



Results of the GMP2 study on POPs in Air

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Countries:

- Cambodia
- Indonesia
- Lao
- Mongolia
- Philippines
- Thailand
- Vietnam

- 2017
- 2018
- 2019

- 1 PUF per 3 months
- PCB, OCPs, BFRs
- Toxaphene

LOD and LOQ, definitions

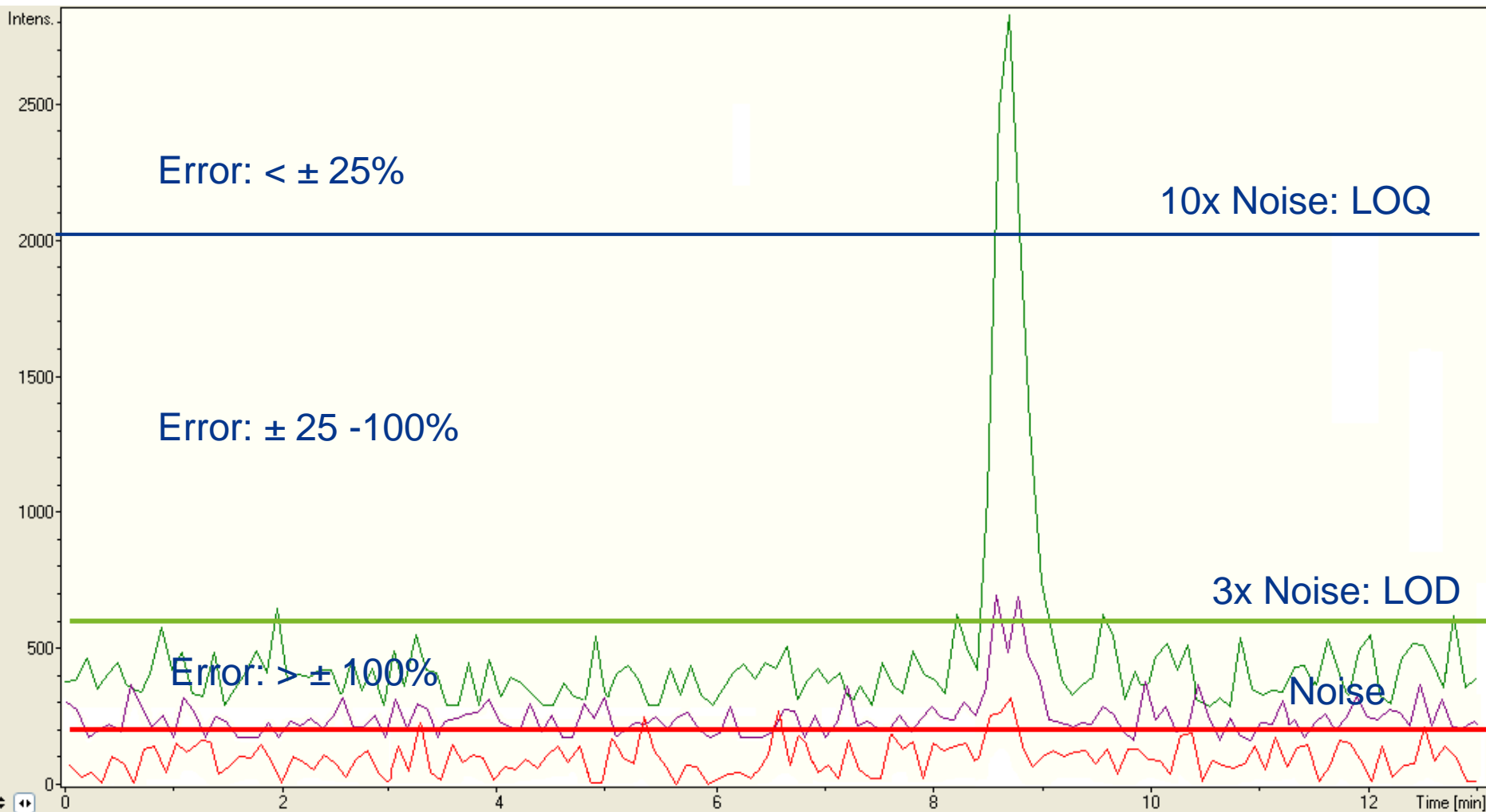
LOD - IUPAC definition

In broad terms, the limit of detection is the smallest amount or concentration of analyte in the test sample that can be reliably distinguished from zero

LOQ - Definition by Eurachem

The lowest concentration of analyte that can be determined with an acceptable repeatability and trueness

How to determine LOD and LOQ?

