National Implementation Plans: Research Needs and Opportunities in Asia - Global NIP Update project (GEF 10785)
Regional Roundtable Meeting 17 June 2025

STOCKHOLM CONVENTION
UNEP
Protecting human health and the environment from persistent organic pollutants

Brief Overview of Two-decade Achievements for POPs Research and Management to Implement the Stockholm Convention in Vietnam

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General assessment of the implementation of Stockholm Convention in Vietnam

Achievements:

- **NIP:** National Implementation Plan (NIP) updated in 2018.
- **Chemical Bans:** Banned production, import, and use of many POPs (e.g., DDT, aldrin, dieldrin) in agriculture/industry.
- **Legacy POPs Projects:** Implemented destruction projects with international support (GEF, UNDP) for PCBs, pesticide residues.
- **Legal Framework:** Environmental Protection Law 2020 & Decree 08/2022/ND-CP include POPs management. Many legal documents (Circular, Regulations and standards for POPs levels in environmental media) issued.
- **Updated POPs List:** Timely updates align with Convention amendments.

Challenges & Difficulties:

- **Unresolved Legacy POPs:**
  - Hundreds of old pesticide warehouses still contaminated, risking soil/groundwater.
  - Insufficient budget & technical solutions for pollution hotspots.
  - Inconsistent risk assessment & contamination classification.
- **Unintentionally Produced POPs (UPOPs):**
  - Poor control of emissions from open burning (waste, agricultural by-products, medical waste).
  - Old industrial kilns lack dioxin/furan control.
  - Lack of UPOP monitoring equipment & technology.
- **Monitoring & Technical Capacity:**
  - No national POPs monitoring network (air, water, soil, food).
  - Limited international-standard POPs analysis labs.
  - Lack of indicators for assessing community exposure.
- **Loose Inter-agency Coordination:**
  - Fragmented data sharing & responsibilities
  - No unified mechanism for integrated POPs elimination activities

International funded projects in Vietnam for the implementation of Stockholm Convention

Total GEF funds: ~ 119 million USD

2002

Sign the convention

2004-06

GEF-UNDP
BUDGET:
500,000USD

Establish NIP

2007-09

SDC
BUDGET:
750,000USD

Pilot decontamination of PCBs in electricity facilities

2009-2015

GEF: 2 UNDP, 1 WB, 1 UNIDO
BUDGET: 106 MILLION USD

- POPs pesticide stockpiles elimination (UNDP)
- PCBs environ. sound management (WB)
- BAT-BEP demonstration reduce dioxins as U-POPs (UNIDO)
- Agent Orange AO dioxin hotspots remediation (UNDP)
- Establish Dioxin Lab in Vietnam (Bill Melinda Gates Foundation, Atlantic Philanthropies)
- BAT-BEP in medical waste to reduce Dioxins (UNDP)
- Update NIP (UNDP)
- Remediation AO dioxin contamination Da Nang Airport (USAID)

2015-2019

GEF-UNEP, UNIDO
BUDGET: 4.6 MILLION USD

- POP Monitoring Plan in Asia
- Safe management (GEF & JICA)
- Demonstration POPs from open burning (UNIDO)

2018 - 2020

GEF-UNDP
BUDGET: 1.99 MILLION USD

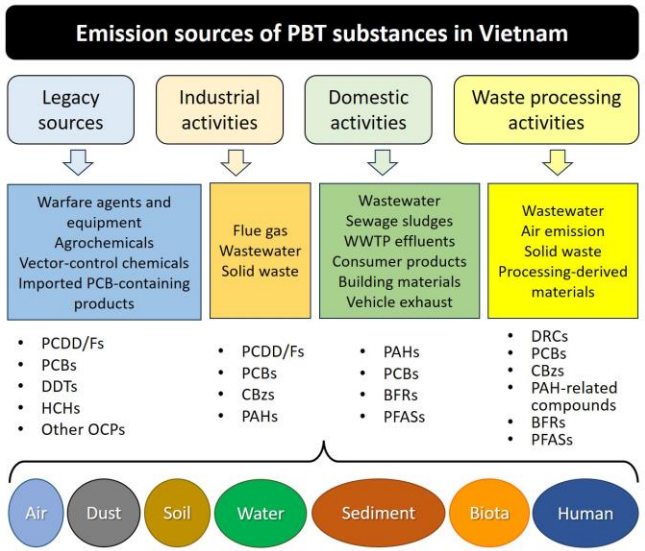
Green chemistry to reduce POPs & harmful chemicals

