



Final Report

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Chile

Risk Assessment and Monitoring for Environmental Chemicals

February 14 - August 21, 2005



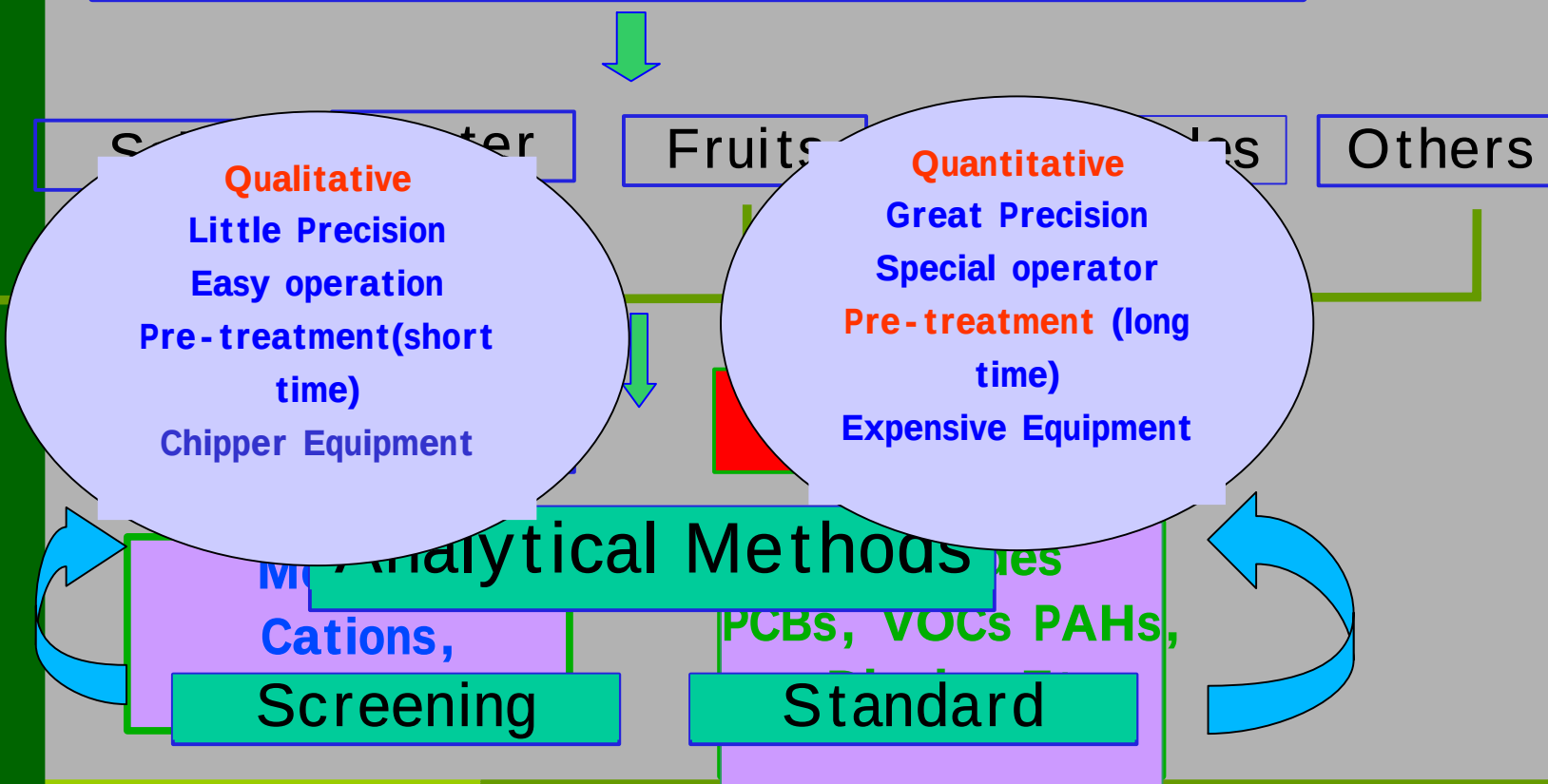


Objectives Training Course

- To learn about risk assessment technology for environmental contaminants and their impacts on human health and ecosystem.
- To learn about the principles and techniques used for monitoring environmental chemicals detected in environmental resources and agricultural products.
- To gain analytical techniques and skills in instruments, immunoassay and bioassay methods.

