

# Foro de expertos: Experiencias mundiales

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# Content

- Stockholm Convention on POPs in perspective
- Examples:
  - Dioxin inventories
  - Global monitoring plan (for effectiveness evaluation)
- Next steps, work underway

# POPs Universe under the Stockholm Convention

- Legally binding instrument for governments
  - UN has 193 member states  
(note: Cook Islands, European Union, Niue, State of Palestine are not included in the above 193)
  - At COPs, there are parties and observer governments (and other stakeholders)
- Annexes have listed (for restriction or elimination)
  - 12 initial POPs – measures are legally binding for all parties
  - 18 newly listed POPs – not all governments have ratified to all new POPs
  - Some are time-limited
- Mandatory and voluntary (“technical”) measures
  - Mandatory (examples): provisions for POPs (incl. register for acceptable purposes or specific exemptions), national reporting under article 15 (every 4 years), release inventories for article 5 POPs (incl. updating), application of BAT/BEP for annex C POPs, PCB elimination (with deadline), national implementation plans
  - Voluntary (examples): identification of contaminated sites, open applications of PCB, environmental monitoring (global monitoring plan – GMP) and research.

# Composition of the Conference of the Parties

Region	Africa	Asia	CEE	GRULAC	WEOG	WEOG+CEE	Overall
	(N=53)	(N=52)	(N=22)	(N=31)	(N=25)	(N=1)	(N=184)
<b>Region</b>							
Africa	53 (100%)						53 (28.8%)
Asia		52 (100%)					52 (28.3%)
CEE			22 (100%)				22 (12.0%)
GRULAC				31 (100%)			31 (16.8%)
WEOG					25 (100%)		25 (13.6%)
WEOG+CEE						1 (100%)	1 (0.5%)
<b>Ratification</b>							
Y2004	23 (43.4%)	20 (38.5%)	6 (27.3%)	13 (41.9%)	16 (64.0%)		78 (42.4%)
Y2005	7 (13.2%)	9 (17.3%)	5 (22.7%)	6 (19.4%)	4 (16.0%)	1 (100%)	32 (17.4%)
Y2006	10 (18.9%)	7 (13.5%)		2 (6.5%)	2 (8.0%)		21 (11.4%)
Y2007	5 (9.4%)	5 (9.6%)	4 (18.2%)	4 (12.9%)			18 (9.8%)
Y2008	3 (5.7%)	3 (5.8%)	1 (4.5%)	3 (9.7%)			10 (5.4%)
Y2009	2 (3.8%)	1 (1.9%)	3 (13.6%)	1 (3.2%)			7 (3.8%)
Y2010	1 (1.9%)	1 (1.9%)	1 (4.5%)	1 (3.2%)	2 (8.0%)		6 (3.3%)
Y2011		1 (1.9%)	2 (9.1%)	1 (3.2%)			4 (2.2%)
Y2012	1 (1.9%)	1 (1.9%)					2 (1.1%)
Y2013		1 (1.9%)					1 (0.5%)
Y2016		1 (1.9%)					1 (0.5%)
Y2017					1 (4.0%)		1 (0.5%)
Y2018		1 (1.9%)					1 (0.5%)
Y2019		1 (1.9%)					1 (0.5%)
Y2020	1 (1.9%)						1 (0.5%)

## Latest ratifications:

- 2020, Africa = Equatorial Guinea
- 2019, Asia = Uzbekistan
- 2018, Asia = State of Palestine
- 2017, WEOG = Malta

## Signatories but not parties (6):

- Asia: Brunei Darussalam, Israel, Malaysia
- GRULAC: Haiti
- WEOG: Italy, United States of America