2023 - 2027

GEF-UNDP
BUDGET: 4.6 MILLION USD

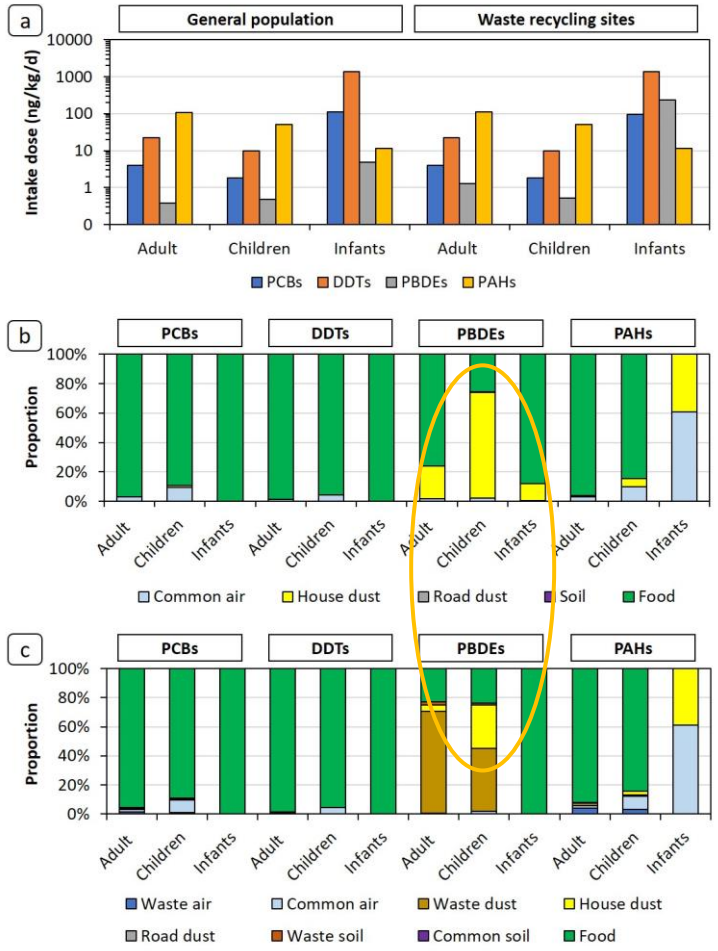
Reduce releases of Hg and POPs By lifecycle and ecolabel