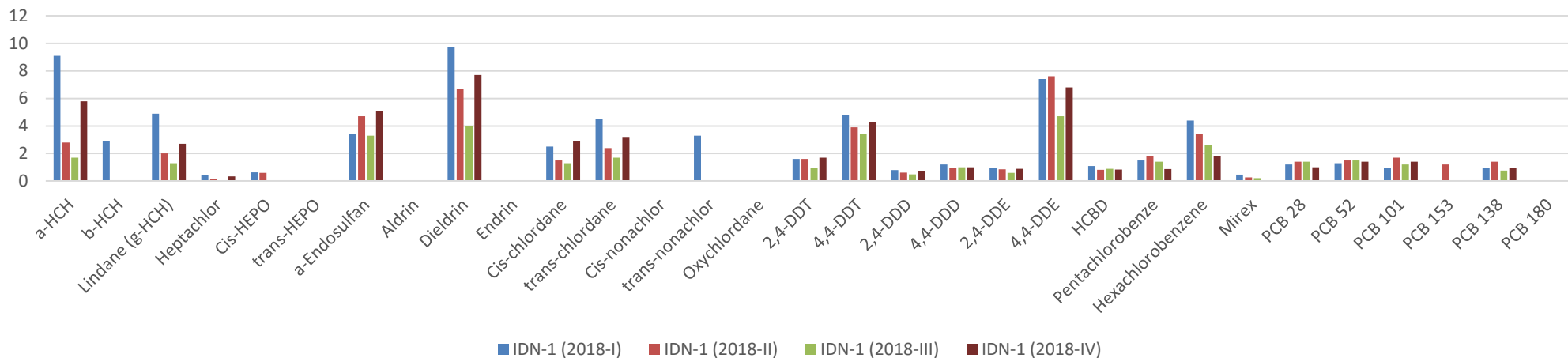


LOD and LOQ - examples

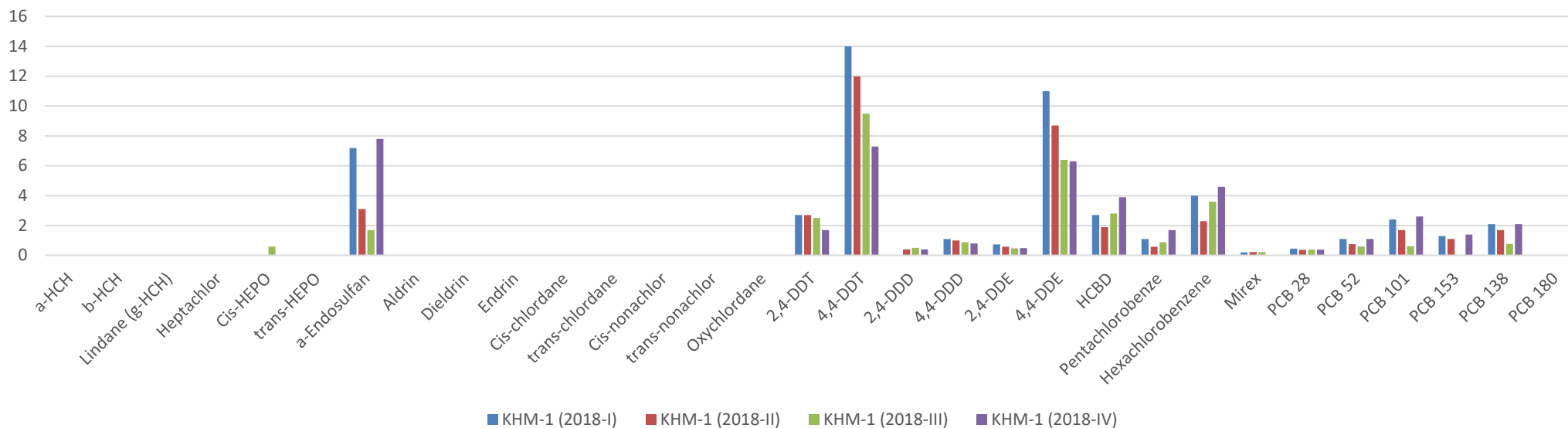
α -HCH	9.1	2.8	1.7	5.8	15.0	3.0	0.68	9.4
β -HCH	2.9	<0.83	*1.2	*2.0	4.0	*1.2	*0.81	*1.4
Lindane (γ -HCH)	4.9	2.0	1.3	2.7	7.1	2.2	*0.76	3.2
Heptachlor	0.43	0.18	*0.12	0.34	<0.46	<0.45	<0.44	*0.46

