



# Guidelines for the Sampling and Pre-treatment of National Samples within the UNEP Capacity Building Project 2016- 2019

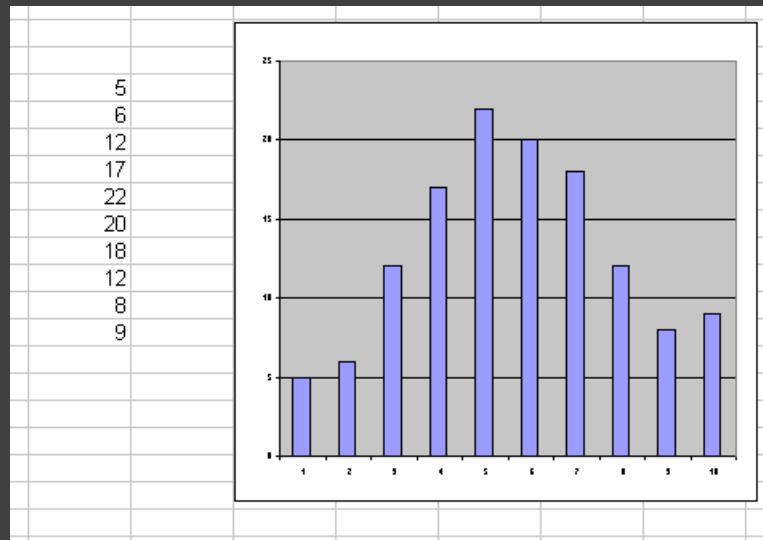
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# Objectives

1. Identify and understand possible differences between the analytical methods for persistent organic pollutants (POPs) used in the participating countries and the reference laboratories
2. In addition: gather information on levels and geographical trends of POPs per continent