## No signatory, no party (5):

- Africa: South Sudan
- Asia: Bhutan, Timor Leste, Turkmenistan
- WEOG: Andorra

# Economics – Classification World Bank Indicators

Region	Africa	Asia	CEE	GRULAC	WEOG	WEOG+CEE	Overall
	(N=53)	(N=52)	(N=22)	(N=31)	(N=25)	(N=1)	(N=184)
<b>WBC_2004</b>							
<b>L</b>	37 (69.8%)	17 (32.7%)	1 (4.5%)	1 (3.2%)			56 (30.4%)
<b>LM</b>	10 (18.9%)	22 (42.3%)	11 (50.0%)	14 (45.2%)			57 (31.0%)
<b>UM</b>	6 (11.3%)	5 (9.6%)	9 (40.9%)	15 (48.4%)	1 (4.0%)		36 (19.6%)
<b>H</b>		8 (15.4%)	1 (4.5%)	1 (3.2%)	24 (96.0%)	1 (100%)	35 (19.0%)
<b>WBC_2018</b>							
<b>L</b>	23 (43.4%)	6 (11.5%)					29 (15.8%)
<b>LM</b>	21 (39.6%)	18 (34.6%)	2 (9.1%)	4 (12.9%)			45 (24.5%)
<b>UM</b>	9 (17.0%)	17 (32.7%)	11 (50.0%)	19 (61.3%)	1 (4.0%)		57 (31.0%)
<b>H</b>		11 (21.2%)	9 (40.9%)	8 (25.8%)	24 (96.0%)	1 (100%)	53 (28.8%)

## World Bank Classification (Int'l dollar per inhabitant (Atlas method))

L: low income  
 LM: lower-middle income  
 UM: upper-middle income  
 H: high income

### WBC (2004)

L: <= 825  
 LM: 826-3,255  
 UM: 3,256-10,065  
 H: > 10,065

### WBC (2018)

L: <= 1,025  
 LM: 1,026-3,995  
 UM: 3,996-12,375  
 H: > 12,375

# New POPs listed (after 2009)

Region	Africa	Asia	CEE	GRULAC	WEOG	WEOG+CEE	Overall
#Parties	(N=53)	(N=52)	(N=22)	(N=31)	(N=25)	(N=1)	(N=184)
<b>a-HCH and Lindane</b>							
Y2010	49 (92.5%)	39 (75.0%)	16 (72.7%)	27 (87.1%)	20 (80.0%)	1 (100%)	152 (82.6%)
Y2011		1 (1.9%)	1 (4.5%)	1 (3.2%)	2 (8.0%)		5 (2.7%)
Y2012	1 (1.9%)	2 (3.8%)	1 (4.5%)	1 (3.2%)			5 (2.7%)
Y2013		1 (1.9%)	1 (4.5%)	1 (3.2%)			3 (1.6%)
Y2014		1 (1.9%)	1 (4.5%)				2 (1.1%)
Y2015	1 (1.9%)						1 (0.5%)
Y2016	1 (1.9%)	2 (3.8%)			1 (4.0%)		4 (2.2%)
Y2017			1 (4.5%)	1 (3.2%)	1 (4.0%)		3 (1.6%)
Y2018		1 (1.9%)					1 (0.5%)
Y2020	1 (1.9%)						1 (0.5%)
Missing		<b>5 (9.6%)</b>	<b>1 (4.5%)</b>		<b>1 (4.0%)</b>		<b>7 (3.8%)</b>
<b>PFOS, its salts and PFOSF</b>							
Y2010	49 (92.5%)	39 (75.0%)	16 (72.7%)	27 (87.1%)	20 (80.0%)	1 (100%)	152 (82.6%)
Y2011		1 (1.9%)	1 (4.5%)	1 (3.2%)	2 (8.0%)		5 (2.7%)
Y2012	1 (1.9%)	2 (3.8%)		1 (3.2%)			4 (2.2%)
Y2013		1 (1.9%)	1 (4.5%)	1 (3.2%)			3 (1.6%)
Y2014		1 (1.9%)	1 (4.5%)				2 (1.1%)
Y2015	1 (1.9%)						1 (0.5%)
Y2016	1 (1.9%)	2 (3.8%)			1 (4.0%)		4 (2.2%)
Y2017					1 (4.0%)		1 (0.5%)
Y2018		1 (1.9%)					1 (0.5%)
Y2020	1 (1.9%)						1 (0.5%)
Missing		<b>5 (9.6%)</b>	<b>3 (13.6%)</b>	<b>1 (3.2%)</b>	<b>1 (4.0%)</b>		<b>10 (5.4%)</b>