Indonesia and Cambodia – PCB/OCP

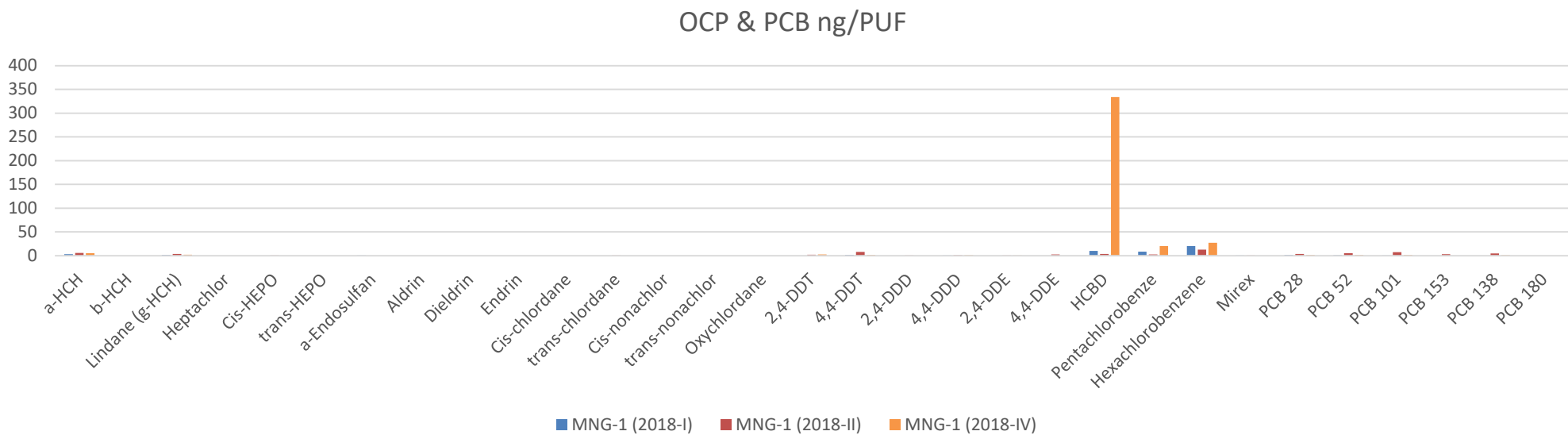
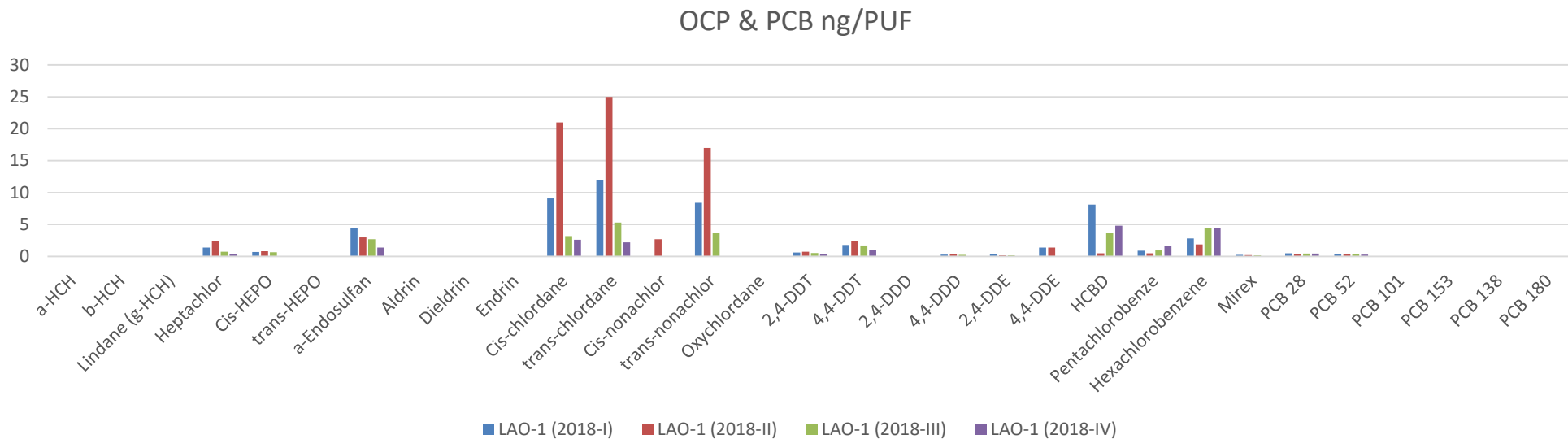
OCP & PCB ng/PUF



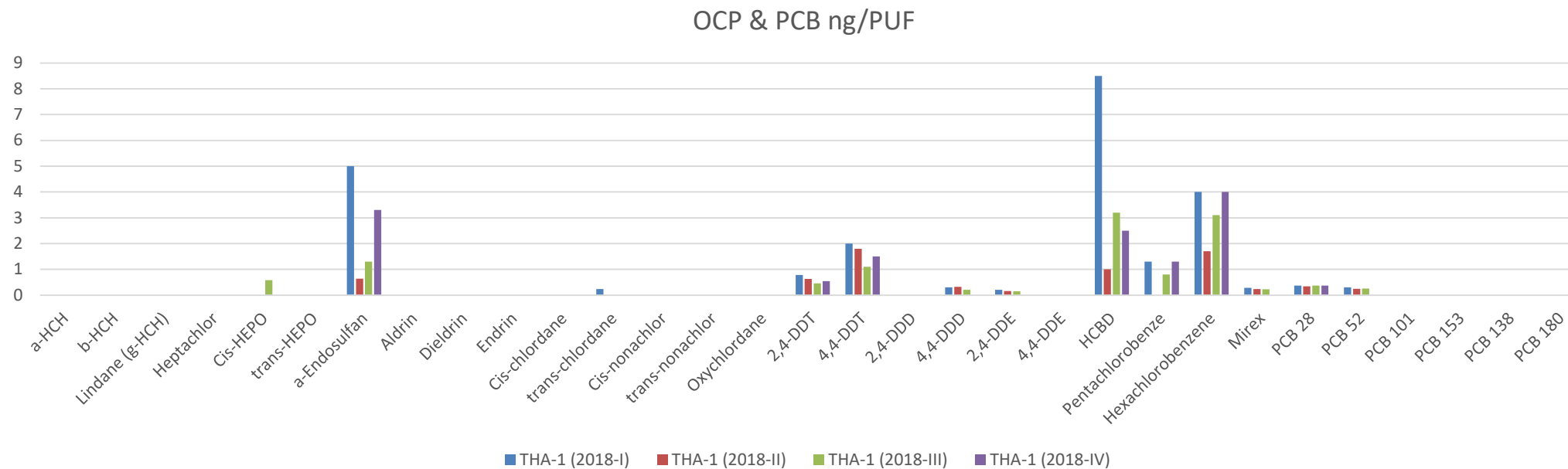
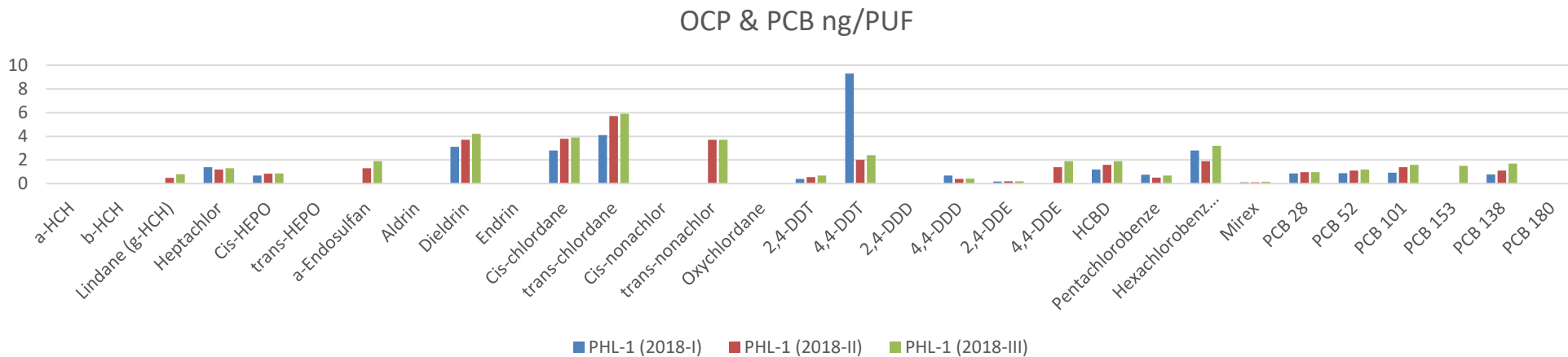
OCP & PCB ng/PUF



