆衛生分野を修めた人材の需要は大きく、今後も獣医学部の教育機能を強化していく必要があり、特にHACCPを含めた食品管理学、食品毒性学、水質管理学については人材（教官）が不足している。

・農学部食品工学科

ザンビアにおける食品加工業の衛生管理上の技術改善、人材育成を目的に設立された新しい学科であり、食品化学、食品微生物学の2講座からなる。修業年限は5年で、現在第1期生が3年次まで進学している。

ただし、開設間もない学科でもあり、食品化学、食品毒性学、栄養学等の分野において、人材（教官）が不足している。

いずれの学部でも、今後公衆衛生部門の強化が必要であり、本研修コースに対する期待感が表れていた。また、教育機関の教官が研修コースに参加した場合、大きな裨益効果が期待できることから、ぜひザンビア大学からの候補者を研修員として選考して欲しいとの発言もあった。

(4) 食品薬品管理研究所

保健省の一研究機関として、中央保健局の技術指導を受けながら公衆衛生に関する研究を行っている。

組織は微生物、水質管理、食品化学、毒性学、機材管理の5部門からなっており、地方保健局のofficerが持ち込むサンプルを分析している。

食中毒は大きく分けて微生物によるものと化学残留物（殺虫剤等）によるものがあり、分析結果は保健省の食品安全管理委員会に提出される。

(5) ルサカ市保健局

ルサカ市内の食品、食品添加物のサンプリング、水質管理、廃棄物処理等を所管する。
食品の安全管理に関しては、消費者からの苦情、申し立てを受け付けており、食品薬品管理研究所と共同で原因の解明を行ったあと、製造者に対して結果を通報する。
管理職クラスは他の部署の役職を多く兼任している。

(6) 国家食品栄養委員会

保健省の一部局として、国民（特に妊婦と子供）を対象とした栄養改善プログラムを行っている。

Communityレベルで栄養学に関する啓蒙を行ったり、鉄分などを補給する錠剤を配布しており、最近ではすべての砂糖をビタミンA強化糖に転換する活動が行われた。

組織内に公衆衛生unitも持つが、上述のとおり栄養学的な側面からのアプローチが多い。

5. ケ ニ ア

5-1. 日程 (平成12年9月17日～9月23日)

日順	月日	曜日	日 程
1	9/17	日	ルサカ(LUN) 11:55→(KQ242)→15:30ナイロビ(NBO)
2	18	月	09:00 日本大使館表敬 10:25 JICA事務所打ち合わせ 11:00 大統領府人材管理局表敬 14:05 保健省表敬・調査 15:00 国立公衆衛生研究所調査
3	19	火	09:00 ジョモ・ケニヤッタ農工大学食品科学調査 14:00 農業・畜産開発省調査
4	20	水	11:00 Farmer's Choice視察 14:00 Kenya Cooperative Creameries視察
5	21	木	09:30 市場視察 11:00 ILRIとの意見交換 14:30 JICA事務所 15:30 日本大使館報告 ナイロビ(NBO) 22:25→(BA2068)→
6	22	金	→05:15 ロンドン(LGW)→ロンドン(LHR) 13:25→(BA005)→
7	23	土	→09:10 成田(NRT) 12:55→(NH045)→14:30 新千歳(CTS)

5-2. 主要面談者

保健省 (Ministry of Health)

Mr. Alfred K. Langat	Chief Public Health Officer
Mr. William Odundo	Senior Public Health Officer
Mr. Leonard Wezambe	Senior Public Health Officer

国立公衆衛生研究所 (National Public Health Laboratory)

Dr. Jack Nyamongo	Head
Mr. Bernard M. Kiarie	Chief Medical Laboratory Technologist

Mr. Viterlis W. Sitati Deputy Chief Medical Laboratory Technologist

大統領府人材管理局 (Directorate of Personnel Management)

Mr. Wanjalawa Muricho Deputy Director

ジョモ・ケニヤッタ農工大学食品科学科 (Faculty of Food Science, JKUAT)

Dr. Ratemo W. Michieka Vice-chancellor

Dr. H. M. Thairu Senior Vice-chancellor

Dr. Glaston M. Kenji Senior Lecturer

Dr. Simon M. Njoroge Senior Lecturer

Dr. Ciira Kiiyukia Senior Lecturer

Dr. Christine A. Onyango Lecturer

熊野 秀一 「人造り拠点」計画チーフアドバイザー

飯田 護 「人造り拠点」計画業務調整員

農業・畜産開発省 (Ministry of Agriculture, Livestock Development and Marketing)

Mr. J. N. Nkanata Director of Extension Services

Mr. Benson C. Mbogoh Director of Agriculture Training

Mr. Teresa N. Muthui Head of Home Economics

Mr. W. M. Nzoki Senior Dairy Inspector

Mr. J. P. Cherumot Head of Dairy and Beef Branch

Farmer's Choice

Mr. S. N. Mbugua Operations Director

Kenya Cooperative Creameries

Mr. Paul Odhiambo General Manager (Central Region)

Mr. Jeremiah K. Rutto Production Manager (Central Region)

ILRI (International Livestock Research Institute)

Dr. Amos Omore Veterinary Epidemiologist

Dr. Steven J. Staal Agricultural Economist

在ケニア共和国日本国大使館

大熊 幸治 一等書記官

JICA事務所

成瀬 猛 次長

松本 淳 次長

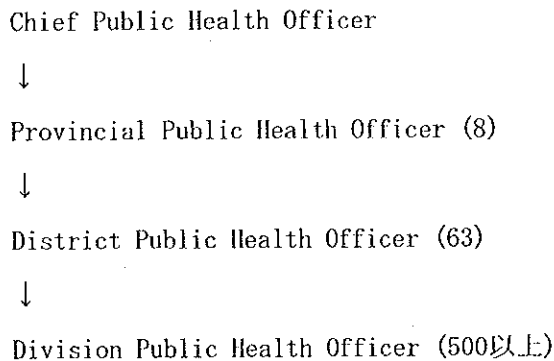
倉科 芳朗 所員

5-3. 協議事項

(1) 保健省

食品衛生行政は、保健省Department of Public Healthのうち、Division of Environmental Healthが担当している。このDivisionは食品衛生以外にも廃棄物管理、水質調査および検疫行政も行っている。

Division of Environmental HealthにはChief Public Health Officerが配置されているが、この下には以下のとおり地方保健官が組織されている（カッコ内は地方保健官の数）。



地方保健官は、定期的（少なくとも2週に一度、食中毒の発生時には毎日）に食品および飲料水のサンプリングを行い、国立公衆衛生研究所（後述）にサンプルを送っている。また、生産者において収穫物が適切に貯蔵されているか、食品の加工、包装、輸送手段が適切か、良好な水質の飲料水を食品加工に用いているか、といった項目もチェックしている。

現在Division of Environmental Healthでは、食品衛生に関する機能強化が求められており、それは職員の訓練と食品研究室の機材の更新によって達成されるとしている。なお、現在までに2名の保健官が日本での食品衛生研修に参加した実績があり、いずれも日本での研修は有益であったとのことである。

(2) 国立公衆衛生研究所

食品微生物学、食品化学、血清学などの9sectionからなり、保健省のDepartment of Public Healthを技術面から支援している。研究者（学部卒レベル）は12名。

食品微生物sectionでは前述の地方保健官が収集したサンプルを分析しており、結果はそれぞれの製造元に通報される。一日あたり20の食品サンプルと10以上の飲料水サンプルを受け入れることができるとのことである。

(3) 農業省

農業省ではDepartment of Extension ServicesおよびDepartment of Agricultural Trainingの2部局を持っており、農業関係者への技術普及と訓練を行っている。この訓練の一

環として食品衛生も取り扱われており、各分野における内容は以下のとおり。

1) 生乳生産加工

問題点：生産者レベルの低い衛生観念のため、乳房炎が多く、泌乳量は少ない。

加工者、集乳者ともに安全な生乳の取り扱い技術、手順を理解していない。

貧弱な加工施設（特に冷蔵施設）

研修：生乳の組成と品質特性、汚染源、サンプリングと検査記録、機材管理等

2) 食肉生産加工

問題点：疾病管理の不徹底（家畜の移動制限、ワクチネーション）

食肉の品質管理の不徹底

研修：品質保証、疾病診断技術、屠殺技術、食品衛生

これらの研修コースについて、農業省は不十分な定員、不十分な講師と言った改善点を強化したい考え。ただし、保健省の所掌分野とかなりの重複が見られるが、二つの省庁間での調整、人材の活用等はほとんど行われていない模様。

