



PAN AMERICAN HEALTH ORGANIZATION - PAHO
WORLD HEALTH ORGANIZATION – WHO

INPPAZ

LATIN AMERICAN TOTAL DIET STUDY WORKSHOP

8 – 13 July 2002 , Buenos Aires – Argentina

CONTENTS

<i>Introduction</i>	3
<i>The Workshop</i>	4
<i>Recommendations</i>	4
<i>Annex 1: Agenda</i>	7
<i>Annex 2: List of Participants</i>	11
<i>Annex 3: Prospectus for Regional Total Diet Studies - Assessing Risks of Chemical Hazards in the Food Supply in Countries of the Americas</i>	15
<i>Annex 4: Participants' evaluation of the workshop</i>	19

Latin American Total Diet Study Workshop

8 – 13 July 2002, Buenos Aires - Argentina

Introduction

The total number of chemicals on the market now stands close to 100,000. Out of thousands of chemicals that are produced experimentally each year, one thousand eventually make it onto the market. Many of these chemicals can reach the food supply. In addition, many toxic chemicals occur naturally in food or in the environment. These chemicals can potentially affect all major organs of the body, causing serious health outcomes like cancer, birth defects, and brain damage. Despite this, little attention has been given to assessing the actual dietary intake of these chemicals by humans. One reason is that most of the potential effects of these chemicals are chronic in nature, appearing often years after exposure, and thus cannot be traced to individual foods.

For that reason, it is becoming increasingly important to assess human exposure to background concentrations of a large number of chemicals. The responsibility and obligation to make these assessments usually rests with national health authorities.

To ensure that toxic chemicals, such as pesticides, heavy metals, environmental contaminants and naturally occurring toxins, are not present in foods at levels that adversely affect the health of consumers, two complementary approaches are used. The first is to monitor individual foods for compliance with national and international regulatory standards. The second one is to measure the actual dietary consumption intake of these chemicals by the population, and compare these intakes with toxicological references points, such as the Acceptable Daily Intake (ADI) or Provisional Tolerable Weekly Intake (PTWI). These comparisons provide a direct link to the health of the population, and total diet studies are the most cost-effective and reliable way to estimate the dietary intake of exposure to toxicants by large population groups. Therefore, total diet studies are essential to answer the fundamental question of whether or not the national diet is safe.

A total diet study (TDS) consists of purchasing foods commonly consumed, processing them as for consumption, combining the foods into food composites or aggregates, homogenizing them, and analysing them for toxic chemicals. The analytical results are then combined with food intake consumption information for different population groups, and the dietary intakes of the chemicals by the groups are estimated.

Additionally, the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) of the World Trade Organization requires that health and safety requirements related to food be based on scientific risk assessments. Risk assessments are based on two essential components: toxicological information and exposure of the population to the chemical. As mentioned above, the latter is most accurately obtained for large population groups using total diet studies. Total diet studies in developing and industrialized countries are necessary to perform risk assessments and ensure that their food safety systems are effective in protecting the public health.

The Workshop

The one-week workshop took place at INPPAZ premises and was sponsored by INPPAZ in cooperation with WHO-GEMS/Food. It emphasized methodological aspects of TDS and the model for developing countries that had been introduced at the Second International TDS Workshop in Brisbane, Australia, February 2002. Contents of the workshop were focused on design, organizational aspects and data analysis for total diet study, excluding laboratory issues, such as details of analytical methodologies.

In brief, objectives of workshop were:

- To introduce the concept of total diet studies as a cost-effective approach for assessing dietary exposure to chemical contaminants and nutrients;
- To provide an overview of the design, organization, and implementation of total diet studies; and
- To develop skills in using data management tools for food contaminants and nutrients.

Several institutions of the Americas' Region were financed, namely those that are interested to implement TDS and that have accepted the commitment to do it.

The agenda of the workshop is presented in *Annex 1*.