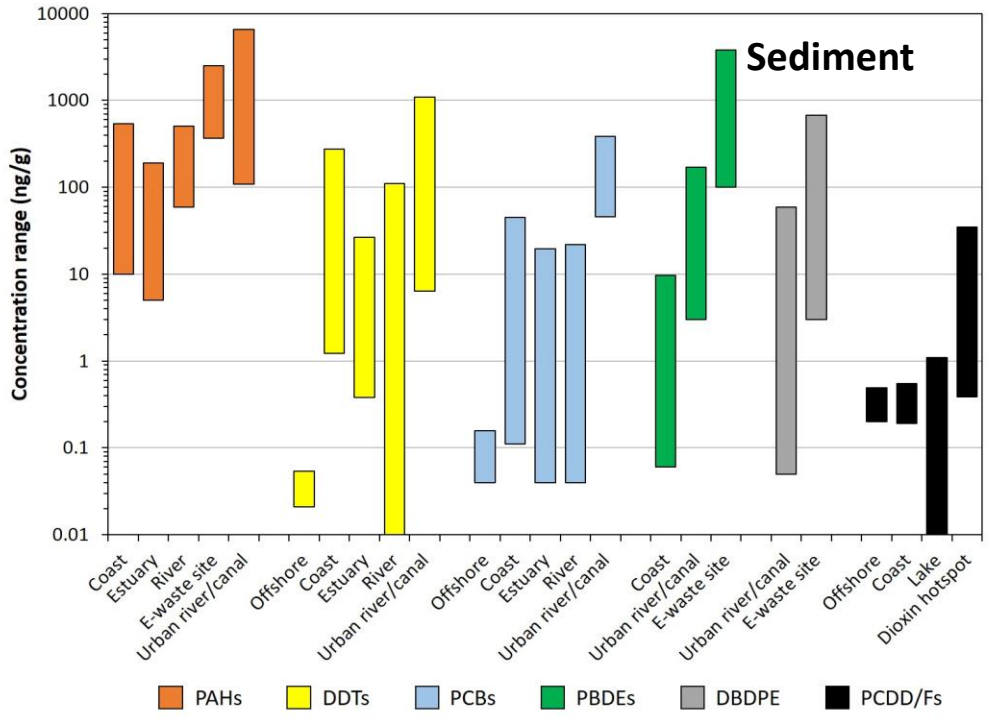
Review of residues, intake doses & exposure pathways of POPs in Vietnam

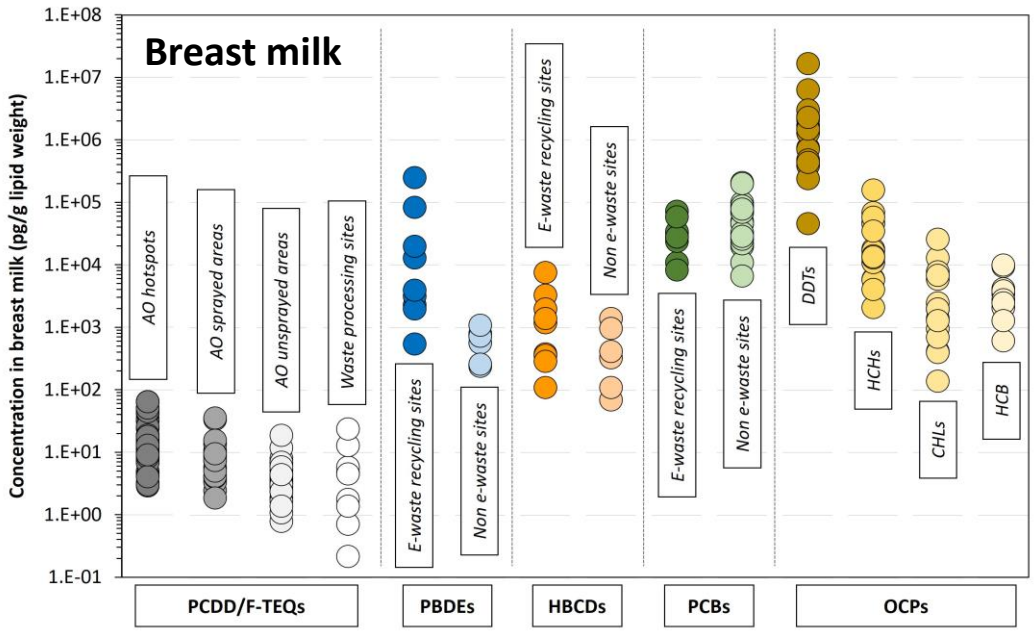


- Elevated environmental & human exposure: Urban rivers/canals & E-waste and old vehicle recycling areas
- Intakes via house dust of PBDEs were specific & important for waste recycling facilities