(4) ジョモケニヤッタ農工大学食品工学科

食品工学、食品化学、食品微生物学、分析化学、食品生化学、収穫後処理学の6講座からなり、修業年限は4年。

年間20-25名の卒業生を送り出しており、主な就職先は食品産業、研究機関、政府機関である。また現在は修士課程に4名、博士課程にも4名の学生が在籍している。

依然、公衆衛生分野を修めた人材の需要は大きく、今後も学科の教育機能を強化していく必要があり、特にHACCPを含めた食品微生物学、食品化学、水質管理学については人材（教官）が不足している。

また、本研修コースに関しては、HPLC (High-Pressure Liquid Chromatography : 高圧液体クロマトグラフィー)等の実践的な技術について実習を取り入れるよう要望が寄せられた。

(5) Farmer's Choice

年間40,000頭の豚と2,000頭の牛を処理する食肉加工業者。1978年創業。

自前の農場などを含め、全体で約1,000名の従業員がいるが、このうち工場で働くのは約300名。

豚は約90シリング/kgで農家から買い取り、屠殺、解体、加工（ベーコン、ソーセージ、骨付き肉）、出荷までを行う。商品は一部UAE、タンザニア、ジンバブエ、ウガンダ等へ輸出されている。

自家発電装置を備え、屠殺（感電）から解体、包装、冷蔵に至るまで、豊富な電力を活用

している。

(6) Kenya Cooperative Creameries

日量308,000klの処理能力を持つ国営乳業会社。1925年創業。

全国に11の集乳センターと11の加工工場を持ち、従業員は800名。生乳、発酵乳、脱脂粉乳、バター、チーズを生産し、バターは中東方面に輸出している。原料乳は集乳センターの26km以内の酪農家から集められ、買い取り価格は約18シリング/l。

Farmer's Choiceとは異なり、自家発電装置は全く持たないため、停電になれば生産ラインも止まる。

6. 調査団所見

ザンビアでは、動植物の検疫を含む食品衛生分野の組織および人材の整備充足に取り組んでいるところである。特に、今年10月に発足するCOMESAに対応するように検討しているが、予算不足であらゆる面で支障をきたしているとのことである。本研修に対しては、積極的に対応するので是非参加できるよう強い要望があった。さらに、現場では、低コストで迅速に分析結果が出せる手法や技術の習得を望んでいた。

ケニアでは、食品衛生分野の組織および人材の整備充足はザンビアに比べてかなり進んでいた。しかし、組織機能の強化は、今後一層力を入れる必要があると認識されており、本研修に対して強い関心を示しケニアから毎年2～3人参加させてほしいとの要望がだされたほどである。

以上の2カ国について調査した結果をうけて、現在立案中のカリキュラムには、(1)簡易な試験分析法を実験・実習に取り入れたり、(2)グループ・ディスカッションを導入することにより、さらに有意義な研修が可能であろう。また、本件研修に関わる講師には、今回実施した調査団の報告会を開いてその趣旨を徹底し、研修効果向上にむけて協力を呼びかけることとする。

本研修実施の意義は、政府・大学などの関係機関および製造・加工・流通などのそれぞれの分野で十分な需要があると判断する。さらに、本コースのセールス・ポイントは、研修の企画段階から検討していたようにHACCPを中核にすえた農畜水産物食品の安全管理技術を研修するということで十分意義のある新設研修コースになるとの自信をこの事前調査によって確認できた。

付 属 資 料

1. コース日程案

2. 質問票回答

(1) ザンビア

- 1) 保健省・中央保健委員会…………… 19
- 2) 食品・薬品管理研究所…………… 39
- 3) 国家食料栄養委員会…………… 44
- 4) 農業省…………… 51
- 5) ザンビア大学農学部…………… 54
- 6) ザンビア大学獣医学部…………… 61

(2) ケニア

- 1) 保健省…………… 65
- 2) 農業畜産開発省…………… 70
- 3) ジョモケニヤッタ農工大学…………… 77
- 4) 国際畜産研究所 (ILRI) …… 100

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第1回(平成12年度)農畜水産物安全管理コース研修日程 (予定)

月日(曜)	時間帯	研修内容	講師・担当者	実施場所
1.15(月)		来日、移動(成田→札幌)		
1.16(火)	午前	ブリーフィング	JICA	研修センター
	午後	ブリーフィング		
1.17(水)	午前	オリエンテーション	JICA	研修センター
	午後	オリエンテーション		
1.18(水)	午前	オリエンテーション	JICA	研修センター
	午後	オリエンテーション		
1.19(水)	午前	オリエンテーション	JICA	研修センター
	午後	オリエンテーション		
1.20(土)		休日		
1.21(日)		休日		
1.22(月)	午前	開講式	酪農学園大学 学長 安宅一夫	酪農学園大学
	午後	酪農学園大学・研修オリエンテーション		
1.23(火)	午前	カンントリーレポート報告・討論	酪農学園大学大学院 コースリーダー 堀内一男	酪農学園大学
	午後	同上(研修員と研修講師による)		
1.24(水)	午前	講義:食品の衛生とハエ	酪農学園大学大学院 佐々木均	酪農学園大学
	午後	実習:食品の衛生に関わるハエ		
1.25(木)	午前	講義:水産物の鮮度保持	食品加工研究センター 大堀忠志 食品加工研究センター 吉川修司	食品加工研究所
	午後	講義:水産食品製造における微生物管理		
1.26(金)	午前	実習:水産物製品の製造	食品加工研究センター 本堂正明 大堀忠志 佐々木茂文 吉川修司	食品加工研究所
	午後	実習:水産物製品の製造		
1.27(土)		休日		
1.28(日)		休日		
1.29(月)	午前	講義:魚介類の塩蔵と乾燥	北海道食品産業協議会 大島浩	酪農学園大学
	午後	講義:魚介類の塩蔵と乾燥		
1.30(火)	午前	講義:酪農現場における搾乳衛生管理について	酪農学園大学大学院 附属農場長 岡本全弘	酪農学園大学
	午後	実習:大学付属農場牛舎の搾乳衛生		
1.31(水)	午前	講義:高品質生乳の生産	酪農学園大学大学院 永幡肇	酪農学園大学
	午後	実習:高品質生乳の生産		
2.1(木)	午前	講義:農場におけるHACCPプログラムの現状と課題	酪農学園大学大学院 永幡肇	酪農学園大学
	午後	見学:農場におけるHACCPプログラムの現状と課題(近郊酪農家)		
2.2(金)	午前	講義:人畜共通感染症(経口感染性を主体にして)	酪農学園大学大学院 森田千春 酪農学園大学大学院 上野弘志	酪農学園大学
	午後	講義:食肉検査		
2.3(土)		休日		
2.4(日)		休日		
2.5(月)	午前	見学:食肉検査所の現状(汚水処理施設、食肉処理施設)	酪農学園大学大学院 森田千春 酪農学園大学大学院 上野弘志	(札幌市)
	午後	見学:食肉製品加工場の現状(食肉加工場)		
2.6(火)	午前	実習:乳の衛生検査	酪農学園大学大学院 森田千春 酪農学園大学大学院 上野弘志	酪農学園大学
	午後	実習:乳の衛生検査		
2.7(水)		見学:道内研修(帯広)	酪農学園大学・JICA	(帯広)
2.8(木)		見学:道内研修(帯広)	酪農学園大学・JICA	(帯広)
2.9(金)		見学:道内研修(帯広)	酪農学園大学・JICA	(帯広)
2.10(土)		休日		
2.11(日)		休日		
2.12(月)		休日		
2.13(火)	午前	講義:アフリカにおいて留意すべき食品由来の食中毒対策	酪農学園大学大学院 宮川栄一	酪農学園大学 (市内)
	午後	実習:農畜水産物等食品のサルモネラの検出		
2.14(水)	午前	講義:食肉の食品科学的特性について	酪農学園大学大学院 鮫島邦彦 酪農学園大学大学院 石下真人	酪農学園大学
	午後	実習:ソーセージの加工		
2.15(木)	午前	講義:食肉の加工とその原理	酪農学園大学大学院 鮫島邦彦 酪農学園大学大学院 石下真人	酪農学園大学 (札幌市)
	午後	見学:食品加工技術の現状(食肉加工場)		
2.16(金)	午前	講義:食肉製品のHACCP管理	酪農学園大学大学院 鮫島邦彦 酪農学園大学大学院 石下真人	酪農学園大学
	午後	実習:食肉製品の品質管理		
2.17(土)		休日		
2.18(日)		休日		
2.19(月)		見学:国内研修	酪農学園大学・JICA	(東京)