Region	Africa	Asia	CEE	GRULAC	WEOG	WEOG+CEE	Overall
#Parties	(N=53)	(N=52)	(N=22)	(N=31)	(N=25)	(N=1)	(N=184)
<b>PCP</b>							
Y2016	50 (94.3%)	43 (82.7%)	19 (86.4%)	28 (90.3%)	22 (88.0%)	1 (100%)	163 (88.6%)
Y2017					1 (4.0%)		1 (0.5%)
Y2018	1 (1.9%)	2 (3.8%)					3 (1.6%)
Y2020	1 (1.9%)		1 (4.5%)				2 (1.1%)
Missing	<b>1 (1.9%)</b>	<b>7 (13.5%)</b>	<b>2 (9.1%)</b>	<b>3 (9.7%)</b>	<b>2 (8.0%)</b>		<b>15 (8.2%)</b>
<b>SCCP</b>							
Y2018	50 (94.3%)	44 (84.6%)	19 (86.4%)	28 (90.3%)	23 (92.0%)	1 (100%)	165 (89.7%)
Y2020	1 (1.9%)	1 (1.9%)					2 (1.1%)
Missing	<b>2 (3.8%)</b>	<b>7 (13.5%)</b>	<b>3 (13.6%)</b>	<b>3 (9.7%)</b>	<b>2 (8.0%)</b>		<b>17 (9.2%)</b>
<b>pentaBDE and octaBDE</b>							
Y2010	49 (92.5%)	39 (75.0%)	16 (72.7%)	27 (87.1%)	20 (80.0%)	1 (100%)	152 (82.6%)
Y2011		1 (1.9%)	1 (4.5%)	1 (3.2%)	1 (4.0%)		4 (2.2%)
Y2012	1 (1.9%)	2 (3.8%)					3 (1.6%)
Y2013		1 (1.9%)	1 (4.5%)				2 (1.1%)
Y2014			1 (4.5%)				1 (0.5%)
Y2015	1 (1.9%)						1 (0.5%)
Y2016		1 (1.9%)			1 (4.0%)		2 (1.1%)
Y2017					1 (4.0%)		1 (0.5%)
Y2018		1 (1.9%)					1 (0.5%)
Y2020	1 (1.9%)						1 (0.5%)
Missing	<b>1 (1.9%)</b>	<b>7 (13.5%)</b>	<b>3 (13.6%)</b>	<b>3 (9.7%)</b>	<b>2 (8.0%)</b>		<b>16 (8.7%)</b>
<b>decaBDE</b>							
Y2018	50 (94.3%)	44 (84.6%)	19 (86.4%)	28 (90.3%)	23 (92.0%)	1 (100%)	165 (89.7%)
Y2020	1 (1.9%)	1 (1.9%)					2 (1.1%)
Missing	<b>2 (3.8%)</b>	<b>7 (13.5%)</b>	<b>3 (13.6%)</b>	<b>3 (9.7%)</b>	<b>2 (8.0%)</b>		<b>17 (9.2%)</b>

# Examples: Technical and Quantitative

- Experiences have shown that assessments are difficult to make due to

- Incomplete information

- Lack of contributions/submissions (Note: this is not uncertainty; these are gaps)
- Deadlines not respected
- Formats, units are not compatible

Timelines not respected: 4<sup>th</sup> national report due 31 August 2019

- Until deadline received: 59
- Until August 2020 received: 78

- For assessments, it is necessary to have:

- Harmonized methods with clear hypothesis and deliveries
- Robust approach to collect information/samples (SOP, manual)
- Agreed timelines and assessment approach (Dioxin Toolkit, GMP guidance document)

# Dioxin Release Inventories (PCDD/PCDF as g TEQ/year)

#	Source Groups	Annual Releases (g TEQ/a)					Total
		Air	Water	Land	Product	Residue	
1	Waste Incineration						0.0
2	Ferrous and non-ferrous metal production						0
3	Heat and power generation						0.0
4	Production of mineral products						0.00
5	Transportation						0.00
6	Open burning processes						0
7	Production of chemicals + consumer goods						0
8	Miscellaneous						0.00
9	Disposal/Landfilling						0
10	Hot spots						0.00
<b>1-10</b>	<b>Total</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

Reporting template used for article 15 Assessment of 87 dioxin inventories for release vectors and total

	Africa (N=26)	Asia (N=25)	CEE (N=13)	GRULAC (N=12)	WEOG (N=11)	Overall (N=87)
<b>Region</b>						
Africa	26 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	26 (29.9%)
Asia	0 (0%)	25 (100%)	0 (0%)	0 (0%)	0 (0%)	25 (28.7%)
CEE	0 (0%)	0 (0%)	13 (100%)	0 (0%)	0 (0%)	13 (14.9%)
GRULAC	0 (0%)	0 (0%)	0 (0%)	12 (100%)	0 (0%)	12 (13.8%)
WEOG	0 (0%)	0 (0%)	0 (0%)	0 (0%)	11 (100%)	11 (12.6%)
<b>WBC</b>						
L	5 (19.2%)	1 (4.0%)	0 (0%)	0 (0%)	0 (0%)	6 (6.9%)
LM	15 (57.7%)	10 (40.0%)	2 (15.4%)	1 (8.3%)	0 (0%)	28 (32.2%)
UM	6 (23.1%)	11 (44.0%)	6 (46.2%)	8 (66.7%)	0 (0%)	31 (35.6%)
H	0 (0%)	3 (12.0%)	5 (38.5%)	3 (25.0%)	11 (100%)	22 (25.3%)