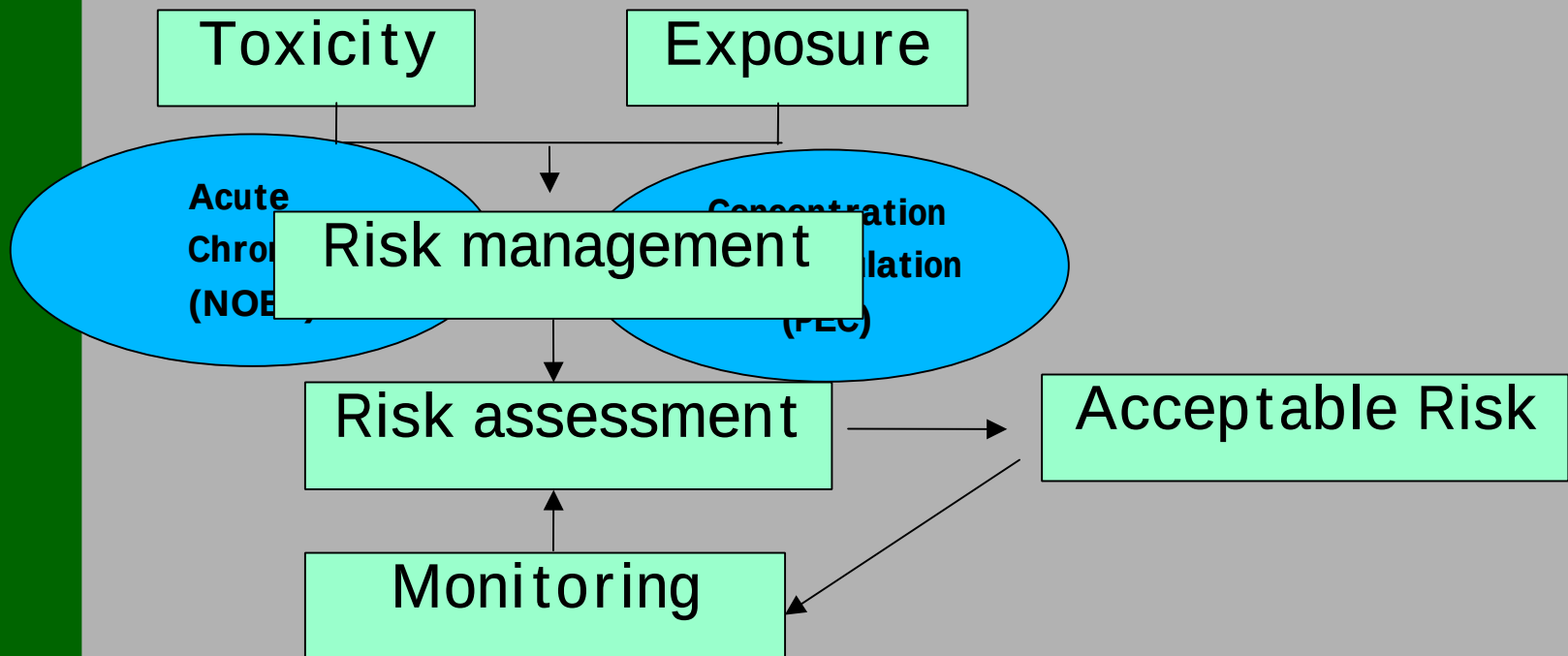
General Scheme

Monitoring for environmental Chemicals



Flow Scheme

Environmental Risk Assessment



List of training subjects that I found interesting in this training course.

- The basic risk assessment and monitoring of environmental Chemicals.
- Chemistry of environmental chemicals.
- Ecological Risk assessment of environmental contaminants.
- Soil environment and environmental soil contaminants.
- Risk assessment of pesticides and other chemicals for human health.
- Industrial pollution in Japan.
- Endocrine Disrupting chemicals.
- Dioxins.

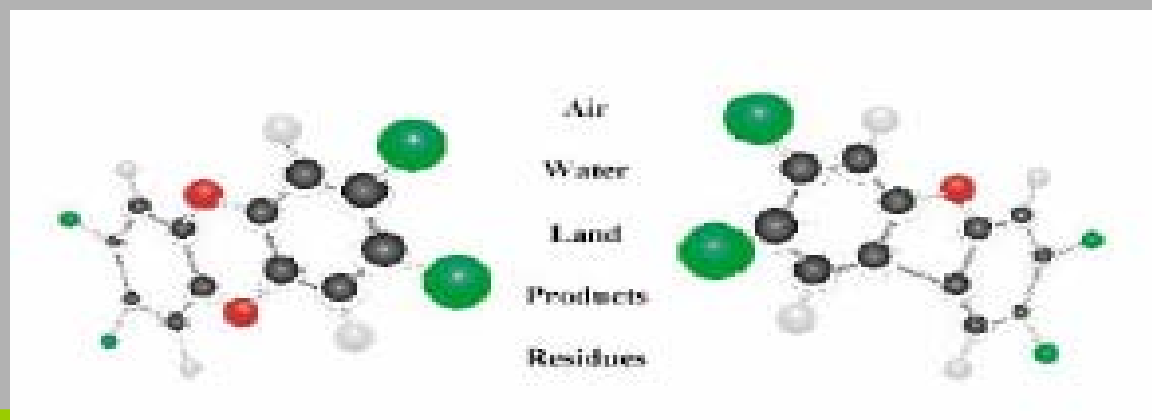
List of training subjects that I found interesting in this training course (cont.).

Analytical techniques.

- Influence of agricultural chemical on soil micro organism biomass using ATP and dilution plating techniques methods.
- Immunoassay ELISA (Enzyme-Linked immunosorbent Assay).
- Simultaneous analysis Method for fruits and vegetables.
- Simultaneous analysis Method for cereals, beans and seeds.