Instructors

Dr. Gerald Moy, GEMS/Food Manager - WHO, Geneva

Dr. Richard Vannoort, Institute of Environmental Science and Research, New Zealand

Mr. Lawrence Grant, WHO Consultant

General Co-ordination

Lic. Jorge E. Torroba, Reference Services Officer – INPPAZ / PAHO-WHO

Countries and Participants

The workshop was attended by 19 participants from 9 countries: Argentina (9), Brazil (3), Chile (1), Costa Rica (1), Guatemala (1), Mexico (1), Paraguay (1), Uruguay (1) and Venezuela (1). A list of participants is presented in *Annex 2*.

Recommendations

Workshop participants adopted the following recommendations for consideration by national authorities and all interested parties:

1. In recognition of the importance to public health and trade of national exposure assessments of chemicals, including nutrients, in the food supply, all countries in Latin America should consider undertaking total diet studies.
2. To promote awareness and support for total diets studies, policy and decision-makers should be advised of the usefulness and cost-effectiveness of total diet studies. In particular, total diet studies should be brought to the attention of the Pan American Commission on Food Safety.
3. INPPAZ, in co-operation with WHO GEMS/Food, should develop a Regional Total Diet Study Proposal and facilitate possible funding and support.
4. INPPAZ, in co-ordination with other official institutions, should encourage Ministries of Health in all Member States to consider total diet studies and ascertain their interest in participating in Regional Total Diet Studies.
5. Institutions represented at the Workshop should disseminate the concept of total diet studies to other relevant national experts and agencies that could assist in the implementation of total diet studies in their countries.
6. The proposed expansion of the existing five GEMS/Food Regional Diets to thirteen GEMS/Food Consumption Cluster Diets should be reviewed by Member States to assure that these new diets reflect the food consumption patterns in the different Latin American countries.
7. All countries of Latin America with relevant food contamination monitoring data should submit such data to the GEMS/Food database using the electronic reporting protocol, i.e. OPAL format.
8. INPPAZ should establish a total diet study discussion forum on its FS World Web site for the exchange of information and views in order to promote the development of total diet studies in the Americas. Experts and interested parties should be encouraged to actively participate in this forum. WHO GEMS/Food should add all Workshop participants to the existing global total diet e-mail discussion forum.

A Prospectus

The participants agreed upon a prospectus for assessing risks of chemical hazards in the food supply in countries of the Americas. It is presented in *Annex 3*.

Workshop Adjourn

Closing remarks of Dr. Almeida and Dr. Moy thanked participants for their enthusiasm and contributions, and they expressed the hope that total diet studies would become reality in Latin American countries. They noted that this would require the joint efforts of participants and other involved sectors as well as the collaboration of INPPAZ in co-operation with WHO GEMS/Food.

Finally Dr. Almeida, Dr. Moy and Mr. Grant distributed to participants the workshop certificates and CD-ROM¹ with teaching material used during the workshop. In addition, participants received copies of OPAL I, II and III in English, French and Spanish as well as reference and support materials on a CD-ROM.

A participants' evaluation of the workshop is presented in *Annex 4*.

Persons interested in obtaining further information should contact: Lic. Jorge Torroba, INPPAZ, Martinez, Argentina (tel. 54-11-5789-4000; fax. 54-11-5789-4013; email. torrobaj@inppaz.ops-oms.org).

¹ It is available on INPPAZ website at: <http://www.panalimentos.org> / Servicios de Referencia / Documentos.

Annex 1

Agenda

Monday – 8 July

Registration

9:00-9:30

Welcome and Introductions

9:30-10:00

National Authorities of Argentina (Ministry of Health / Secretary of Agriculture)

World Health Organization - Dr. Gerald Moy, WHO, Geneva

INPPAZ, Chief of Technical Cooperation - Dr. Enrique Pérez Gutiérrez , on behalf Dr. Claudio R. Almeida – Director INPPAZ.

Introduction of participants

10:00-10:30

Objectives and Structure of Training Course – Dr. Enrique Perez & Lic. Jorge Torroba, INPPAZ.