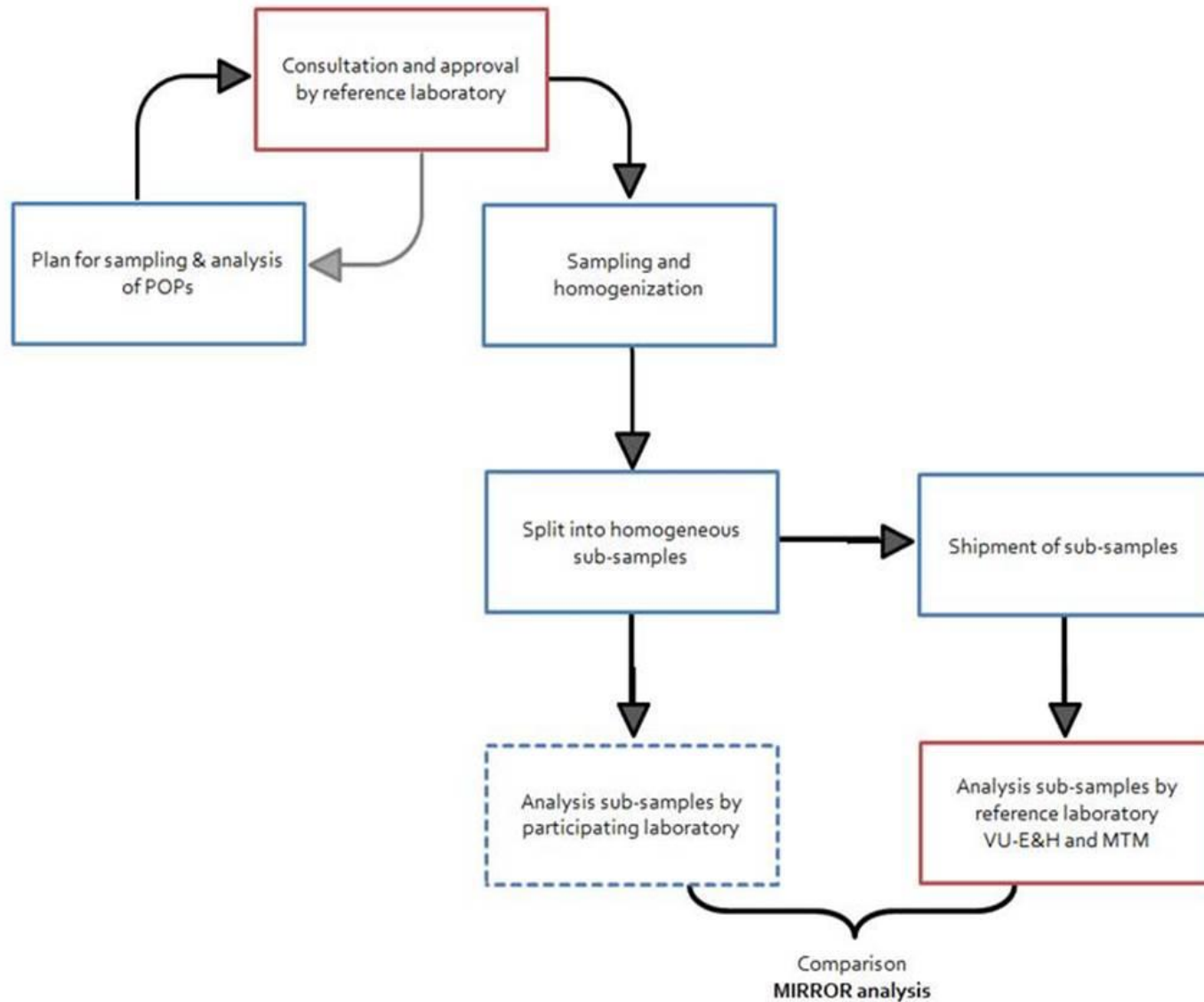


# Principle

- Analysis of identical sample in participating country and reference laboratory
- Homogeneity/comparability
- Avoid contamination
- Participating countries are free in their selection of samples
- However, we ask for one matrix (fish) to be sampled in all countries
- Reference laboratory will analyze sample as received



# Scheme for Sampling and Analysis



# Selection of Samples

- 18 samples per country
- Fish will be the only mandatory matrix
- Other *possible* matrices are: soil, sediment, eggs, butter, fish oil, milk powder, beans, water, indoor dust, and others: YOUR CHOICE

# Contamination

- During pre-treatment, filleting, homogenization, or freeze-drying: avoid contamination of the sample
- Contamination can easily occur through dust, plastics, paper, dirty knives, etc.



# Fish sample



- Preferably pooled sample (5-25 fishes)
- No imported fish
- Record details of sampling location
- Fillet, homogenize muscle tissue and split into two or three parts
- Send deep frozen
- Or: freeze-dry and split and send

# Sample size

- Fish:
- For non-dl POPs: 1 g fat is needed
  - Fish 1% fat → 100g; fish 10% fat → 10g
- For dl-POPs: 10g fat is needed
  - Fish 1% fat → 1 kg; fish 10% fat → 100g



# Sediment

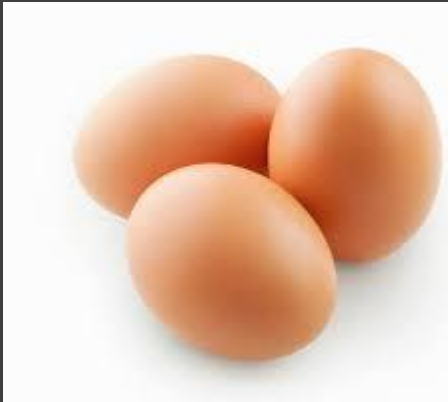
- Preferably a minimum of 1 gram organic carbon (no sandy sample); if TOC unknown: send 100 g- 500 g
- Sieve if necessary (remove larger particles)
- Dry (Air or freeze-dry), homogenize, split and send