- Origin of inventories developed:
- Total of 87 inventories (184 parties!)
- Grouping into UN regions and income (as WBC)
- Inventories ranged from 1999 until 2016 (reference year)

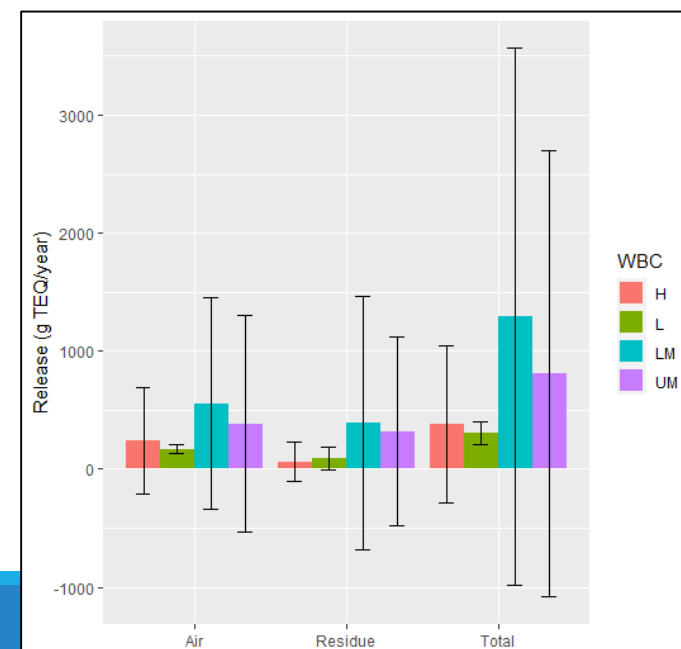
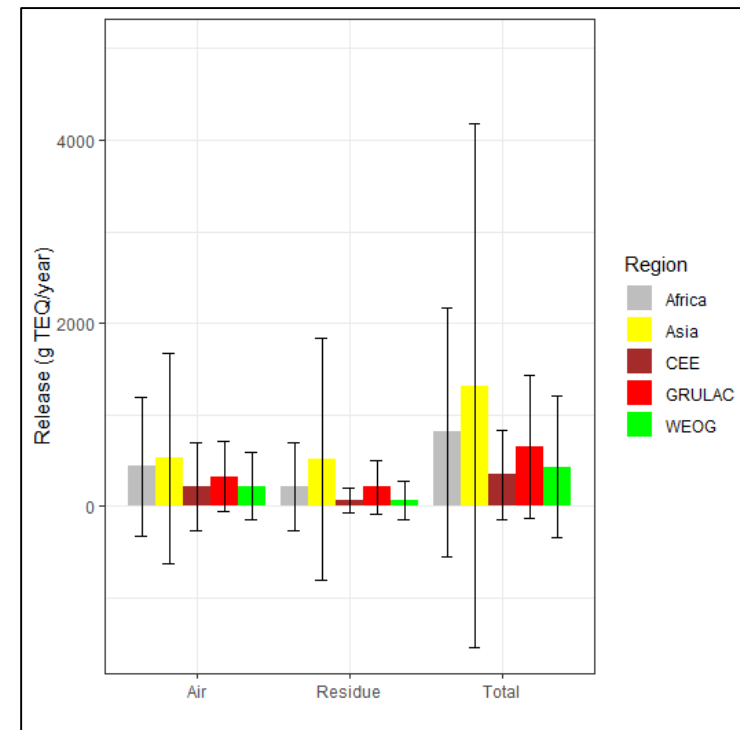