Daily intake dose & exposure pathway profile



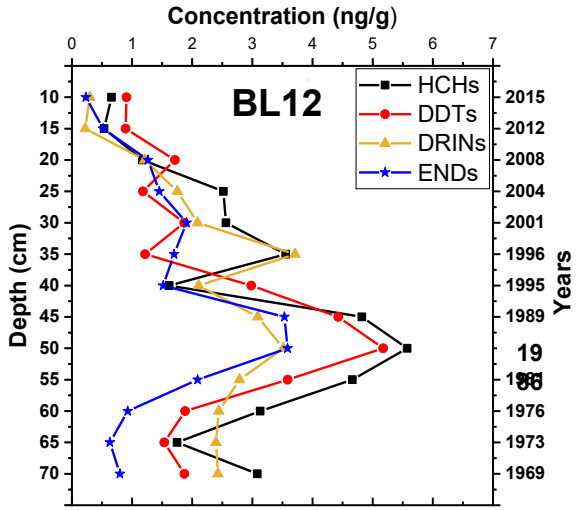


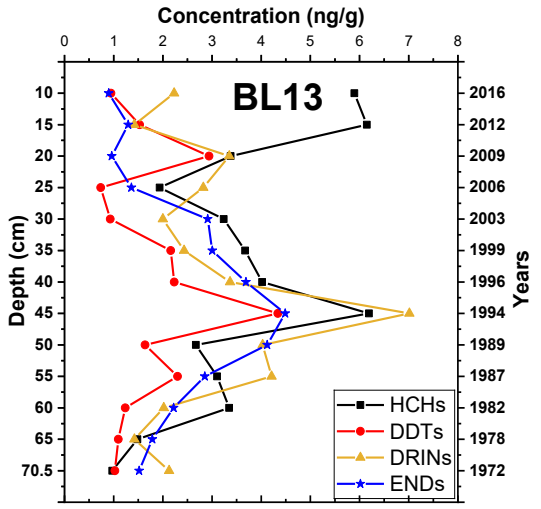


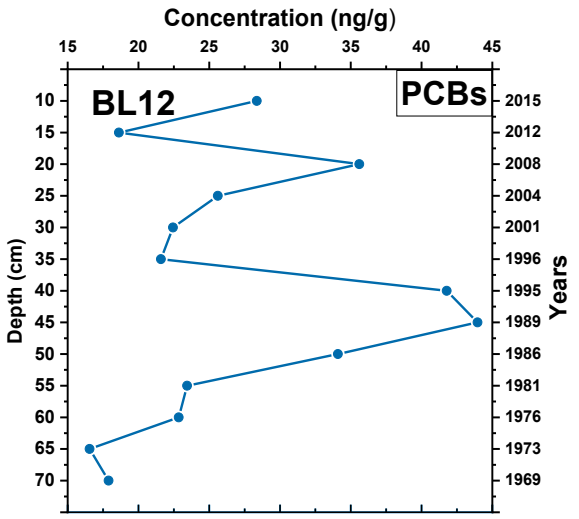
Dated sediment core samples: temporal trends & suitability for assessment of the effectiveness of POPs regulation measures

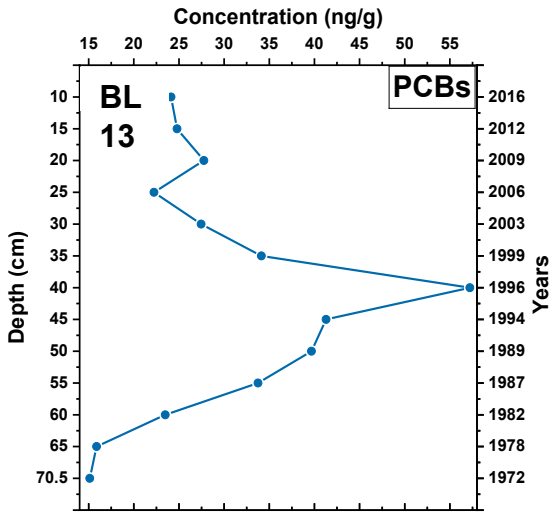
Dated sediment cores:

a. Red River estuary, North Vietnam

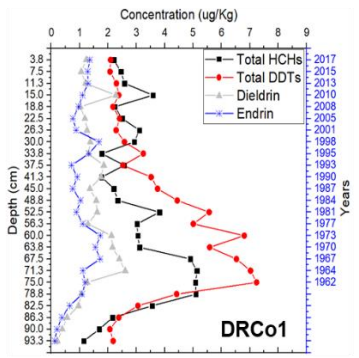


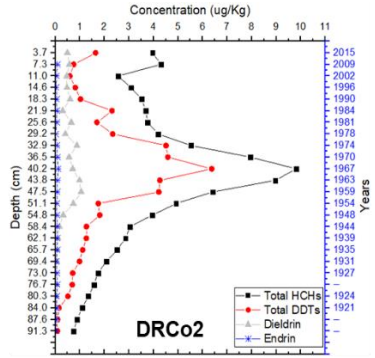


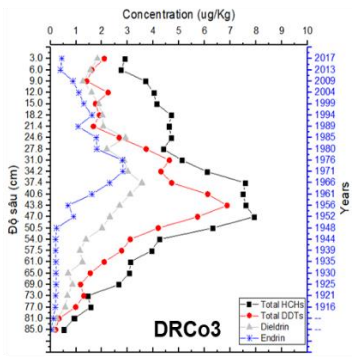


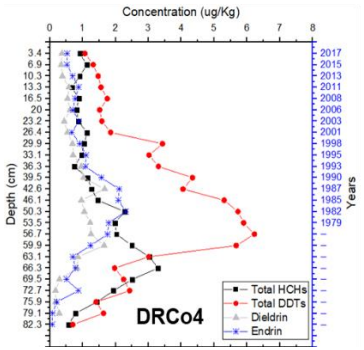


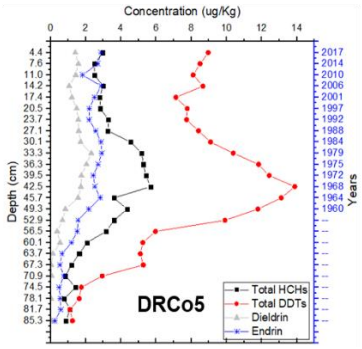
b.Day River estuary, North Vietnam