(Project proposal)

Implementation, analytical validation of methodology for quantification of Dioxins and monitoring in river Cruces in water and sediments.



Introduction

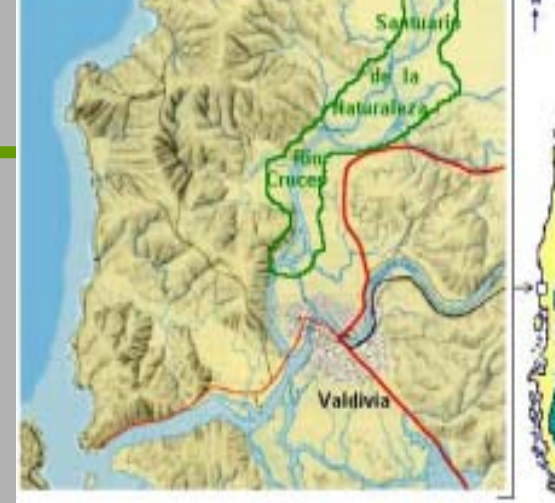
Chile ratify the Stockholm convention in January of 2005 after it to have subscribed year 2001, getting up itself now to the 97 more conscious nations of the planet, when committing itself globally to take measures to eliminate certain Persistent Organic Polluting denominated substances chemical poisonous (COPs).

The action plan is developed taking into account:

- Does not exist much information available in relation to COPs in the South hemisphere and in Chile.
- The contamination by COPs (dioxins and Furans) recently is studied and included in Chile.
- Necessity of an historical perspective to the contamination.
- Necessity to identify sources and levels (anthropogenic processes v/s natural liberations).
- Necessity of national and international cooperation.



River Cruces, Chile



Massive death of black-necked swans at the River Cruces Nature Sanctuary located in southern Chile, caused a great impact on the public at a national and international level. This problem may be caused by starvation and poisoning of these birds due to water pollution.





Activity Schedule (Phase I)

N	Characteristic	Activity	Date
1	Presentation of the project to CENMA	Presentation of project proposal and objectives	October 2005
2	Generation of Information	Protocols, methods, sampling techniques, materials, election of standards dioxins, etc Generation of information of standards international of concentrations of Dioxins.	November 2005 (2 week)
3	Analytical implementation of methodology	Development methodology (election method and criterion of quantification)	November 2005 (2 week)
4	Validation Method Quality assurance (ISO 17025) (*)	Determination of detection limit, repeatability, reproducibility, recovery and exactitude.	December 2005 (4 week)

Activity Schedule (Phase II)

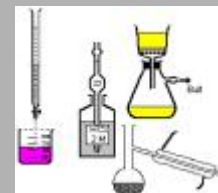


N	Characteristic		Date
1		Elaboration of sampling plan (definition of monitoring points, materials, etc).	January 2006
2	Chemical analysis	Pre-treatment, Clean up and quantification	February - March 2006
3	Evaluation of Results	Criterion of interpretation of matrix concentration, Comparison of international results with standards of Dioxins concentration.	April 2006

Activity Schedule (Phase III)

N	Characteristic	Activity	Date
1	Evaluation of the action plan effectiveness.	To characterize the pollution levels from study of contamination sources in the place of the taken samples, data analysis, etc.	October 2006
2	Final Report	Presentation Final report and (conclusions recommendations)	September 2006

Methodology for Analytical Techniques.



Sampling



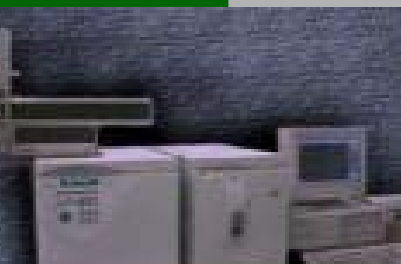
Extraction



Clean Up



Quantification
GC - MS



Materials, equipment, professionals and proposed budget.

N	Reagents - materials - equipment- professionals		Budget estimates
1	Materials: Vials, glasses, pipettes, soxhlet apparatus and others.		US \$ 3000
2	Reagents	Organics solvent	US \$ 500
		Standards Dioxins (2) for Calibration curve and Quality control.	US \$ 2000
		Chemical reagents	US \$ 300
3	Equipment	GC-MS (depreciation)	??
		Equipment for sampling	??
		High resolution or GC - MS	
		Chromatography column	US \$ 2000
		Inlet, ring, Gases, others.	US \$ 500
4	Professionals	1 professionals for analysis	??
		1 Officers collecting samples	??
		1 professional from Japan for support	
5	Others	Sampling ,Transports, etc.	??

Acknowledgments



- Hyogo Prefectural Institute of Public Health and environmental sciences.
- Hyogo prefectual technology Center for Agriculture, forestry and fisheries.
- Kobe Quarantine Station.
- Hyogo prefecture Goverment.
- Hyogo prefecture Environmental



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Acknowledgments



- **THANK YOU VERY MUCH to JICA to give us more opportunity for learning the Japanese culture, life and philosophy. Arigato**