10:30-11:15

Current Status of GEMS/Food – Dr. Gerald Moy, WHO, Geneva

11:15-12:00

Lunch

12:00-13:30

Where to Start with a Total Diet Study - Dr Richard Vannoort, Institute of Environmental Science and Research, New Zealand

13:30-15:00

Break

15:00-15:30

TDS Project Timeline - Getting started tutorial - Dr. Richard Vannoort, Institute of Environmental Science and Research, New Zealand

15:30-16:30

Questions & Answers

16:30-17:00

Informal Reception - All participants

17:15-19:15

Tuesday - 9 July

Standard Operation Procedures (SOPs) for a Total Diet Study - Dr Richard Vannoort, Institute of Environmental Science and Research, New Zealand

9:00 - 10:00

Foods Consumption Data Using GEMS/Food Diets - Dr Gerald Moy, WHO, Geneva

10:00-10:45

Break - 10:45-11:15

Developing a Food List for a Total Diet Study - Dr Richard Vannoort, Institute of Environmental Science and Research, New Zealand

11:15-12:00

Lunch- 12:00-13:30

Exercise to Develop a Total Diet Study Food List - Working in Groups

13:30 – 15.00



Break

15:00 – 15:30



Exercise to Develop a Total Diet Study Food List (continued)- Working in Groups

15:30 – 17:00

Wednesday - 10 July

Sampling – General Issues - Dr Richard Vannoort, Institute of Environmental Science and Research, New Zealand

9:00 – 9:45



Exercise to Develop Sampling Plan - Working in Groups

9.45 – 10.30

Break - 10:30-11:00

Exercise to Develop Sampling Plan (continued)- Working in Groups

11:00 – 12:00



Lunch 12:00-13:30

Sample Preparation - General Issues - Dr Richard Vannoort, Institute of Environmental Science and Research, New Zealand

13:30 – 14:30

Questions & Answers

14:30 – 15:00

Break

15:00 – 15:30

Quality Assurance and Key Issues in Analysis - Dr Richard Vannoort, Institute of Environmental Science and Research, New Zealand

15:30 – 16:30

Exercise in Quality Assurance for Total Diet Study Analyses - Working in Groups

16:30 – 17:00

Thursday – 11 July

Exercise in Quality Assurance for Total Diet Study Analyses (continued)- Working in Groups

9:00 – 10:00

Break

10:00 – 10:30

Exercise to Develop a Total Diet Study - Working in Groups

10:30 – 12:00

Lunch 12:00-13:30

Laboratory Issues – Field visit

14:30 – 17:00

Friday – 12 July

Exposure Estimates – Options - Dr. Richard Vannoort, Institute of Environmental Science and Research, New Zealand

09:00 –10:00

Break

10:00 - 10:30

Exposure Estimates – Getting started tutorial - Dr. Richard Vannoort, Institute of Environmental Science and Research, New Zealand

10:30 - 11:00

Internet and Information Resources - Mr. Lawrence Grant, WHO Consultant

11:00 - 12:00

Lunch

12:00 –13:30

Exercise to Develop Exposure Estimates - Working in Groups
13:30 – 15:00

Break
15:00 – 15:30

The New Zealand Total Diet Survey - Risk Assessment, Management and Communication – Dr
Richard Vannoort, Institute of Environmental Science and Research, New Zealand
15:30 – 16:30

Prospectus for Regional Total Diet Studies - Dr Gerald Moy, WHO, Geneva
16:30 – 17:30

Saturday - 13 July

Data Collection and Collation Using GEMS/Food Programs – Mr. Lawrence Grant, WHO
Consultant

Hands-on tutorial of:

- OPAL I (aggregate contaminant/commodity database)
- OPAL II (contaminants in the total diet database)
- OPAL III (data structure for individual contaminant/commodity database)
- SIGHT (Summary Information on Global Health Trends)

9:00 - 12:30

Break
12:30 – 13:00

Final Discussion and Recommendations
13:00 – 14:30

Course Evaluation
14:30 - 14:45

Closing Remarks
14:45 - 15:00

List of Participants

BOLAÑOS STANLEY, Adolfo
Dictaminador Sanitario
Comisión Federal para la Protección
contra Riesgos a la Salud
Donceles N° 39 Centro
México D.F. - 06010
México
Tel.: 52-55-5510-1005 ext. 206
Fax: 52-55-5512-9628
e-mail: adbos56@hotmail.com
www.ssa.gob.mx/digcspys

de AQUINO SERAFIN, Patricia
Nutricionista
Instituto Nacional de Alimentación y
Nutrición - INAN
Trinidad c/ Itapua - Asunción
Paraguay
Tel: -595-21-206-874
Fax: 595-21-206-874
Cel: 0981-556255
e-mail: inanpy@pla.net.py
pattyboop@hotmail.com