# Dioxin releases (g TEQ/year)

	Africa (N=26)	Asia (N=25)	CEE (N=13)	GRULAC (N=12)	WEOG (N=11)	Overall (N=87)
<b>Air</b>						
Mean (SD)	439 (758)	525 (1150)	211 (479)	328 (377)	222 (370)	387 (785)
Median [Min, Max]	184 [18.5, 3100]	79.0 [0.392, 5040]	58.7 [5.49, 1780]	177 [18.7, 1170]	39.8 [16.7, 1250]	139 [0.392, 5040]
<b>Water</b>						
Mean (SD)	4.25 (11.1)	10.7 (22.2)	66.0 (208)	4.69 (7.87)	0.559 (1.05)	14.9 (81.7)
Median [Min, Max]	0.195 [0, 55.6]	0.123 [0, 81.2]	0.460 [0, 755]	1.61 [0.150, 22.6]	0.200 [0, 3.41]	0.300 [0, 755]
<b>Land</b>						
Mean (SD)	141 (491)	73.0 (206)	3.00 (8.24)	68.2 (98.8)	130 (382)	89.4 (320)
Median [Min, Max]	7.50 [0, 2520]	0.998 [0, 953]	0.120 [0, 30.1]	23.1 [1.24, 303]	2.00 [0, 1280]	5.95 [0, 2520]
<b>Product</b>						
Mean (SD)	7.89 (15.3)	192 (707)	3.82 (8.40)	44.1 (119)	11.9 (36.8)	65.8 (385)
Median [Min, Max]	0.0384 [0, 65.3]	2.19 [0, 3550]	0.0490 [0, 26.8]	5.65 [0, 419]	0 [0, 123]	0.321 [0, 3550]
<b>Residue</b>						
Mean (SD)	220 (481)	517 (1330)	67.2 (129)	210 (298)	70.0 (208)	262 (779)
Median [Min, Max]	40.2 [0.162, 1960]	47.9 [0, 5460]	18.6 [0, 454]	56.7 [3.15, 964]	0 [0, 695]	34.4 [0, 5460]
<b>Total</b>						
Mean (SD)	812 (1360)	1320 (2860)	351 (488)	656 (778)	434 (768)	819 (1770)
Median [Min, Max]	324 [18.7, 5340]	173 [0.563, 10200]	168 [29.2, 1780]	325 [46.9, 2230]	95.2 [16.7, 2160]	215 [0.563, 10200]