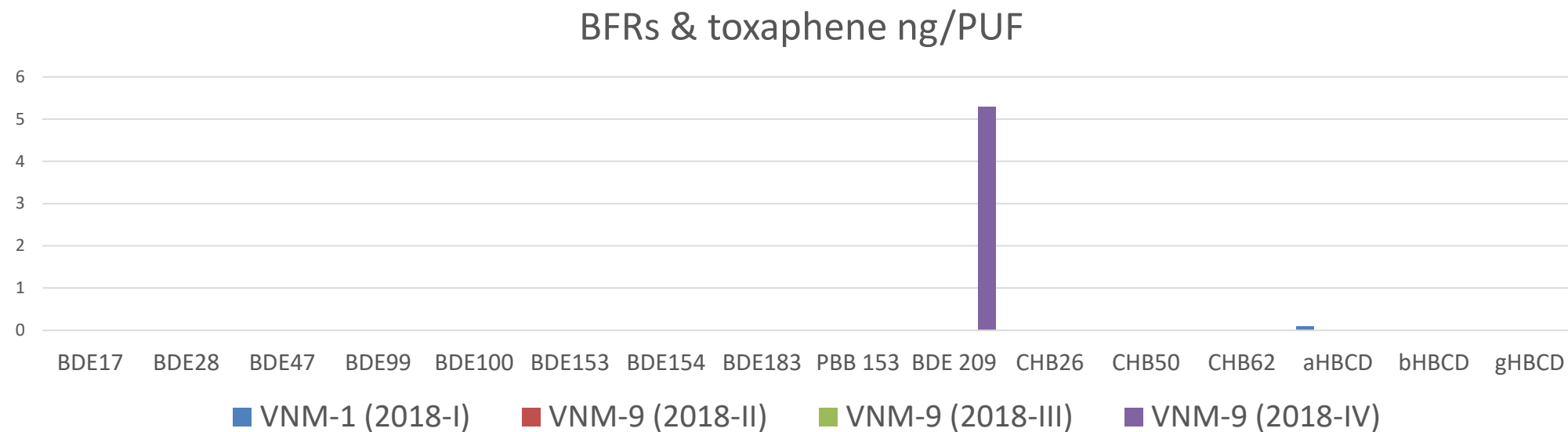
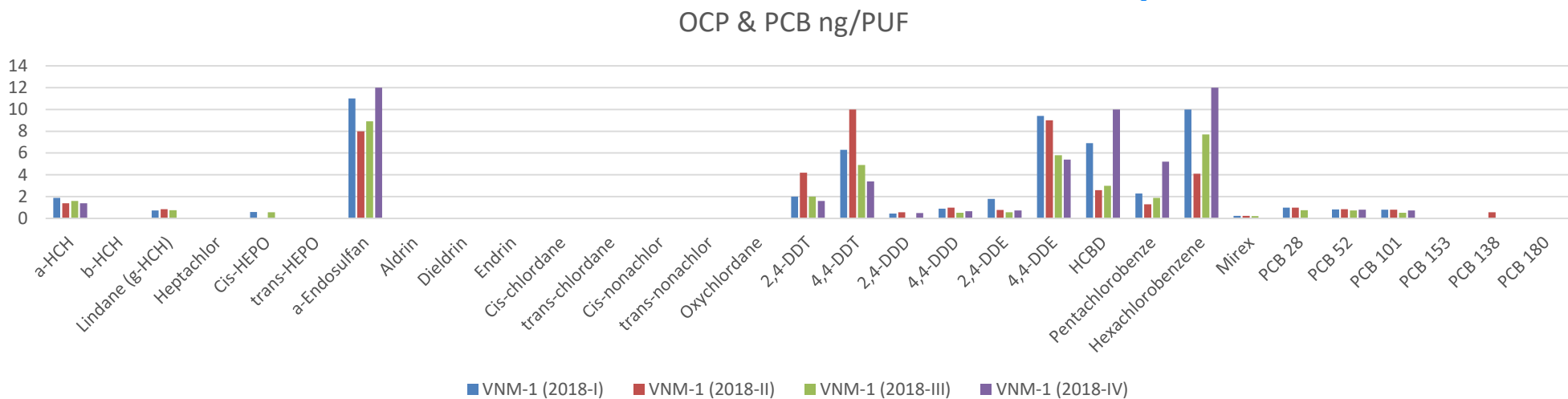
Lao and Mongolia - PCB/OCP