2.20(火)		見学:国内研修	酪農学園大学・JICA	(東京)
2.21(水)		見学:国内研修	酪農学園大学・JICA	(東京)
2.22(木)		見学:国内研修	酪農学園大学・JICA	(東京)
2.23(金)		見学:国内研修	酪農学園大学・JICA	(東京)
2.24(土)		休日		
2.25(日)		休日		
2.26(月)	午前	講義:PCR法を用いた食品からの食中毒菌の検出	酪農学園大学大学院 菊地政則	酪農学園大学
	午後	実習:PCR法を用いた食品からの食中毒菌の検出		
2.27(火)	午前	講義:企業におけるHACCP導入の手順	酪農学園大学大学院 安藤功一	酪農学園大学
	午後	講義:危機分析の方法		
2.28(水)	午前	講義:許容管理基準の設定とモニタリング技術	酪農学園大学大学院 安藤功一	酪農学園大学
	午後	講義:食品工場の微生物制御とクリーン化技術		
3.1(木)	午前	講義:異物混入防止対策	酪農学園大学大学院 安藤功一	酪農学園大学
	午後	講義:HACCP導入事例		
3.2(金)	午前	実習:HACCPのプラン作成方法	酪農学園大学大学院 安藤功一	酪農学園大学
	午後	講義:HACCPの導入事例		
3.3(土)		休日		
3.4(日)		休日		
3.5(月)	午前	講義:食品流通の情報システム化	酪農学園大学大学院 細川允史 酪農学園大学大学院 尾崎亨	酪農学園大学
	午後	講義:食品物流の技術革新		
3.6(火)	早朝	見学:食品流通の現状(卸売市場)	酪農学園大学大学院 細川允史 酪農学園大学大学院 尾崎亨	(札幌市)
	午後	見学:食品流通の現状(大型量販店)		(札幌市)
3.7(水)	午前	ファイナルレポートの作成準備	JICA	研修センター
	午後	ファイナルレポートの作成準備		
3.8(木)	午前	ファイナルレポートの発表	JICA	研修センター
	午後	ファイナルレポートの発表		
3.9(金)	午前	最終評価式	JICA	研修センター
	午後	閉講式		
3.10(土)		帰国準備(終日フリー)		研修センター
3.11(日)		帰国(札幌→成田)		

REPUBLIC OF ZAMBIA

MINISTRY OF HEALTH / CENTRAL BOARD OF HEALTH

**QUESTIONNAIRE FOR THE TRAINING COURSE IN FOOD SAFETY
CONTROL SYSTEM IN SUB-SAHARAN AFRICAN COUNTRIES**

1.0 ORGANISATION CHART

Please find attached Organisation Charts for the Ministry of Health (MOH) and Central Board of Health (CBOH) from National level to sub-district level on the food safety control system.

In the Ministry of Health, whose functions are development of policy, legislation and to support programme implementation, the Food safety control system in Zambia falls in the Directorate of Planning and Development and under the Chief Policy Analyst (Environmental Health) and the Chief Policy Analyst (Food and Drugs).

In the Central Board of Health, the Food safety control and monitoring is within the Directorate of Public Health and Research under the Environmental Health unit. The unit of environmental Health also exists at District Health Board and Local Council (City and Municipal Councils) and at Sub-district level.

2.0 DATA ON THE ORGANISATION ACTIVITIES

2.1 Counter measures on food poisoning

2.1.1 Food production

Under the current Food and Drugs Regulations of 1978, the growing and harvesting of raw materials shall be of clean and sanitary nature and the Authorised Health Inspectors in the system of monitoring at District Health Board and Local Authorities are to ensure compliance at production level. In the Ministry of Agriculture and Food and Fisheries (MAFF) the promoting of safer methods of food production through Plant health inspectors is also encouraged.

2.1.2 Food processing

Under the Public Health Act Cap 295, Food and Drugs Act Cap303, Food and Drugs Regulations of 1978 and the Factories Act there are conditions laid down to promote safer processing of foods. The Local Authorities, who are the licencing authorities, will only issue a licence if the Factories comply with the hygienic and sanitary standards laid down by the above statutes.

Health inspectors (Environmental health officers) have a cardinal role through routine sanitary inspections, sampling of raw materials and finished products and hygiene education of food handlers to ensure compliance.

2.1.3 Food distribution

The procedures of licencing retail food outlets, routine inspections, sampling of foods, hygiene education of food handlers and the general infrastructure with more attention on water supplies and sanitary facilities are the focus in the food safety by the Ministry of Health/Central Board of Health officials.

2.1.4 Laboratory examinations for domestic / imported foods

The Ministry of Health has established the Food and Drugs Control Laboratories to analyse food and water samples from the field food safety monitoring teams of Health Inspectors to ensure compliance with the various food Laws. The Public Analyst is appointed by the Government to issue food and water Analytic reports for possible interventions including prosecutions in the courts of law if there is proof of violations.

2.1.5 Quarantine system for imported foods

The Ministry of Health / Central Board of Health in conjunction with the Zambia Revenue Authority and Ministry of Agriculture, Food and Fisheries control food imports and border entry points. The Zambia Revenue Authority has bonded warehouses in Lusaka where there is access to the health inspectors to collect samples for analysis if the Ministry of Health are in doubt.

2.1.6 Successful projects on food safety control

There are no specific tailor made projects on food safety control due to inadequate resources but these activities are routinely being carried out by the Health Inspectors. However, the passing of Statutory Instrument on mandatory fortification of sugar and salt to fight Vitamin A and Iodine deficiency necessitated the planning of one week training programmes for the health inspectors at Provincial and District levels.

2.1.7 Future plans for food safety control

- (a) Introduction of **HACCP** for health inspector as a food inspection protocol
- (b) Establish **HACCP** in selected food establishments to prevent food poisoning.
- (c) Build capacity in Central Board of Health and Local Authorities for health inspectors to undertake courses at **Masters Degree level in Environmental Health.**
- (d) Conduct In-house and **In-service training** programme for district and sub district staff

- (e) Strengthen **food safety monitoring units** within the Environmental Health Departments

2.1.2 Condition of Infrastructure

(a) Water Supply system

Most food establishments have their own water systems whilst some still rely on the City or Municipal Council system, which at times becomes erratic and inadequate. However, water quality monitoring is a routine activity under quality control by the Environmental Health personnel.

(b) Sewerage systems

There is a need to improve the disposal of disposal of sewage matter as most sewerage treatment plants which include septic tanks, oxidation ponds and most sewerage treatment plants at most food establishments requires rehabilitation.

(c) Solid Waste management

This important environmental health activity has overwhelmed most of the Local Authorities in Zambia due to inadequate materials, equipment and refuse collection trucks. This scenario has created insanitary environments especially where refuse at food establishments is made to accumulate to attract vermin.

RRPUBLIC OF ZAMBIA

MINISTRY OF HEALTH / CENTRAL BOARD OF HEALTH

BRIEF REPORT ON FOOD SAFETY CONTROL SYSTEM IN ZAMBIA

1.0 INTRODUCTION

The Ministry of Health (MOH) is wholly responsible for all matters pertaining to protection of Public Health including development of policy, legislation and to support programme implementation.