GONÇALVES, Lidia Nunes
Enfermeira
Agencia Nacional de Vigilancia Sanitaria
ANVISA
SQN 315 Bl I – Apto 503
Tel: 55-61-448-1082
Fax: 55-61-448-1076
e-mail: lidia.nunes@anvisa.gov.br

GRANT, Lawrence
GEMS FOOD Consultant
World Health Organization
6 rue Henri Mussard,
1208 - Ginebra

Suiza
Tel: +41-22-736-6280
e-mail: grantl@infomaniak.com

HERWIG, Graciela
Nutricionista
Técnico Departamento de Nutrición
Ministerio de Salud Pública
18 de Julio 1892 – 4° piso Anexo A
Montevideo
Uruguay
Tel: 598-2- 408-8429
Fax: 598-2- 408-8429
Cel: 598-2-9446-1911
e-mail: nutrición@msp.uy
milla@adinet.com.uy

LAINO, Eliana Jazmín Andrea
Bioquímica
Instituto Nacional de Alimentos
Estados Unidos 25
Argentina
Tel: 54-11-4340-0800 (ext. 3513/3514)
Fax: 54-11-4340-0800 (ext.3514)
e-mail: jazminlaino@yahoo.com
jazminlaino@hotmail.com

LOPEZ, Claudia
Profesional Analista de Laboratorio
Instituto Nacional de Alimentos
Estados Unidos 25
Argentina
Tel: 54-11-4340-0800 (ext. 3522/3520/3521)
Fax: 54-11-4340-0800 (ext.3522)
e-mail: clopez@anmat.gov.ar
clopez@web-mail.com.ar

LUCAS, Enedina

Químico-Farmacéutico
Sección Química de Alimentos
Instituto de Salud Pública de Chile
Av. Marathon 1000 – Santiago
Chile

Tel: 56-2-350-7372

Fax: 56-2-350-7589

e-mail: elucas@ispch.cl

www.ispch.cl

MORAN, Norberto

Asesor en Inocuidad de Alimentos
INPPAZ-OPS/OMS

Talcahuano 1660 – Martínez

Argentina

Tel: 54-11-5789-4026

Fax: 54-11-5789-4013

e-mail: moranorb@inppaz.ops-oms.org

www.panalimentos.org

MOY, Gerald

GEMS/Food Manager
World Health Organization
20, Ave. Appia
CH – 1211 – Geneva 27
Switzerland

Tel: +41-22-791-3696

Fax: +41-22-791-4807

e-mail: moyg@who.int

www.int/fsf

MUSTACCILO, Alba

Ingeniera Agrónoma
Management Ambiental de la
Oficina Toxicología y Residuos
Dirección de Agroquímicos,
Productos Farmacológicos y Veterinarios
SENASA

Av. Belgrano 174 0 3° piso

Argentina

Tel: 54-11-4483-5308

Fax: 54-11-4483-5308

e-mail: jehleamar@yahoo.com.ar

NASSETTA, Mirtha

Investigador Científico
Responsable Laboratorio de
Plaguicidas

Agencia Córdoba Ciencia

CEPROCOR

Arenales 230 – Barrio Juniors

Córdoba

Tel.: 54-3541-489-651 (ext. 119)