Philippines and Thailand – PCB/OCP

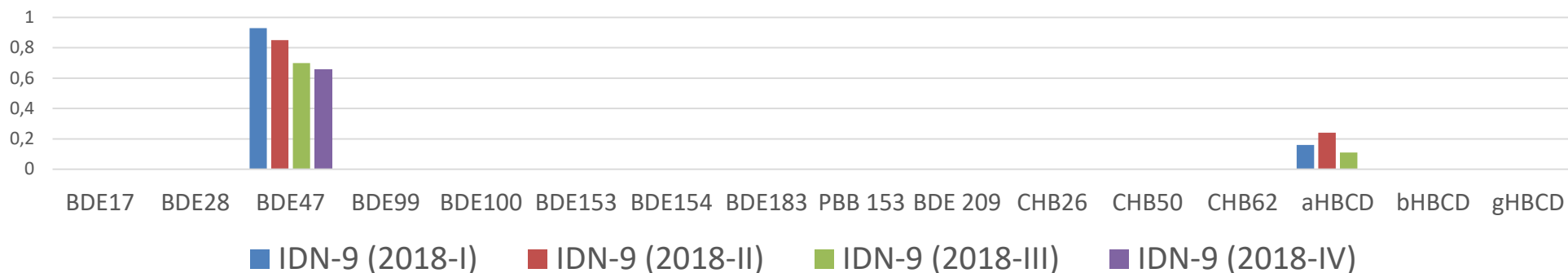


Vietnam - PCB, OCP and PBDE, HBCD, HBB, Toxaphene

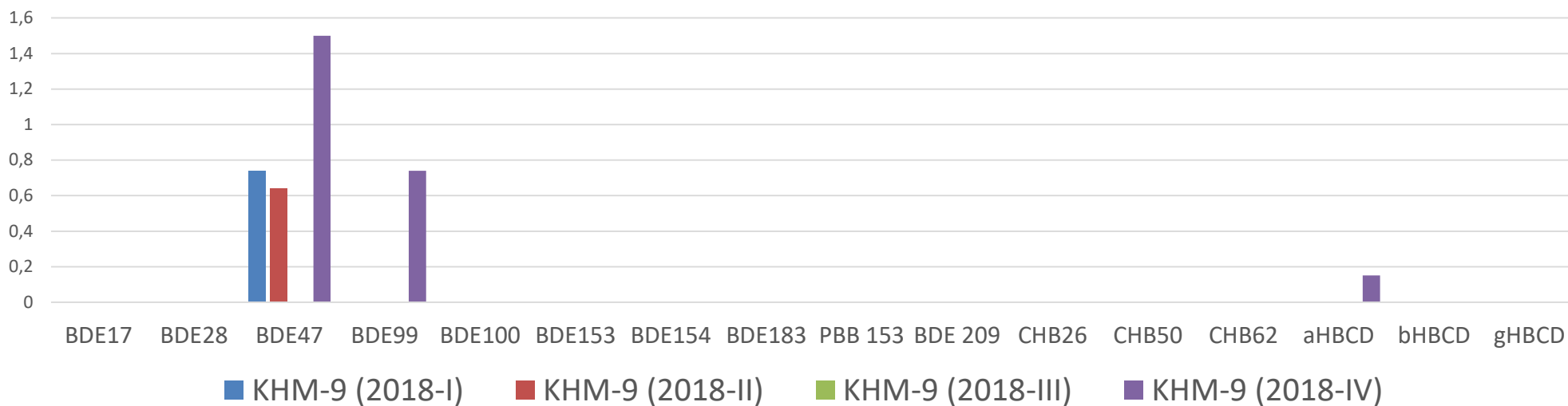


Indonesia and Cambodia - PBDE, HBCD, HBB, Toxaphene

BFRs & toxaphene ng/PUF

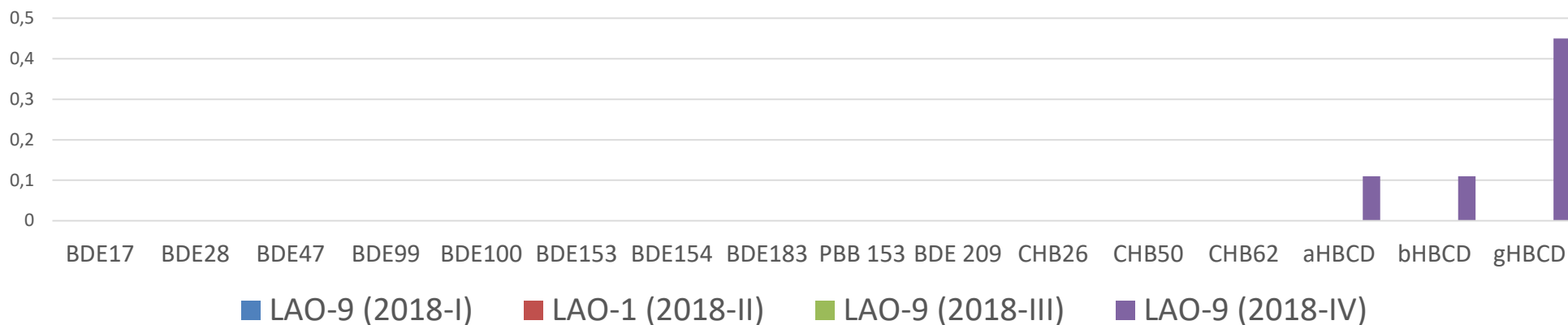