# Other samples



- No: rice, corn, vegetables, rice straw, ....
- These often do not contain measurable POP levels
- Reasonable quantity that allows the analysis in at duplicate or triplicate in each sub-sample.
- Homogeneity and avoiding contamination are key issues



## *Example of Plan*

- 1 fish sample frozen, pool of 5, PCB/OCP, PBDE, PFOS
- 6 sediment samples PCB/OCP, PBDE, PCDD/Fs, dl PCBs
- 3 egg samples PCB/OCP, PCDD/Fs, dl-PCBs, PFOS
- 4 meat (beef) samples PCDD/F, dl PCBs, toxaphene
- 4 butter samples PCB/OCP, PBDE, HBCD, PFOS
  
- Plus: sample details (date, location, etc.)

# Example Fiji

#	Country	#	Institution	By [name]	Sample	Sample ID	Itemization	Qty	Mass (g)	Packaging	Pretreatment	to Lab [Date]	By	Analytes	Analytical lab	Received lab [Date]	Date results
1	FJI	USP/IAS	IAS	Dr. Vincent Lal	Fish1	FJI-Fish1-MTM	Suva, supermarket	1050	1000 50			30-12-2017		dl-POPs PFOS	MTM	30-12-2017	
	FJI			Dr. Vincent Lal	Fish1	FJI-Fish1-VU	Suva, supermarket	100	50 50			28-12-2017		OCPs+PCB(6) PBDE+PBB+HBCD	VU	28-12-2017	
2	FJI	USP/IAS	IAS	Dr. Vincent Lal	Egg1	FJI-Egg1-MTM	Suva, supermarket	550	500 50					dl-POPs PFOS	MTM		
	FJI			Dr. Vincent Lal	Egg1	FJI-Egg1-VU	Suva, supermarket	100	50 50					OCPs+PCB(6) PBDE+PBB+HBCD	VU		
3	FJI	USP/IAS	IAS	Dr. Vincent Lal	Sed1	FJI-Sed1-MTM	USP campus	150	100 50					dl-POPs PFOS	MTM		
	FJI			Dr. Vincent Lal	Sed1	FJI-Sed1-VU	USP campus	40	20 20					OCPs+PCB(6) PBDE+PBB+HBCD	VU		
4	FJI	USP/IAS	IAS	Dr. Vincent Lal	Butter1	FJI-Butter1-MTM	Suva, supermarket	200	175 25					dl-POPs PFOS	MTM		
	FJI			Dr. Vincent Lal	Butter1	FJI-Butter1-VU	Suva, supermarket	200	100 100					OCPs+PCB(6) PBDE+PBB+HBCD	VU		
5	FJI	USP/IAS	IAS	Dr. Vincent Lal	Fish2	FJI-Fish2-MTM	Wild	100	100 50					PFOS	MTM		
	FJI			Dr. Vincent Lal	Fish2	FJI-Fish2-VU	Wild	100	50 50					OCPs+PCB(6) PBDE+PBB+HBCD	VU		
6	FJI	USP/IAS	IAS	Dr. Vincent Lal	Vegetable	FJI-Vegetable-VU	Suva, supermarket		100					OCPs+PCB(6)	VU		
1	FJI	dl-POPs							1775					4			
1	FJI	PFOS							175					5			
1	FJI	OCPs+PCB(6)							220					6			
1	FJI	PBDE+PBB+HBCD							220					5			

# Dispatch

- Send in glass jars with screw caps (water for PFOS in polypropylene jars)
- Pack them well!
- Use courier
- Accompanying letters for transport are available
- Inform reference lab when they can expect the sample





Enheten för CITES, foder och djurprodukter  
*James Bonet*

**BESLUT**

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**Ansökan om tillstånd för import, transport och  
användning av prover för forskning och diagnostik**



## Global Monitoring Plan on Persistent Organic Pollutants

Protocol for the Sampling and Pre-treatment  
of National Samples within the UNEP/GEF  
Projects to Support the Global Monitoring  
Plan of POPs  
2016-2019