Cel: 54-351-155-324-534

e-mail: nassetta@ceprocor.uncor.edu

mnassetta@yahoo.com

www.agenciacordobaciencia.cba.gov.ar

PUENTES, Alberto José

Coordinador del CREHA

SENASA

Paseo Colón 367 – 8° p - Frente

Argentina

Tel: 54-11-4343-6536 / 0531

Fax: 54-11-4343-6536/0351

e-mail: crehasenasa@yahoo.com.ar

www.senasa.gov.ar

REIS, Fabiana

Gerente Ejecutiva

Agencia Nacional de Vigilancia

Sanitaria – ANVISA

SEPN 515, Bloco B

Edificio Omega – 3° piso

Brasilia D.F. – 70770-502

Brasil

Tel.: 55-61-448-1116

Fax: 55-61-448-1080

e-mail: fabiana.reis@anvisa.gov.br

www.anvisa.gov.br

RESNIK, Silvia Liliana

Profesor Titular

Investigador Principal

Comisión Investigaciones Científicas

Universidad de Buenos Aires

Departamento de Industrias

Ciudad Unviersitaria

Buenos Aires
Argentina
Tel: 54-11-4576-3366
Fax: 54-11-4576-3366
Cel: 54-11-15-4419-9513
e-mail: resnik@di.fcen.uba.ar
sresnik@cvtci.com.ar

SABINO, Myrna

Jefe, Investigador Científico
Instituto Adolfo Lutz
Av. Dr. Arnaldo 355
Sao Paulo – CEP 01246-902
Brasil
Tel.: 55-11-3068-2921
Fax: 55-11-3085-3505
e-mail: mysabino@ial.sp.gov.br
www.ial.sp.gov.br

SAGASTUME CORDON, Manuel de Jesús

Epidemiólogo, Responsable ETAS
Intoxicación por Plaguicidas
Epidemiología, Ministerio de Salud
9 Av. 14-65, Zona 1
Guatemala City
Guatemala
Tel: 502-253-0029 / 251-8903
Fax: 502-253-0029
Cel: 502-703-1417
e-mail: vigepi@ops.org.gt
colgua@internetdetelgua.com.ge

TORRES LEEDHAM, Verónica María

Director de Laboratorios y Control Técnico
SENASA
Fleming 1653 – Martínez
Argentina
Tel: 54-11-4836-0066
Fax: 54-11-4836-0066
Cel: 54-11-15-5118-9089
e-mail: dilab@inea.com.ar
apac@arnet.com.ar
www.senasa.gov.ar

TORROBA, Jorge

Oficial de Servicios de Referencia
INPPAZ-OPS/OMS
Talcahuano 1660 – Martínez
Argentina
Tel: 54-11-5789-4023
Fax: 54-11-5789-4013
e-mail: torrobaj@inppaz.ops-oms.org
www.panalimentos.org

UREÑA VARGAS, Marisol

Profesora y Coordinadora de
Docencia
Escuela de Nutrición
Universidad de Costa Rica
De la UNED en Sabanilla, 200 m este,
100 sur y 100 oeste
Tel: 506-207-3043 / 262-3714
Fax: 506-207-3044 / 224-1427
Cel: 506-398-6180
e-mail: marisolure@yahoo.com

VANNOORT, Richard

Food Safety Scientist
NZ Total Diet Study Leader
Institute of Environmental Science
and Research (ESR)
Christchurch Science Centre
27 Creyke Road, Ilan
Christchurch
New Zealand
Tel: +64-3-351-6019 (Directo: +64-3-351-
0038)
Fax: +64-3-351-0010
e-mail: richard.vannoort@esr.cri.nz
www.esr.co.nz

VILLAAMIL LEPORI, Edda

Profesor a cargo
Cátedra de Toxicología y Química Legal
Facultad de Farmacia y Bioquímica
Universidad de Buenos Aires
Junín 956 – (1113) Buenos Aires
Argentina

Tel: 54-11-4964-8283/4
Fax: 54-11-4964-8283/4
e-mail: evillaam@ffyb.uba.ar

ZAMBRANO, Alicia
Farmacéutica
Instituto Nacional de Higiene
"Rafael Rangel"
Universidad Central de Venezuela

Los Chaguaramos
Caracas
Venezuela
Tel: 58-212-693-2863 / 372-2358
Fax: 58-212-662-4797
Cel: 58-212-416-818-9701
e-mail: inhrr2@reacciun.ve
alizam21@yahoo.com

Prospectus for Regional Total Diet Studies Assessing Risks of Chemical Hazards in the Food Supply in Countries of the Americas

Need

Under the World Trade Organization's Agreement on Sanitary and Phytosanitary Measures (SPS Agreement), all health and safety requirements for food must be based on sound scientific risk assessment. If a country's food safety regulations are not based on such assessments, these may be challenged as non-tariff barriers to trade under WTO rules. Consequently, a country's ability to conduct risk assessments is not only important for assuring market access, but also for establishing domestic legislation, which complies with the SPS Agreement.