BFRs & toxaphene ng/PUF

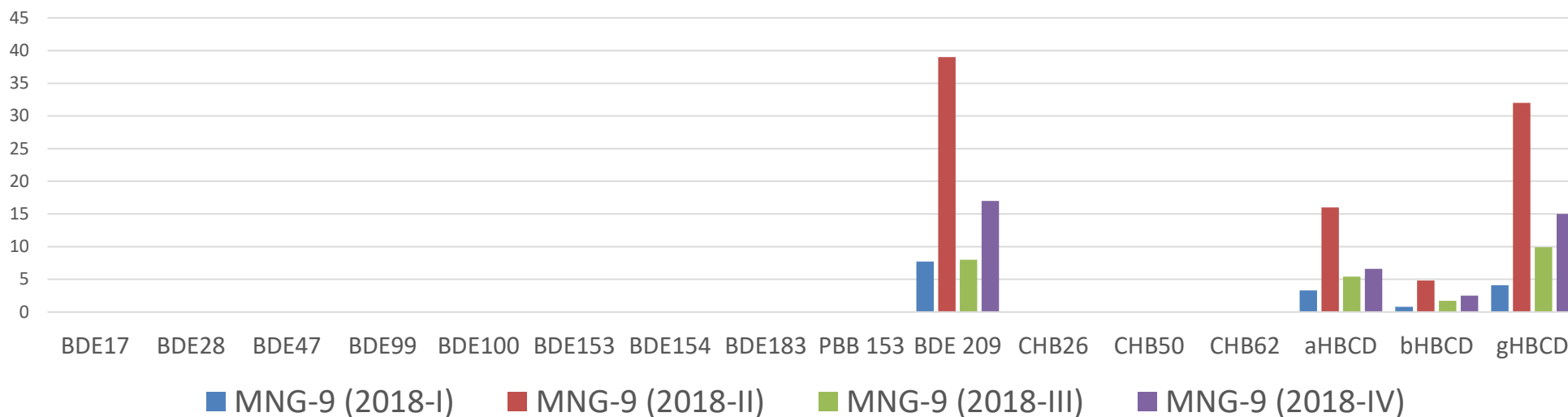


Lao and Mongolia - PBDE, HBCD, HBB, Toxaphene

BFRs & toxaphene ng/PUF

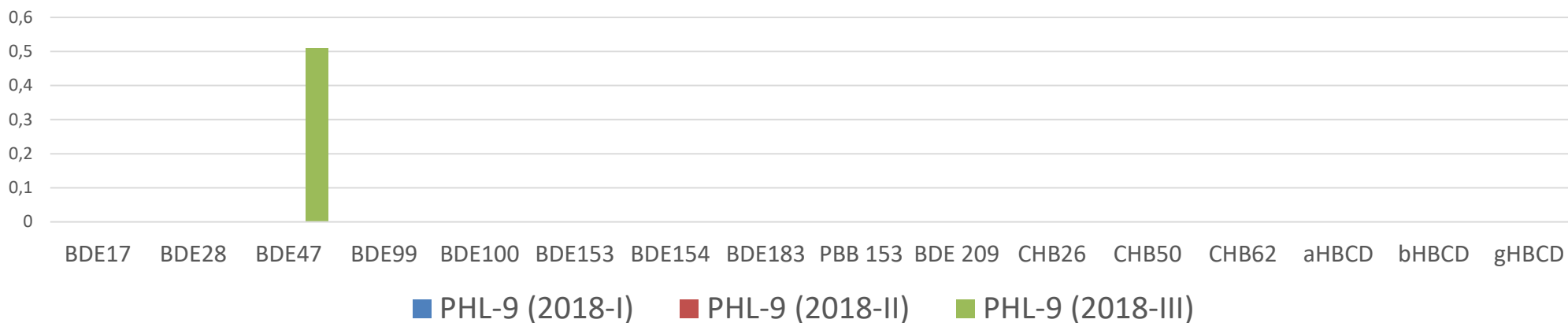


BFRs & toxaphene ng/PUF

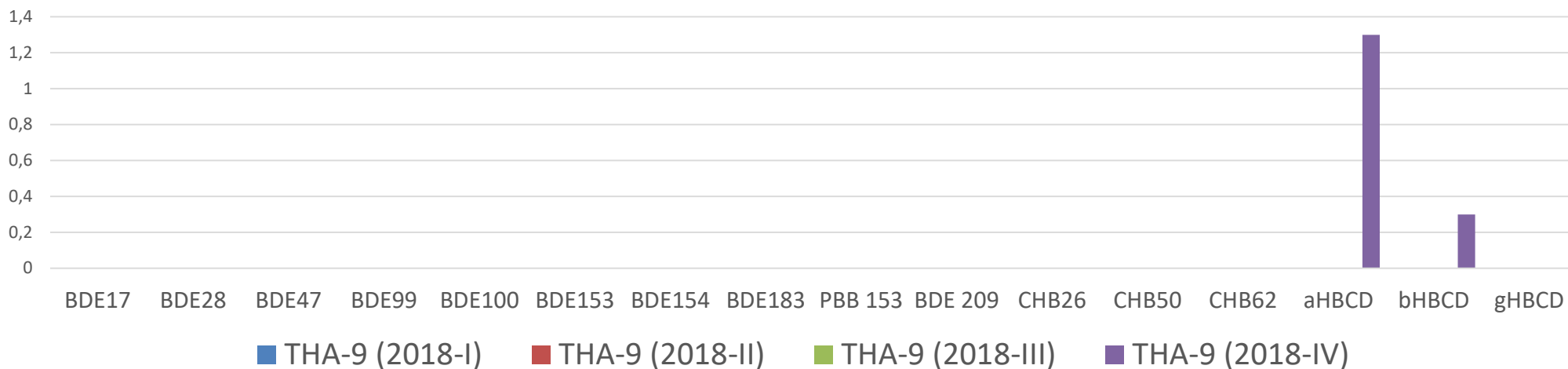