Central Board of Health (CBOH) is responsible for policy implementation through its Hospital and District Health Boards and Sub-district health Boards. Each District Health Board has an Environmental Health unit in whose function the food safety programme is implemented and staffed by Health Inspectors (Environmental Health officers/ technicians). This arrangement also exists for Local Authorities (City and Municipal Councils)

Through a number of Acts of Parliament authority to carry out prescribed functions is delegated to such to agencies as local authorities / Health Boards or other legal bodies so identified.

Specifically on food safety control, the main legal framework is provided under the Food and Drugs Act CAP 303 of the laws of Zambia and the Regulations under it. Several other Acts that in some way allude to trade in foodstuff, mention the need for compliance with health requirements as a condition for the grant of a licence to operate a food establishment.

The Ministry of Health has established the Food and Drugs Control Laboratories in the water and food analysis mandate to support the Health Inspectors in the interpretation of water and food standards in the food safety monitoring activities.

2.0 PROGRAMMES OF ENVIRONMENTAL HEALTH (with emphasis on food safety monitoring)

2.1 Workshops on food safety for Health Inspectors

Training of field staff in the enforcement of the provision of the provisions of the laws relating to food safety control for five days has been planned for September, 2000 for Health Inspectors (Environmental Health Officers) in the Country.

2.2 Future Plans

2.2.1 Establish and Strengthen food safety units within Environmental Health Departments

- Establishment food safety control units within Public Health Department of local authority and strengthening capacities within Environmental Health Department in the District Health Boards with the view to operating effective food safety control system as a matter of routine

2.2.2 Establishing food safety control systems at major border entry points to monitor food Imports

- The health Inspectors in border towns will strengthen the monitoring of food Imports at border points through sampling and food Inspections and general monitoring mechanisms. This arrangement will also be supplemented by the Plant Inspectors in the Ministry of Agriculture, Food and Fisheries.

2.2.3 Request funds for training of Environmental Health Personnel to Masters degree programmes in Environmental Health.

- Funding requests is hereby being made to facilitate the capacity building of Health Inspectors (Environmental Health Officers) to degree level as less than five (5) officers in Zambia have degrees in Environmental Health. There is a need **therefore to send one candidate for Masters Degree in Environmental Health during the 2001 Academic year funds permitting either in Japan or United Kingdom.**

Environmental Health Departments in both Local Authorities and the District health boards are the officials who are authorised to enforce the food safety monitoring in Zambia. The subject of Environmental Health comprises of those aspects of human health, including the quality of life, that are determined by physical, chemical, biological, social and psychosocial factors in the environment. These include food safety monitoring, water quality monitoring, meat and other foods inspection, food establishments and general inspections, solid waste management etc.

2.2.4 Introduction of Hazard Analysis Critical Control Point system to Health Inspectors

There is a need to introduce modern food inspection and monitoring protocols to technically identify and handle hazards in the food production, processing, preparations, storage etc by the health Inspectors in order to minimise food poisoning episodes. At the moment most of the Environmental Health Personnel have not been oriented in the HACCP concept.

3.0 RECOMMENDATIONS

3.1 Support the proposed training course in food safety control system for Africa

- The proposed food safety control system in sub-Saharan African Countries will be extremely useful to the Health Inspectors and technicians who are empowered by the Public Health Act Cap 295 and Food and Drugs Act Cap 303 to protect the consumers against fraud and prevent food borne diseases

3.2 Environmental Health Degree Programme for Zambia

- Sponsorship of one Environmental Health Officer to train at Msc. level in Environmental Health preferably in Japan or United Kingdom. The above course has now been prioritised by Ministry of Health / Central Board of Health as of urgency necessity.

3.3 Resource allocation for food safety programmes

- Support the Local Authorities and District Health Boards with resources to implement Environmental Health activities especially food safety monitoring (Sampling and analytical materials and equipment including transport).

3.4 Resource for In-house workshops for District and Local Authority

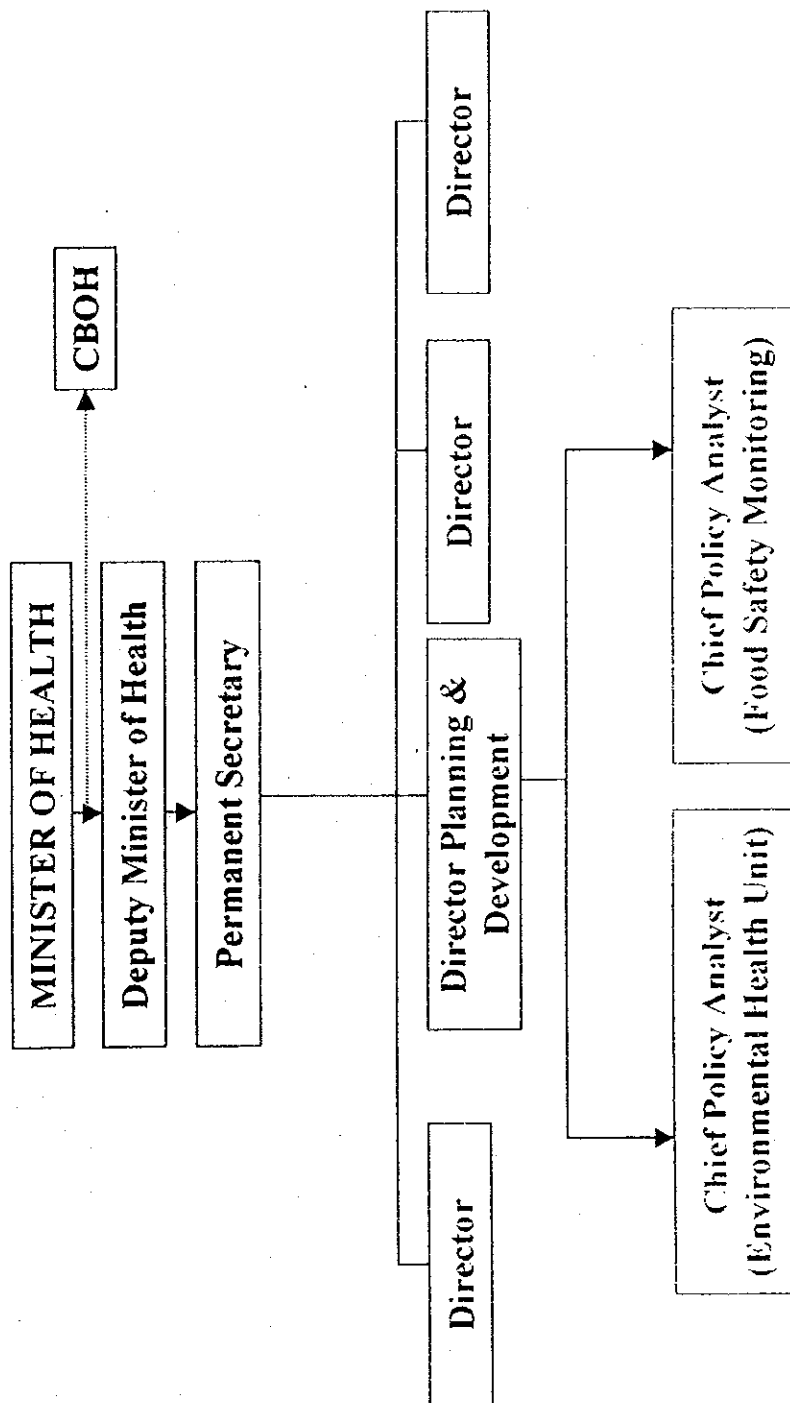
In service and in-house orientation workshops for District and Sub-district Environmental Health personnel in Local Authorities and District Health Boards need to be organised on food safety on the basis of the training programs being suggested by JICA.