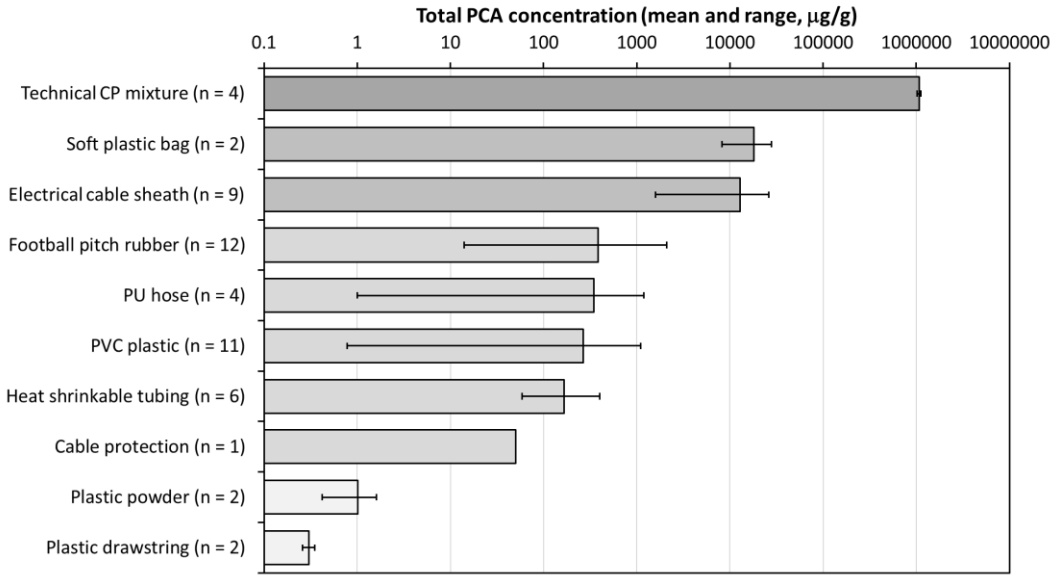


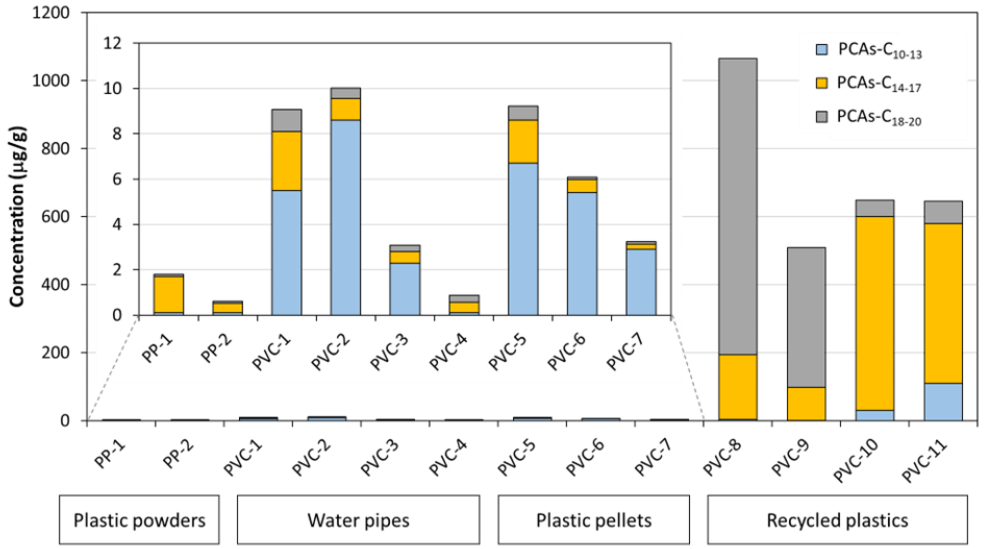


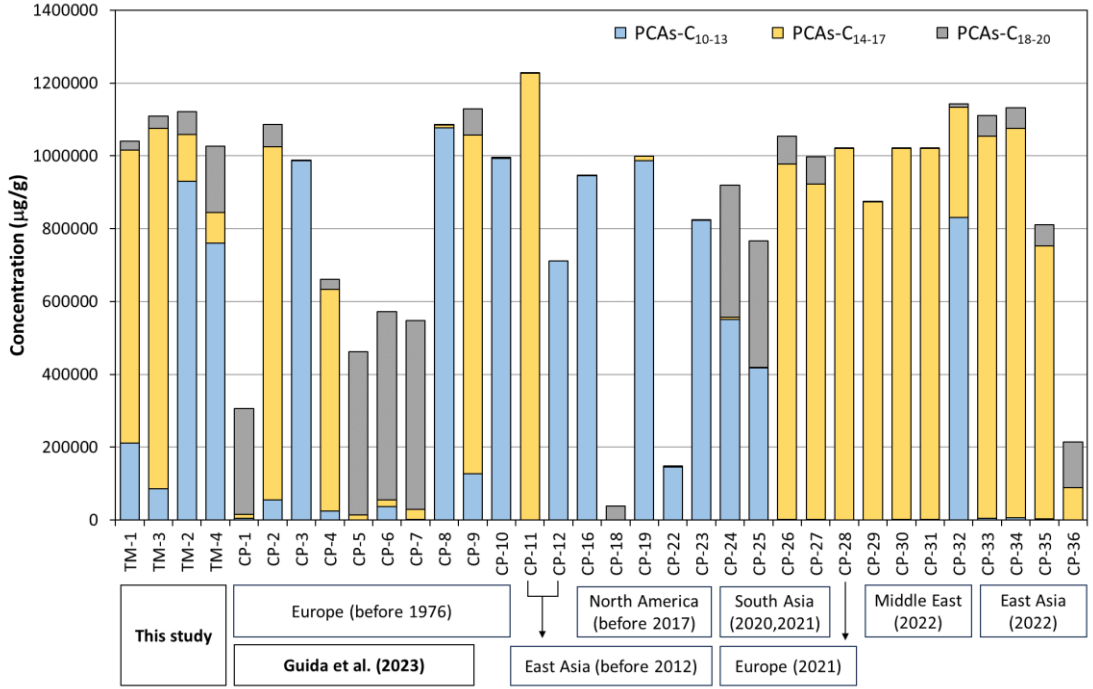
- OCPs: Peaks at mid- 1970s & mid-1990s and then rapid declining
- PCBs: peaks at early – mid 1990s & early 2000s, and then decreasing