Philippines and Thailand - PBDE, HBCD, HBB, Toxaphene

BFRs & toxaphene ng/PUF

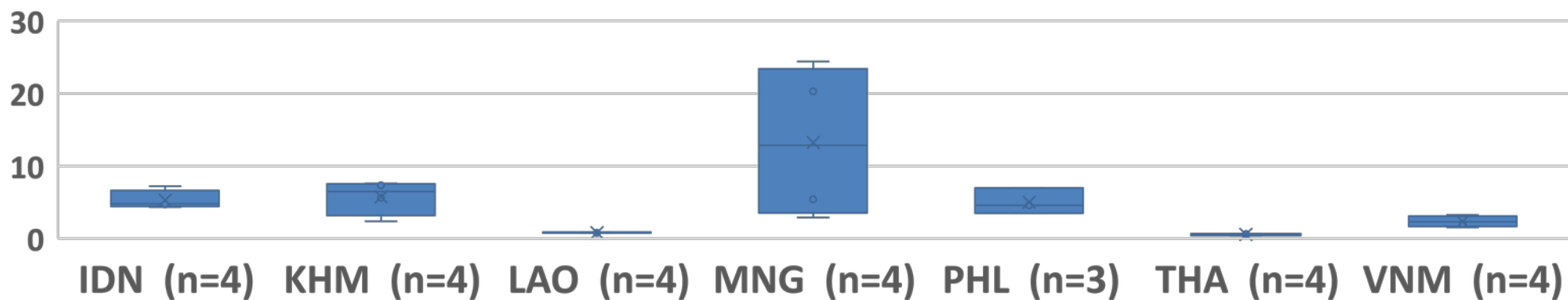


BFRs & toxaphene ng/PUF

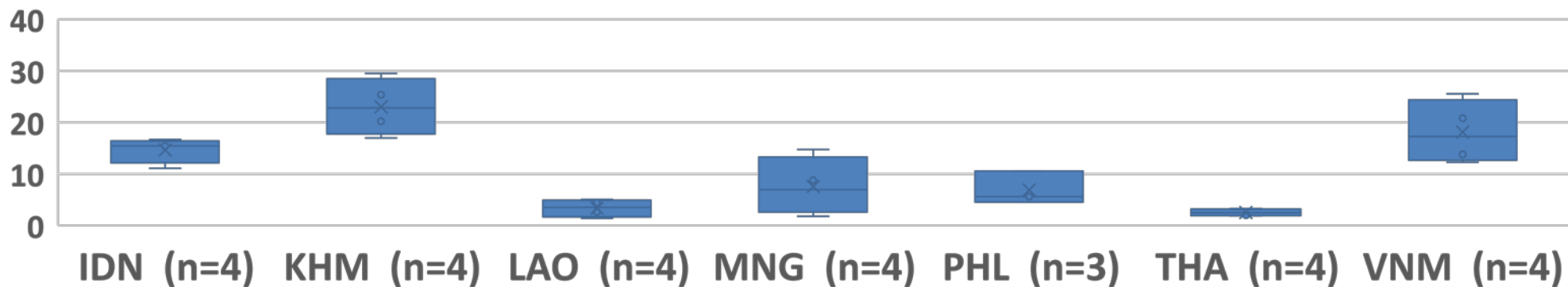


Asia - PCB and DDT 2018

Sum 6 PCBs 2018 (ng/PUF)

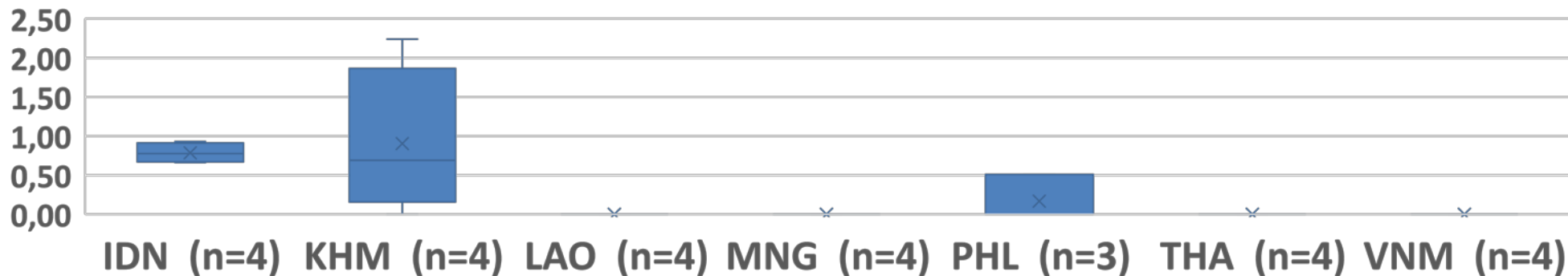


Sum DDTs 2018 (ng/PUF)