**Ministry of Health/Central Board of Health
12 September, 2000**

MINISTRY OF HEALTH

POLICY FORMULATION

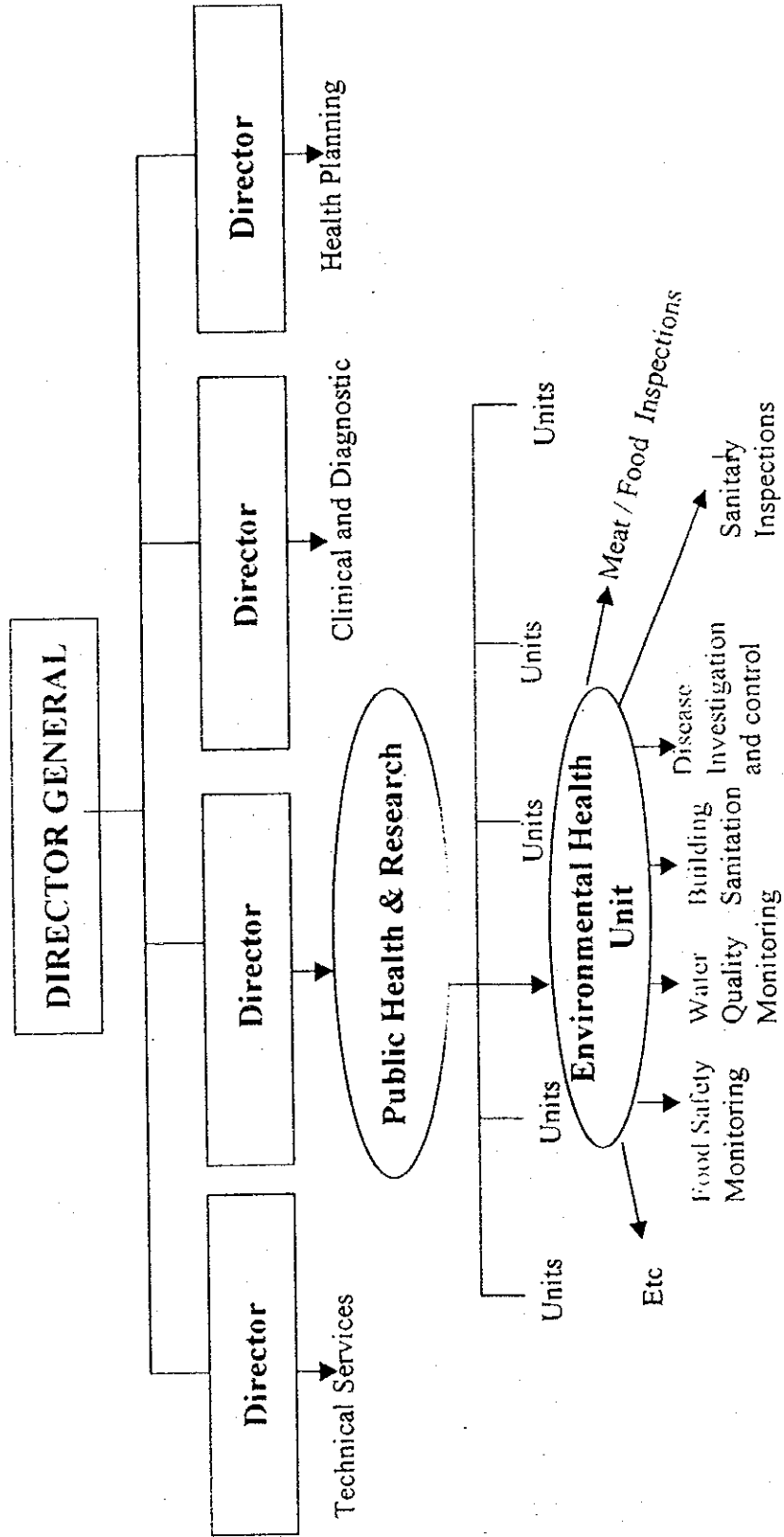
1.0 ORGANISATION CHART (with bias on Environmental Health Food Safety Monitoring activities)



CENTRAL BOARD OF HEALTH POLICY IMPLEMENTATION

NB; The D-PH&R, using its EHU is in-charge of Food Safety in Zambia through its established DHBs and Local Authorities.