The SPS Agreement also recognizes the standards, guidelines and other recommendations of the Codex Alimentarius Commission as meeting WTO rules in that they are assumed to be based on risk assessment and meet other requirements, such as transparency and consistency. For Codex, such risk assessments are performed by JECFA² and JMPR³ and employ estimates of exposure based on data submitted by countries. Therefore, countries must have exposure assessment data in order for JECFA and JMPR to consider such data when formulating their recommendations. Subsequently, these recommendations form the basis for standards, guidelines and other recommendations of Codex. Therefore, without such data, countries in the Americas are often not in a position to influence the development of international standards, which may impact on their trade and domestic legislation.

From a health perspective, developing countries without this data cannot identify their priority food safety problems for risk management interventions. Such interventions are essential for protecting public health and promoting consumer confidence in the safety of the food supply. The need to develop capacities for exposure assessment has also been recognized by many international organizations, such as WHO, FAO, WTO and UNEP⁴ as well as Codex itself. Assistance for building such capacities has been recommended by several international and regional conferences, including the FAO Conference on International Food Trade Beyond 2000 and more recently, the WHO Global Strategy on Food Safety⁵. Total diet studies are also useful for assessing dietary intake of certain nutrients which may be of public health significance. This includes nutrients, such as sodium and fluoride, where over-consumption is a concern.

Approach

² Joint FAO/WHO Expert Committee on Food Additives, which also evaluates food contaminants.

³ Joint FAO/WHO Meeting on Pesticide Residues

⁴ The United Nations Development Program is the Secretariat for the Convention on Persistent Organic Pollutants signed in Stockholm in May 2001, which involves several major food contaminants.

⁵ The Strategy was requested by a resolution of the WHO World Health Assembly in May 2000 and was endorsed by the WHO Executive Board in January 2002 (see who.int/fsf).

The most cost-effective and internationally endorsed approach towards building capacities that enables developing countries to conduct risk assessments for chemical agents in food is the total diet study.(TDS). Initially, it is proposed that such studies be organized on a regional basis to promote cooperation and collaboration among developing countries and to take advantage of efficiency savings. Such an approach would be centred on a Master TDS Manual that co-ordinates and details procedures, methods, materials and activities to obtain exposure data and information on levels of chemicals in specific foods and groups of food in the various countries. The Master TDS Manual would incorporate extensive WHO GEMS/Food⁶ documentation on these subjects as well as those from other international and national sources, but would be tailored to the needs and conditions of each country.

Based on the Master Manual, total diet studies would be implemented with the assistance of the World Health Organization, which has experience in total diet studies and the specific areas of food consumption, sampling and analysis of food and exposure assessment. To assure quality and comparability of results, the analysis of food samples would be conducted at designated facilities, which have met specific performance criteria for contaminants and foods. Centralized analyses would minimize large investment for training and new equipment purchases, strengthen existing laboratory infrastructure, assure comparability of results and offer cost efficiencies. It is anticipated that, with the completion of this project, the participating developing countries would be better able to undertake further total diet studies as well as specialized studies of identified food safety problems on a sustainable basis.

Outcome

The data generated in countries would serve as a basis for national exposure assessments and thus, risk assessments for evaluating the safety of the food supply and for setting priorities for country activities in food safety. These could be used for the development of specific inspectional and laboratory capacities to address significant public health concerns.. Regarding nutrients, total diet study data can be used to identify or confirm potential health problems and to monitor their status over time. This data may also be used for the development of national food safety standards and will allow the country to effectively participate in the work of the Codex Alimentarius Commission and its subsidiary bodies and in international trade negotiations conducted under the auspices of WTO

Proposal

The World Health Organization has identified a number of developing countries in the Americas interested in undertaking regional total diet studies in line with the approach described above. WHO has organized a series of international and regional workshops on total diet studies. This includes a special international total diet study workshop that was convened 8-13 July 2002 by INPPAZ⁷ in Buenos Aires. Regionally organized total diet studies are designed to:

⁶ Global Environment Monitoring System / Food Contamination Monitoring and Assessment Programme

⁷ INPPAZ is the Pan American Institute for Food Safety and Zoonosis established in Buenos Aires under auspices of the Pan American Health Organization and World Health Organization.