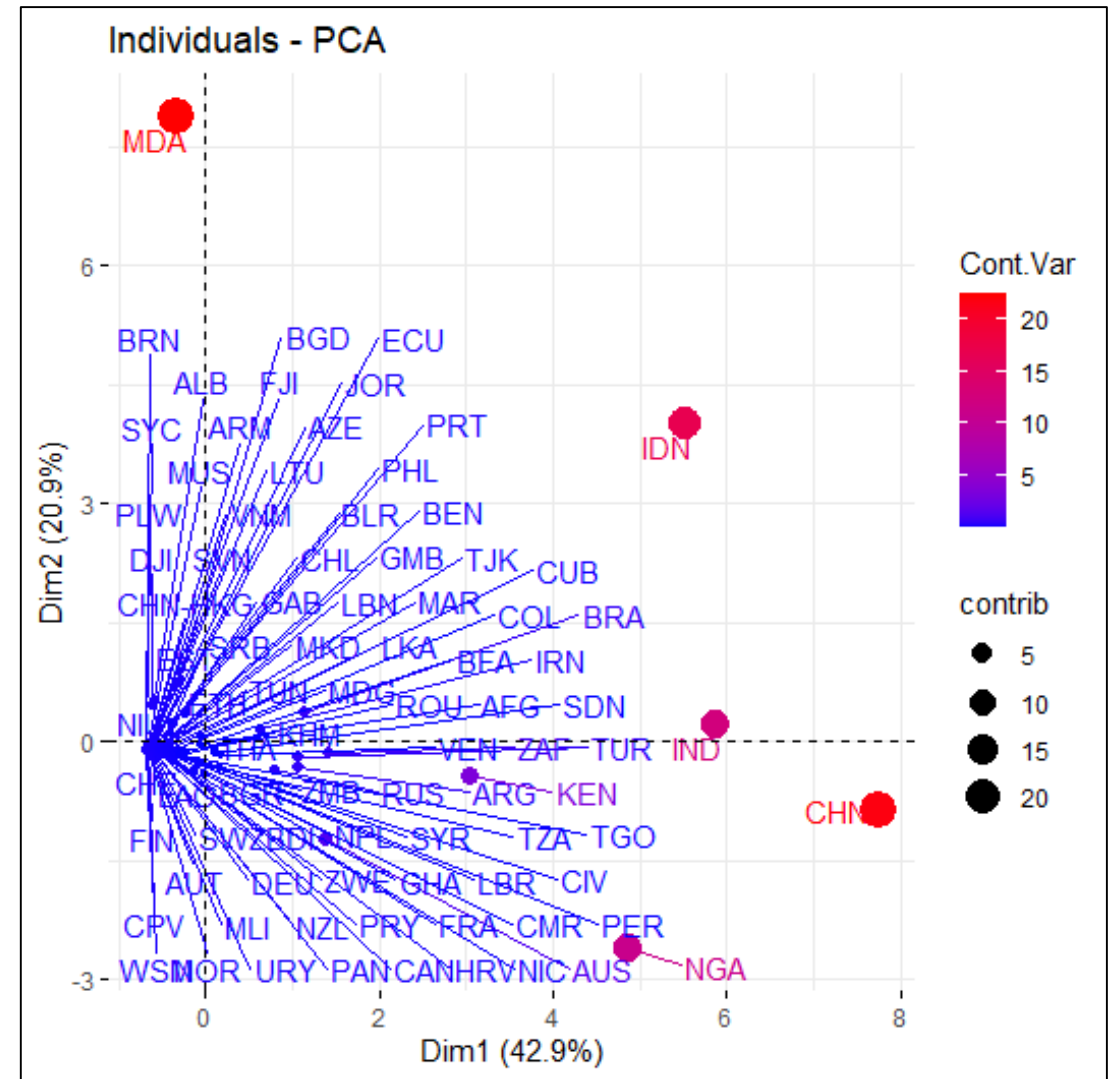
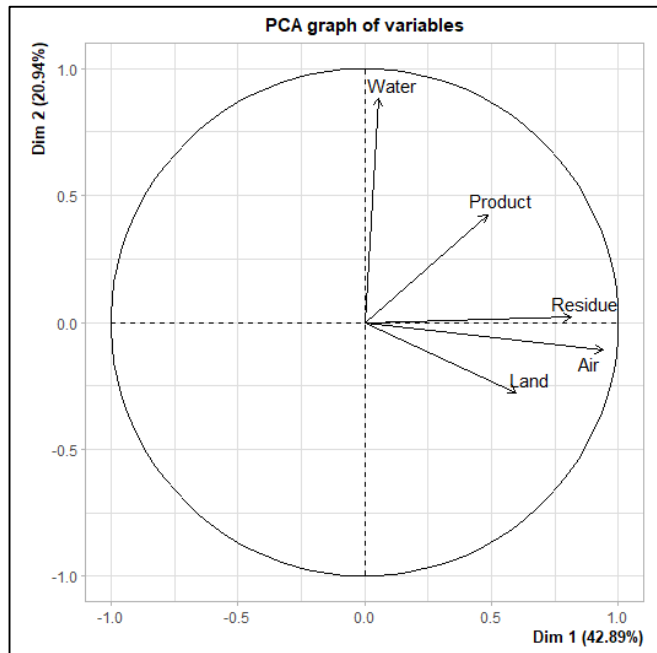
Large standard deviations within regions

High and low income countries tend to have lower releases (H and L)