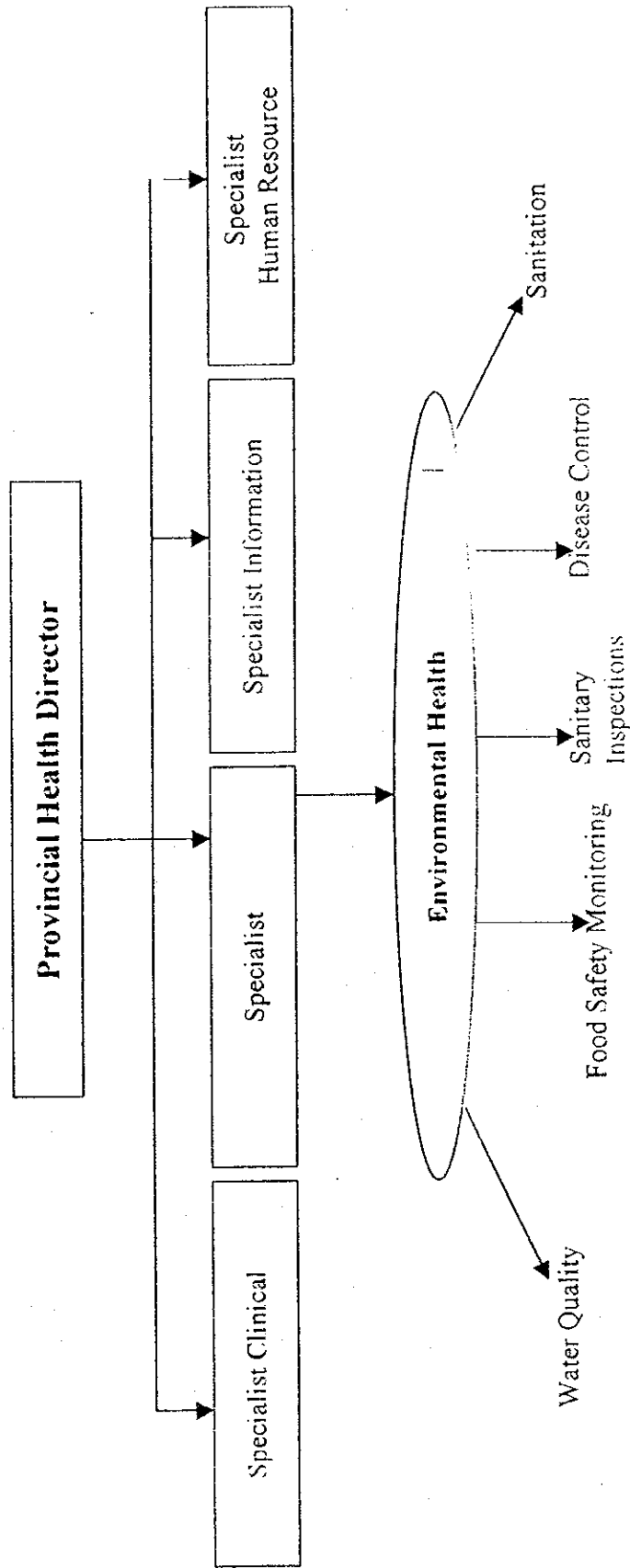
2.0 ORGANISATIONAL CHART



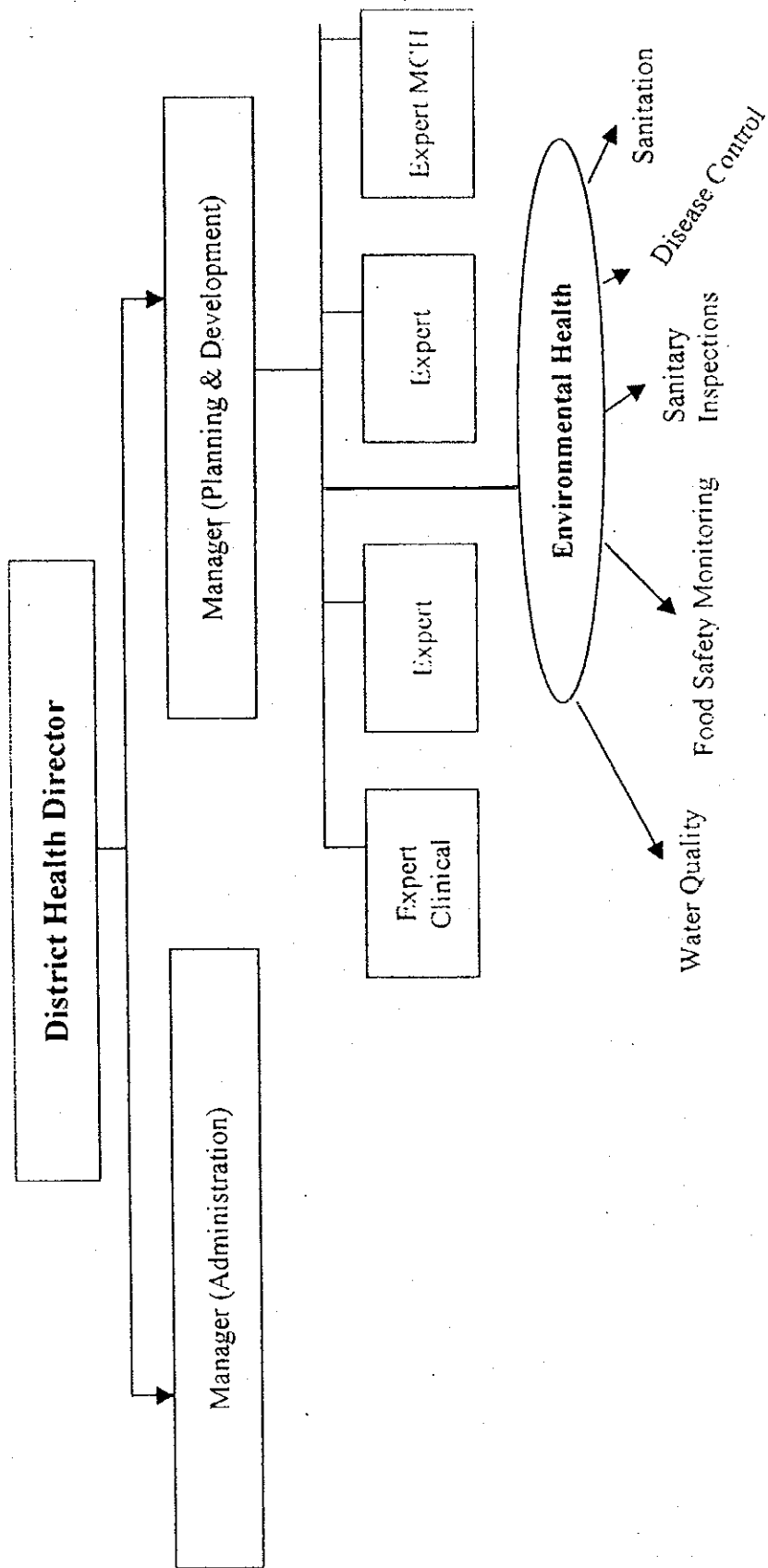
CENTRAL BOARD OF HEALTH

3.0 ORGANISATIONAL CHART: PHO

(with emphasis on Environmental Health / Food Safety)



4.0 ORGANISATION CHART - DHB



REPUBLIC OF ZAMBIA

CENTRAL BOARD OF HEALTH

**REVIEW OF THE FOOD AND DRUGS ACT CHAPTER 303 OF THE
LAWS OF ZAMBIA.**

**Environmental Health Unit
Directorate of Public Health and Research
CENTRAL BOARD OF HEALTH**

JULY, 2000

CENTRAL BOARD OF HEALTH

REVIEW OF THE FOOD AND DRUGS ACT CHAPTER 303 OF THE LAWS OF ZAMBIA

1.0 INTRODUCTION

Zambia has one of the best Food Safety Laws in the Region. The problem has been their enforcement by the 'Authorised Officers' who are empowered to enforce these pieces of Legislation. The main purpose of Food Safety Laws are to protect the consumers against health hazards and fraud in the sale and use of food.

It is imperative that those charged with the responsibility of enforcement of these Laws take their mandate seriously in view of the liberalised economy in the Country and avoid sub-standard foodstuffs reaching the consumer. The Ministry of Health through its enforcement organs namely the Central Board of Health (CBOH) and Local Authorities (City, Municipal and Rural Councils) have the mandate to protect the Country from unscrupulous traders.

2.0 OBJECTIVES OF THE FOOD AND DRUGS ACT

The main objectives of the Act is to protect the public against health hazards in the sale of food, drugs, cosmetics and medical devices and to provide for matters incidental thereto and connected there with.

3.0 INTERPRETATION

3.1 'Authorised Officer' as stipulated under the Food and Drugs Act

- **Medical Officer of Health (MOH)**----- (for the whole Act.)
- **Health Inspector** -----(for the whole Act)
- **Any suitably qualified person authorised by the Minister or the Local Authority** ----- (for the whole Act)
-
- **Police Officer** (above the rank of Assistant Inspector)----- (for taking samples and receiving reports from the Food and Drugs Laboratories)
- **An Officer** (authorised by the Controller of Customs and Excise) ----for taking samples
- **An Inspector** as defined by the Dangerous Drugs Act and may include persons enforcing Pharmacy and Poisons Act who have been specifically authorised by Minister under this Act.
- **Principal Officer** as defined in the Local Government Act----- (for proceedings under section 30)

3.2 Article

Any food and any labelling or advertising materials and anything used for the preparation, packaging or storing of any food.

3.3 Public Analyst

Person appointed by the Minister or a Local Authority with the approval of the Minister to act as an Analyst for the purpose of this Act

4.0 GENERAL PROVISIONS

- 4.1 Prohibitions against the sale of poisonous, unwholesome or adulterated food.
- 4.2 Deception in the labelling, packaging, treating, processing, selling
- 4.3 Standards of food to be complied with
- 4.4 Prohibition against the sale of food not of the nature, substance and quality demanded
- 4.5 Prohibition against the sale and preparations of food under insanitary conditions

5.0 IMPORTATION AND WARRANTY

- 5.1 Importation which does not comply with the provisions is prohibited
- 5.2 Re-labelling and reconditioning within specified period allowed
- 5.3 Manufacturer and distributor to give warranty in writing about the nature and quality of food

6.0 ADMINISTRATION

6.1 Powers of 'Authorised Officers' (section 24)

- 6.1.1 Enter any premises and examine anything including taking samples
- 6.1.2 Stop or search an Aircraft, ship or vehicle to examine and take food samples
- 6.1.3 Open and examine any food receptacle / package
- 6.1.4 Examine books or any other records in connection with foods in question
- 6.1.5 Seize and detain food as may be necessary if he believes food has contravened the Act.

- 6.1.6 Authorised Officers to have Identity Cards
- 6.1.7 Reasonable assistance to be given to the Authorised Officer
- 6.1.8 Nobody to obstruct Authorised Officer in the course of carrying out his duties
- 6.1.9 No false or misleading information to the Authorised Officer
- 6.1.10 Seized foods can only be released if satisfied that all provisions of the law are complied with.
- 6.1.11 Confidentiality of information collected by Authorised Officer

6.2 Seizures and procedures of disposal

- 6.2.1 Authorised Officer to dispose off articles as he deems fit if the owner consents
- 6.2.2 If owner does not consent Authorised Officer to apply to Subordinate Court for the destruction or disposal of seized foods
- 6.2.3 No person to remove, interfere with seized foods without authority from Authorised Officer
- 6.2.4 Seized articles to be stored where Authorised Officer orders
- 6.2.5 Authorised Officer to sample and take these to Public Analyst (Ministry of Health Food and Drugs Control Laboratory)
- 6.2.6 Public Analyst to furnish Certificate to Authorised Officer after analysis.
- 6.2.7 Director of Medical Services to appoint a Public Officer to procure samples
- 6.2.8 Local Authorities to exercise all powers conferred upon it by the Act.

7.0 LEGAL PROCEEDINGS

- 7.1 Power of court on conviction to order licence to be cancelled and foods to be disposed off
- 7.2 If offence appears to have been committed and supported by the Public Analyst certificate, Authorised Officer to take proceedings before Magistrates Court.