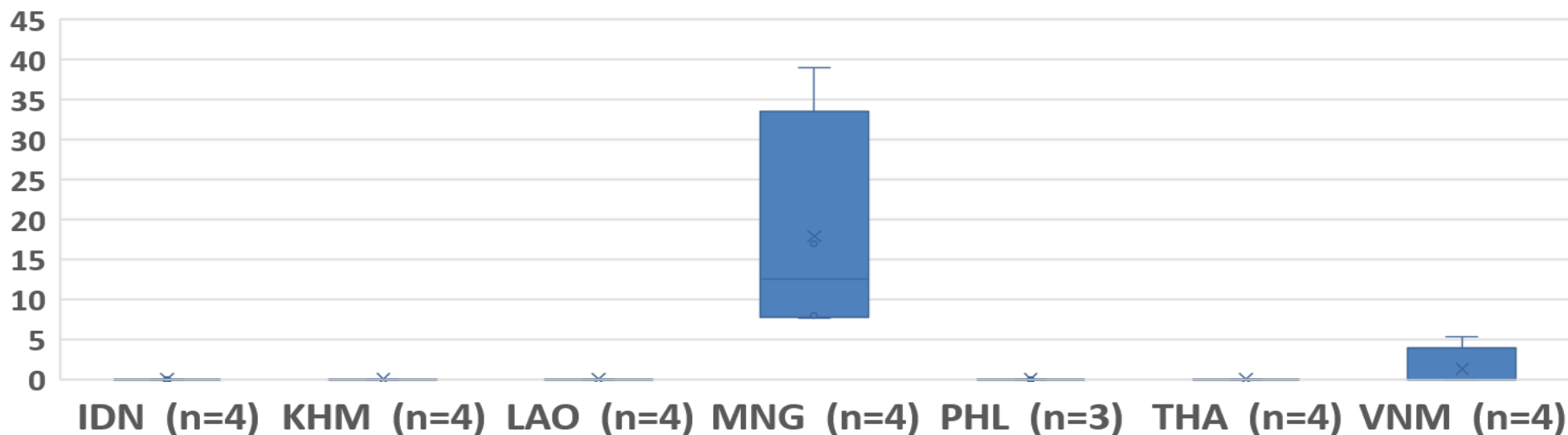


Asia 2018 - sum PBDEs and decaBDE

Sum PBDEs 2018 (ng/PUF)

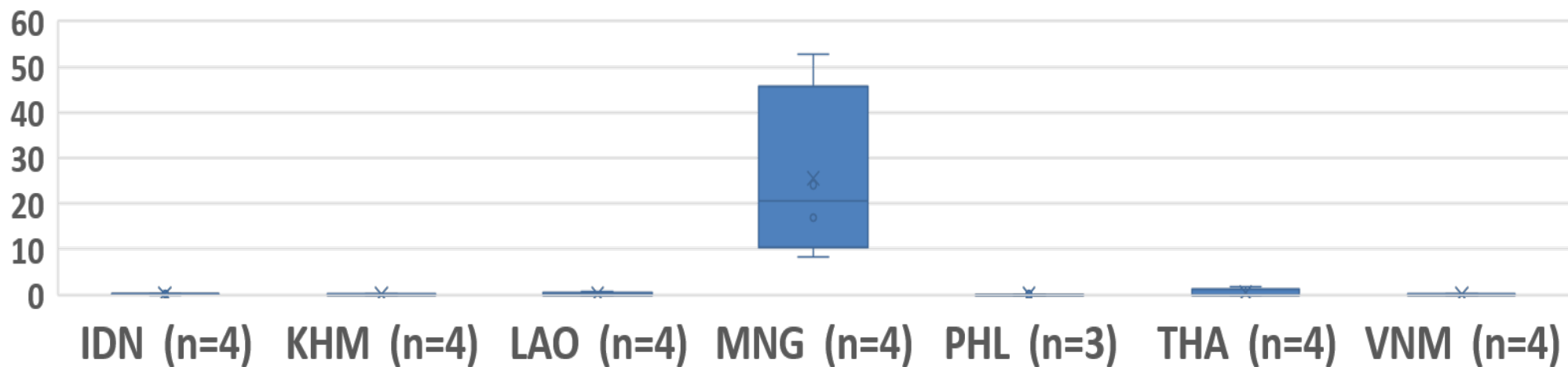


DecaBDE 2018 (ng/PUF)



Asia 2018, sum-HBCD

Sum HBCDs 2018 (ng/PUF)



Serious contaminations, >> 10 ng/PUF

- Mongolia: PBDE, HBCD, HCB, PeCB
- Lao: Chlordane
- Congo: PCB, DDT, DDE, BDE209
- Egypt: HCB, PeCB, Endosulfan
- Ethiopia: Endosulfan, DDT, DDE
- Ghana: Endosulfan
- Kenya: Dieldrin
- Mali: DDE
- Tanzania: DDT, DDE, HCHs, HBCD
- Uganda: HBCD
- Zambia: BDE209, Dieldrin, DDT, DDE, HBCD
- Solomon Islands: DDT