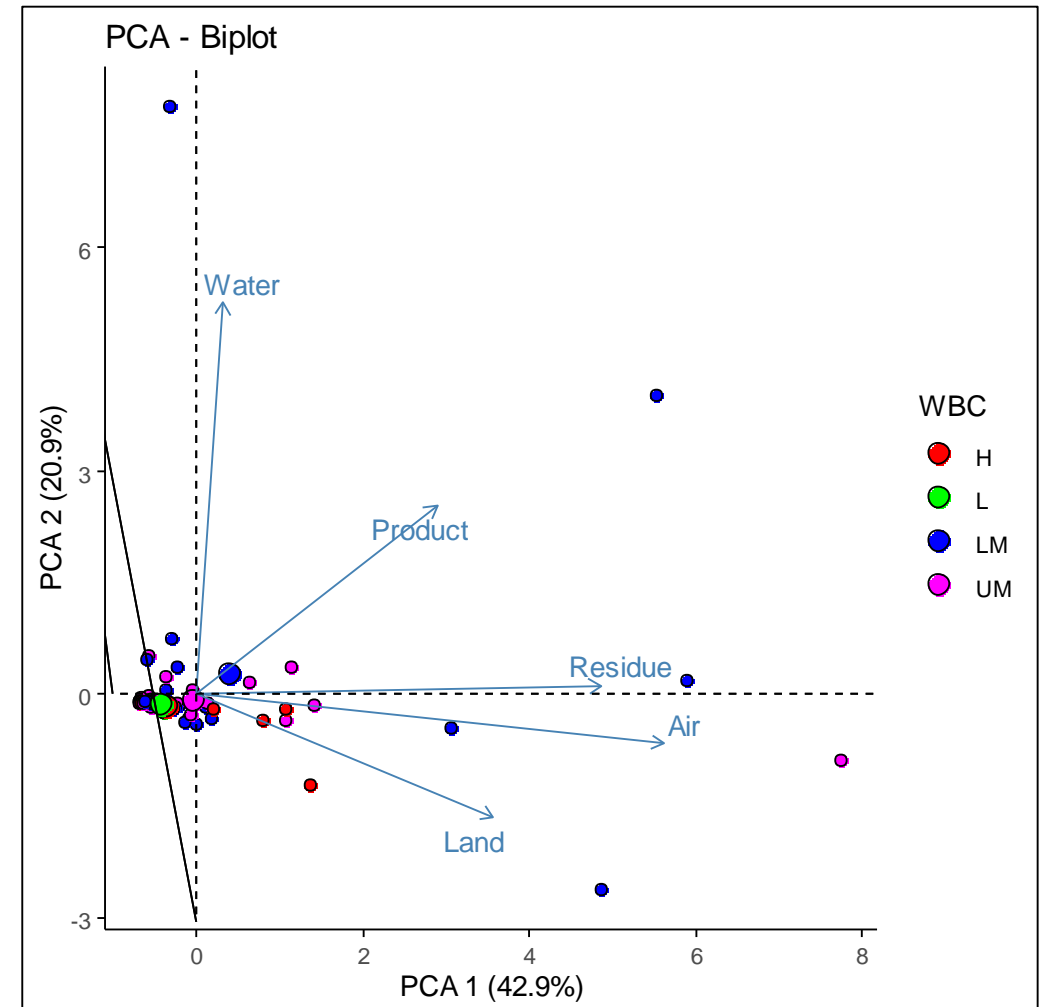
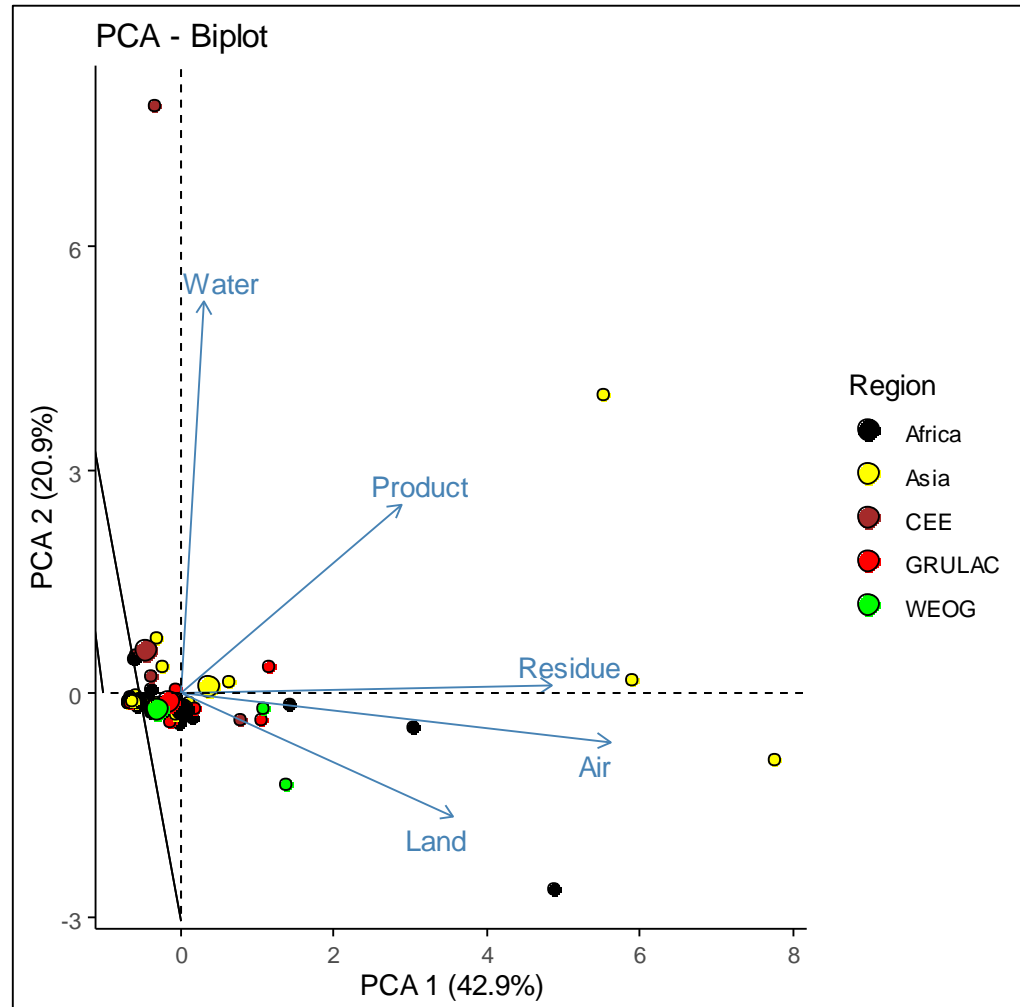