7.3 Penalties for first offenders are not exceeding 1,000 penalty units or imprisonment not exceeding 3 months. For second offenders not exceeding 2,000 units penalty units and imprisonment not exceeding 6 months

7.4 Public Analyst certificate is 'Prima facie' in the court of law.

8.0 FOOD AND DRUGS REGULATION OF 1978 (Subsidiary Legislation)

8.1 These Subsidiary Regulations prescribe the Standards of composition, strength, potency, purity, quality or other property of the article / food.

8.2 The Regulations in addition to the standards also deals with the **Food Hygiene** aspects of the Food Establishments and under **Regulation 410-422** details the conditions which the Licencing Local Authorities should follow when issuing a licence to Food Establishments.

8.3 The Food and Drugs Regulations 1978 are still in force although they have been reviewed after extensive consultations. The draft Food and Drugs revised Document has been deposited with the Ministry of Legal Affairs with the view to having it processed as the new Food and Drugs Regulation.

Environmental Health Unit
CENTRAL BOARD OF HEALTH

July, 2000

QUESTIONNAIRE FOR THE TRAINING COURSE ' FOOD SAFETY CONTROL SYSTEM IN SUB-SAHARAN AFRICAN COUNTRIES (SEPTEMBER 2000)

Annual Report at Annex – 1

1. Data on organization structure

- (i) organisation chart at Annex – 2
- (ii) Role of each department and division – obtainable from Planning Directorate.

2. Data on Organisation's activities

The Government statement of intent for food control and safety has been and is still " to provide Zambian consumers with a food commodity which when consumed would not cause ill health or harm and that the production and marketing practices took due cognisance of the promotion of health, prevention of contamination and protection of consumers against fraudulent practices which are prejudicial to the consumer.

The above is supported by the following laws which address food quality and safety issues:-

The Food and Drugs Act and its Regulations Cap 303; the Public Health Act and its Regulations Cap. 295; Standards Act Cap 416 of the Laws of Zambia. The Food and Drugs Act is administered through the Food and Drugs Board established with a wide representation on the Board from the food Industry, research institutions, Zambia Bureau of Standards, a Government Public Analyst, the Local Authority (District Councils), and the Ministry of Health. The Board oversees the administration of the Act as an advisory body.

The Food safety control laws are implemented in three basic elements:-

- a) **Management:** These supervise and administer the Food safety Control Organisation, develop compliance policies and standards.
- b) **Inspectorate:-** These are responsible for inspecting food premises, collecting samples and evidence of infringement of Food Laws and Regulations, assisting in prosecution and advice to the industry.
- c) **Analyst:-** These examine food samples that are sent to the laboratory by the inspectorate and prepare analytical and evaluation reports, which form the basis for further action against those who flout the law. Monitoring and research are also functions of the food safety control laboratory.
- d) Like most boards under the Ministry of Health, the laboratory receives a monthly grant from the Central Government; this grant only covers the running costs for

maintenance of equipment, purchase of spare parts and some reagents. However, repeal of some prohibitive laws has enabled the institution to charge for some analyses and a process to revise these charges to cost recovery levels has been initiated.

The laboratory consists of five sections; namely:-

◆ **Food and water microbiology**

In this section microbiological analysis of food, portable water and effluents are carried out; these include :- Total plate count, Total coliforms, Identification of, Moulds. Also carried out is the Assay of antibiotics and efficacy of disinfectants. The section receives and analyses an average of 350 water samples and 150 food samples per annum.

◆ **Food chemistry**

In this section, food chemistry analyses are carried out. These include Protein Content, Fat, Moisture, Total solids, Ash, Mycotoxin analysis in grains, groundnuts, Carbohydrates, Total sugars, Reducing sugars etc. The section analyses an average of 500 samples annually.

◆ **Water chemistry**

In this section physical and chemical analyses of portable water and wastewater are done. Among these analyses are Total Hardness, pH, Conductivity, Total Alkalinity, B.O.D., C.O.D. Nitrates, Nitrite, Sulphates, Chlorides and Heavy Metals. An average of 250 samples are analysed annually.

◆ **Forensic/Toxicology**

In this section toxicological and forensic analyses are carried out. Also included are Drug Quality Assurance and Drug identification. This section handles the largest number of samples per year, that is, an equivalent of 2000 per annum.

◆ **Instrumentation**

In this section, the major instrumental methods of food analysis is carried, such as the determination of heavy metals and of pesticide residues. The section provides analytical support to the hospital in the monitoring of serum levels of certain drugs. An average of 450 samples is handled each year.

◆ **Equipment**

The laboratory has one of the few capillary column Gas Chromatography in the country (Chrompack GC). It has a state of the art UltraViolet (UV) Spectrophotometer (Shimadzu) , an Atomic Absorption (AA) Spectrophotometer (Solar), a Flame Photometer, a Kjeldahl digestor, Soxhlet extactor, a laminar flow, The laboratory has an establishment of twenty – two team of technical staff with qualifications ranging from diploma to masters in science (see detail under personnel profile).

- (i) ***The counter measures for food poisoning by government organisations in each stage.***
****Each stage means food production (farmers), food processing (factories) and food distribution (retailers).*** Obtainable from the health inspector.
- (ii) ***What are the prevention system for food poisoning and other health hazard by food, in each stage.*** Obtainable from the health inspector.
- (iii) ***Do you have laboratory examinations for domestic/ imported food.***

The National Food and Drugs Control Laboratory based at the UTH complex is the designated institution for laboratory services.

- (iv) ***Please describe how the quarantine system for imported food works***

Mr. Nyirenda CBOH has information on the new modalities in consultation with the Zambia Revenue Authority.

- (v) ***If there are any successful and/ or continuing project in food safety control, please describe the outline of the project and the reasons why the project goes well or not.***

A. Strengthening of Food Control infrastructure in Zambia supported by the Food and Agriculture Organisation (FAO) 1994 –97.

The project's objective was to improve and strengthen the national food quality control capabilities so as to ensure availability of safe ,good, quality, and nutritious food for both domestic and international market.

The project addressed the following issues:-

- -Systems for inspection and sampling of both domestic and imported foods.
- Transportation of samples to the laboratory.
- Inspection of food establishments
- In-plant quality control systems

- Labelling of prepacked foods
- Training of personnel responsible for food quality control and
- Strengthening the monitoring of food products offered for sale.

The project was a successful as it addressed the real issues in practice.

B. Food Safety Control Administration supported by FAO in 1996.

Addressed the following issues:-

- Performance of the Food and Drugs Board
- Management of food control programs
- Examined the Legislation and its administration an activity shared with various actors e.g. The Zambia Revenue Authority, The Ministry of Agriculture (Food and Fisheries Dept.), The Zambia Bureau of Standards, The Ministry of Commerce and Trade, The Local District and City Councils.

The project was successful due commitment by all players.

C. FAO/IAEA – Project “pesticide residue on crops” 1996 -2000

The project was formulated to support the Agriculture Investment Programme aimed at increased food production. The monitoring of the pesticide residue was the responsibility of the Food an Drugs Control Laboratory.

The project did not succeed due to lack of supply of standards and mainly due to lack of co-ordination with the collaborative institutions. However the laboratory received equipment still in use.

D. The UNIDO 2000 project 1999 aimed at strengthening food quality monitoring and Good Manufacturing Practice in food industries. It is progressing very well as the food manufacturers have appreciated the knowledge so far gained.

(vi) *If you have any future plan for food safety control project, please describe them.*

The Free Trade Area (FTA) under the Common Market for Eastern and Southern Africa (COMESA) has sparked a lot of activities in the Food Safety control. The European Union is in support of a quality Management Programme involving food industries to which the lab. Actively participates.

(vii) **Condition of Sanitary structures:**

- **Water supply** Water – the inspectorate of the Ministry of Health, Water and Sanitation Authority and Local Government through their District Councils have information.
- **Sewerage system** - same as above.
- **Solid waste management including animal waste** – Environmental Council of Zambia.

FOOD AND DRUGS CONTROL LABORATORY ACTIVITIES FOR THE YEAR

From the 5 sections of the Laboratory, samples were received and analysed for various components in the samples.

The analyses of the samples indicated that:-

1. 44% of samples analysed microbiologically failed to meet the required standard due to contamination with *E.coli* an indication of bad handling practices. Amongst contaminated grain products *Penicillium spp* was found to be the cause and *vibrios* were isolated from fish received from Lusaka. See Table 1 for details.