- assess chemical status of the food supply
- indicate any potential exposure concerns
- demonstrate trends in dietary exposure
- measure the effectiveness of risk management interventions
- provide concrete scientific evidence to consumers and policy makers regarding the safety of the food supply
- provide the risk assessment basis for national food safety legislation, international standard setting, i.e. Codex, and trade negotiations, e.g. WTO.

While the total diet studies will be specific for each country, several efficiency savings are envisioned through a regional approach, including training, equipment and analyses. Several regional meetings will be undertaken to harmonize the development of Master TDS Manuals in countries. In particular, contaminants and food lists will be promoted, while recognizing that individual needs must also be taken into account. The main activities of the regionally organized total diet studies are given below.

Main Activities

- Organizational meeting for TDS Coordinators from each participating country
- Development of harmonized Master TDS Manuals
 - Food consumption - data acquisition, handling and storage
 - Selection of priority contaminants
 - Selection of priority foods
 - Development of sampling plans
 - Standardize procedures for sample preparation
 - Selection of methods and limits of determination
- Food consumption data acquisition, handling and storage
- Conduct performance evaluation and designation of laboratories
- Conduct system pre-test
- Acquire data and evaluate, i.e. generation of raw data
- Conduct statistical assessment
- Conduct exposure assessment using appropriate food consumption data
- Interpretive report, including risk characterization
- Peer review and consultation with governments
- Final report

Budget

The costs for these regional total diet studies are based on per country basis assuming that at least 5 countries are participating as follows:

<u>Activity</u>	<u>Cost in US\$</u>
Development of Master TDS Manual	25 000
Acquisition of food consumption data	100 000

Sample acquisition and preparation	50 000
Analysis and quality assurance	175 000
Data handling and statistics	25 000
Exposure assessment and risk characterization	10 000
Report preparation	15 000
Sub-total	US\$400 000
Project planning and management (15%)	60 000
Total cost per country	US\$460 000

Discussions are under way with the multilateral and bilateral donors to support these studies. Persons interested in obtaining further information should contact: Lic. Jorge Torroba, INPPAZ, Martinez, Argentina (tel. 54-11-5789-4000; fax. 54-11-5789-4013; email. torrobaj@inppaz.ops-oms.org)

- d. fair: (0)
- e. deficient: (0)

6. What other subjects do you consider that should be included in the program ?

.....

7. How would you qualify the quality of the presentations ?

- a. excellent: xxxxxxxxxxxxxxxxxxxx (15)
- b. good: x (1)
- c. fair: (0)
- d. poor: (0)

8. Which of the subjects do you consider that have to be excluded?

.....

9. Which of the subjects do you consider that have to be treated more in deep ?

.....

10. For your current work, the adquired knoledge during the workshop will be :

- a. very useful: xxxxxxxxxxxxxxxxxxxx (14)
- b. useful: xxx (3)
- c. a little useful: (0)
- d. useless: (0)

11. You consider that cooperation of inppaz-paho/who for implementing tds activities will be:

- a. very necessary: xxxxxxxxxxxxxxxxxxxx (15)
- b. necessary: xx (2)
- c. a little necessary: (0)
- d. unnecessary: (0)

12. Which do you consider the main needs for the cooperation of inppaz-paho/who order to support the development of your work ?

...Inform of TDS advantages to decision-makers / government high levels.....
...Co-ordination and funding to operative levels.....

13. In your opinion which is the quality of the teaching materials used during the workshop ?

- a. excellent : xxxxxxxxxx (9)
- b. very good: xxxxxxxxx (8)
- c. good: (0)
- d. fair: (0)
- e. deficient: (0)

14. In your opinion, the general coordination of the workshop was:

- a. excellent : xxxxxxxxxxxx (10)
- b. very good: xxxxxxxx (7)
- c. good: (0)
- d. fair: (0)
- e. deficient: (0)

15. Please give your suggestions in order to improve the organization and development of upcoming workshops:

...More exercises – Implement a training course about methods for diet estimation