Vertical profiles reflect regulations of pesticides (ban in 1995); and effective management efforts by implementing GEF funded Projects during 2009-2015

Chlorinated paraffins (CPs) in technical mixtures and plastic products available in Vietnam







- Short & Medium chain CPs dominant in PVC products & technical mixtures
- CPs contents in PVCs vary according to life cycle with higher levels in recycled plastics

Recommendations: Research & Collaboration perspectives

- Participate in international scale research programs using air, water, sediment, dust, urine samples collected from different locations with similar protocols
- Air: Passive air sampler (PAS) with relatively simple, easy to deploy, no power required and suitable for both indoor and outdoor surveys.
- Global Estuary program (GEM): water and sediment collected and analyzed following the same protocols to ensure highly consistent results. GEM Program coordinated by Prof. Kenneth Leung from City University of Hong Kong. More than 100 countries with estuaries participated.
- Artificial Mussel Watch Program
- Diffusive gradients in thin films to sample organic compounds (o-DGT) in surface and wastewater: Prof. Gan Zhang from Guangzhou Institute of Geochemistry, Chinese Academy of Science.
- To assess the effectiveness of the control measures in responses to the obligations of the Convention: temporal trend studies using dated sediment core samples in well preserved aquatic environments

Common strategy: Similar sampling and analysis protocols, relatively quick, simple and easy to deploy

International network

International:

+ Ehime University, Japan (Profs. S.Tanabe & S.Takahashi)
+ Wadsworth Center, NY, USA (Prof. K. Kannan)
+ City Univ. of Hong Kong & Hong Kong Baptist Univ. (Profs. Paul Lam, B. Richardson, M.H.Wong, Kenny Leung)
+ Southern Contaminant Program: Guangzhou Institute of Geochemistry, China; Lancaster University, UK (Prof. Gan Zhang & Prof. Kevin Jones)
+ Guangxi Environmental Protection, Nanning, China (Dr. Sun Yang Zhao)
+ GEF funded Projects during 2010-2015: UNDP, UNIDO and World Bank.

Vietnam National University Key research group “Monitoring & Risk Assessment of Organic contaminants”

+ Tu Binh Minh
+ Tran Manh Tri (Ta Quang Buu National Award 2024)
+ Hoang Quoc Anh

Activities

+ Sampling collections in Vietnam, and other countries in region
+ Chemical analysis in leading laboratories (Japan, US, China, Hong Kong)
+ Doctoral and postdoctoral exchange programs in leading laboratories
+ Organizing technical meetings, workshops, symposia in Vietnam and leading countries

July 2011: (UNIDO BAT-BEP Project): Prof. Wong in Da Nang city

Jan. 2019: Prof. Gan Zhang in Hanoi: Southern Contaminant Program

June 2024. Prof. Wong & Prof. Leung in Hanoi: Vinfuture Workshop

Oct. 2024: Dr. Roland Weber in Hanoi

April 2025: Dr. Sun Yang Zhao in Hanoi

May 2025: China-ASEAN Youth Green Envoys Program, Guangxi

Welcome to Hanoi !

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