Microbiological analysis of water shows that all the 36 samples of treated water received met the basic standards but out of 99 samples of untreated water 44 were found to be unfit for human consumption due to faecal contamination as shown by the presence of *E.coli*. See Table 2 for details.

2. 44% of food samples analysed (ie 156 out of 353) in the laboratory chemically did not conform to the Food and Drugs Regulations and the samples failed because;-

(a) inadequate labelling of products

(b) in dairy products about 40% of the samples were found to have low milk-solids-not-fat as the main deficiency

(c) iodisation of salt is still erratic, in fact most of the salt sold in Zambia is deficient in iodine.

(d) in soft drinks, a lot of them were found to be not properly labelled and most of diet drinks contain unpermitted sweeteners.

(e) in cereal and grain products especially maize meal, high values of alcoholic acidity were found indicating that in some cases rotten or near rotten maize was used in producing the meals.

(f) most of alcoholic drinks consumed in this country were found to have less than stipulated total solids.

See Table 3 for details.

3. (a) 32% of drugs and medicines (pharmaceutical products) submitted for analyses were found to be substandard ie out of 62 drugs samples received 20 were substandard, with about 29 having been expired before they were brought to the laboratory.

(b) For the determination of alcohol in urine/blood samples, out of 328 post-mortem samples received 199 were found to contain alcohol in excess of 100mg%, for disciplinary cases, out of 89 samples received 83 were found to contain some varying amounts of alcohol and out of 39 police cases 36 were found to contain alcohol in excess of 80mg%.

(c) Total number of samples received from Drug Enforcement Commission was 857 out of which 16 were identified as methaqualone(mandrax), 12 as opiates, 4 as coca products, 7 as cathine, 21 as diazepam and 737 as *cannabis sativa*.

(d) 164 serological samples were submitted for choline test from vaginal swabs and for spermazoa, out of these 51 swabs were found with spermazoa and one blood sample for blood typing was done.

(e) A total of 96 poisoning samples were submitted to the laboratory by law enforcement officers and others, out of which 37 samples were found to contain toxic substances; about 26 were due to pesticide poisoning, 11 due to herbal

poisoning. See TABLES 4-8 for details.

from different parts of the country. Amongst the parameters making the water unfit for consumption included water from Chililabombwe which was found with too high levels of metals, other waters being too acidic and some were found to have been deliberately contaminated with pesticides. Ndola and Petauke waters were found to be contaminated with sewage water. See Table 9 for details.

All in all about 44% of food consumed in Zambia may not be up to the required standard going by figures of samples done. For the year 1995 the total number of samples analysed was 3274.

Rehabilitation of the Laboratory

The rehabilitation of the laboratory is now almost complete with the repair and indoor painting of the whole laboratory except for the outside where whitewashing is needed. The renovations of laboratory rooms acquired in Ndola, Solwezi, Mansa and Chipata will be our next project so as to begin analytical work in these areas in our effort to decentralise our operations.

FAO-PROJECT "strengthening food control infrastructure"

Towards the end of the year, 1 consultant visited the laboratory for on-the-spot training of staff in microbiological analysis of samples and the related quality assurance procedures in the laboratory and some equipment were donated to the laboratory. The other consultant in chemical analysis is still being awaited so that the project is completed. As soon as this is in place, a "basket survey" on food contaminants will be initiated since no such work has been done before.

WHO-PROJECT "on street foods"

This project was carried out at the laboratory supervised by consultants from WHO during February, the published results of which are still being awaited.

NORAD-PROJECT "strengthening laboratory capacity on water quality"

Against the background of decentralisation of the food/water quality with special reference to water quality, the Food and Drugs Laboratory with laboratory input support from donor agencies (FAO, NORAD) intends to embark on laboratory decentralisation. For a start, emphasis will be on water quality monitoring in conjunction with sister government ministries. To this end, a tour was conducted to try and inspect/ scout for already existing laboratory facilities in Ndola, Kitwe and Mansa with a view to starting microbiological analysis of water in the near future. Such facilities were identified but will need some renovations. NORAD has already provided some funds for needed equipment.

FAO/IAEA-Project "pesticide residues on crops"

The National Action Plan for increased food production under ASIP will have a special programme on monitoring pesticide residue levels in the harvested parts of crops, in soil and in surface and ground water. For this work in Zambia the Food and Drugs Laboratory has been selected to carry out the needed

work. The laboratory stand to benefit because IAEA has agreed to equip the laboratory with state-of-the-art instruments needed for this work. Technical staff will also be trained in pesticide residue work.

Personnel

During the year, one graduate officer resigned due to problems with non-availability of accommodation and the other was dismissed from service, but luckily these were replaced.

One officer returned back from training in India after successfully completing his Msc program. The Chief Analyst attended a Codex meeting in the Netherlands on pesticide residues in food. Currently staffing level in the department is as follows:-

1 Consultant Analyst; 1 Senior Public analyst; 1 Analyst; 2 assistant analyst; 1 Chief Lab. Technician; 3 Principal Lab. Technician; 5 graduate senior Lab. Technician; 3 non-graduate senior Lab. Technician and 7 Lab. Technician Others are 2 Clerk; 2 Typist; 1 driver; 1 orderly and 11 CDE. Totalling 42. Unfilled posts include: 1 Chief Analytical Chemist; 1 Principal Public Analyst; 1 Senior Public analyst; 2 Pharmacist; 2 assistant analyst and 7 senior Lab. Technician. Total number of vacant posts is 14. From above, it is clear that some senior posts are not filled despite that recommendations were submitted to the Ministry for the posts to be filled. The personnel will be needed especially if the envisaged decentralization of the laboratory is to be effectively implemented.

Constraints

The laboratory is still in dire need of scientific equipment which should include gas chromatographs, spectrophotometers (uv-vis, ir, atomic absorption) and liquid chromatographs among others. The work is being seriously affected by lack of equipment.

Related to lack of equipment is lack of training opportunities for professional staff as the laboratory is multi-disciplinary in approach, the training needs are varied. Urgently needed are cadres trained in food microbiology, forensic science, toxicology, pharmaceutical analysis, analytical chemistry and water analysis. Posts already exist and decentralization must be done soon.

The problem of housing the staff at the laboratory has been highlighted every year but to no avail, may I once more appeal to the Ministry to help the laboratory in any way possible, because the inertia is costing the department heavily in terms of staff morale, departmental integrity and so on.

The department needs vehicles for easy movements to and fro courts of law for Public analysts and travel to various parts of the country for on the spot analysis of such samples as cannabis and other samples in connection with DEC cases. At the same time, the department faces difficulties in getting subsistence allowances for Public analysts and other analysts when they have to travel at short notice to attend to urgent cases, can the process be streamlined so that within a day payment can be effected?

Observations

The total number of samples received and analysed during the year did increase compared to the previous year, but more work can be done in the laboratory if the necessary training and equipment are made available. The laboratory still does not receive enough samples from "authorised officers" despite the

obvious substandard products seen on the market. In addition, the "authorised officers" are not carrying out their role of getting rid of products certified to be substandard or contravening the regulations.

It has been observed that the ministry takes too long to respond to queries and other matters raised from the department especially regarding personnel matters such as promotions, disciplinary cases and related issues. Can improvements be instituted for easy administration of departments.

May I thank the ministry for the support received during the year which enabled the department to carry out some analytical work.

1996 PROGRAMME OF ACTION

TASK	OBJECTIVES	DURATION
1. Project on pesticide monitoring sponsored by IAEA started	To find out the level of pesticide in selected crops	Jan- Dec
2. Project on strengthening lab. infrastructure sponsored by FAO	Improvement of lab. performance by provision of equipment and training	1 month, June
3. A market basket survey started	To estimate the levels of contaminants in foods	May-December
4. Setting up satellite labs. on water testing sponsored by NORAD	Improvement on water quality surveillance	Jan-May
5. Seminar on food and drugs analysis	To expose lab. facilities to the nation	2 days

FUNCTIONAL RELATIONSHIP OF THE HEALTH DELIVERY SYSTEM