# Summary dioxin inventories

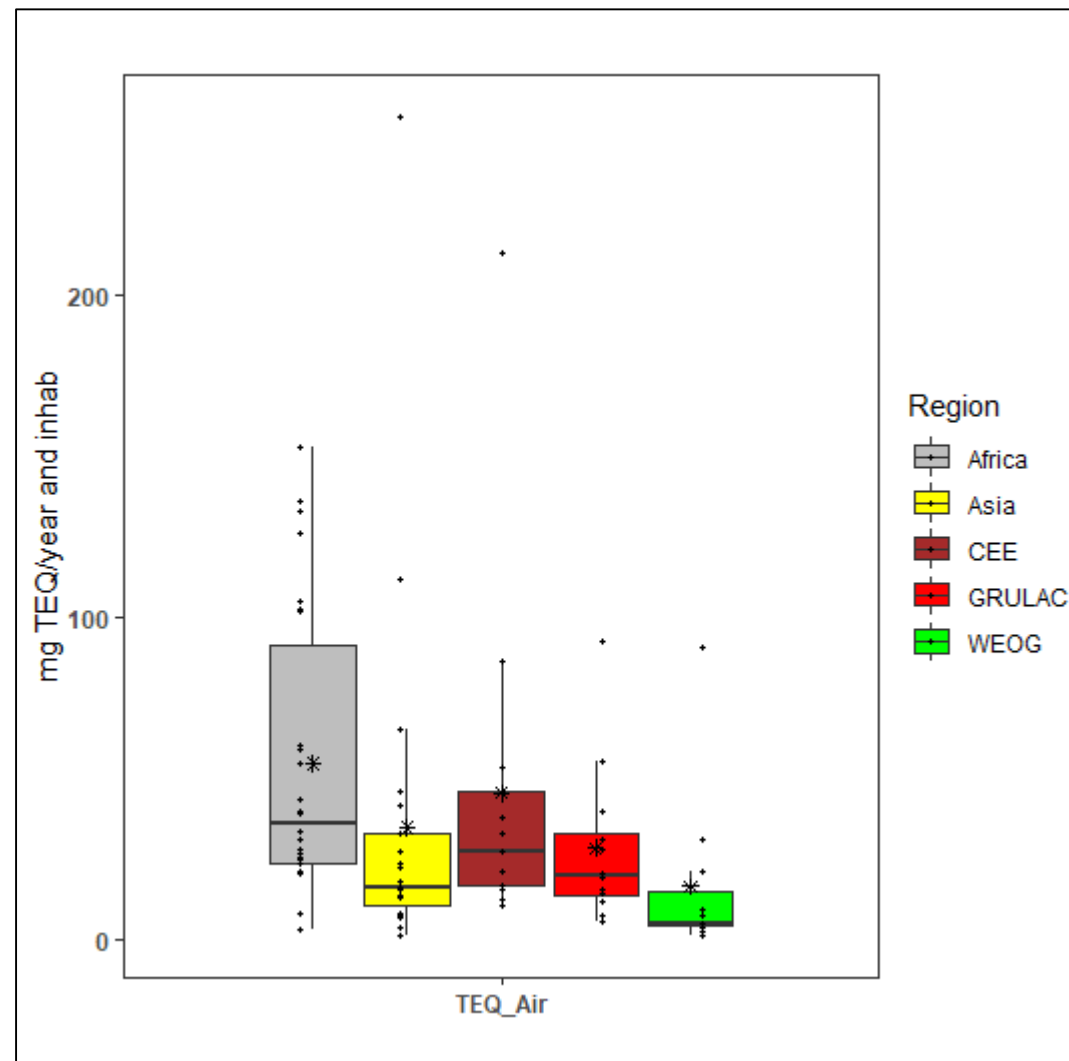
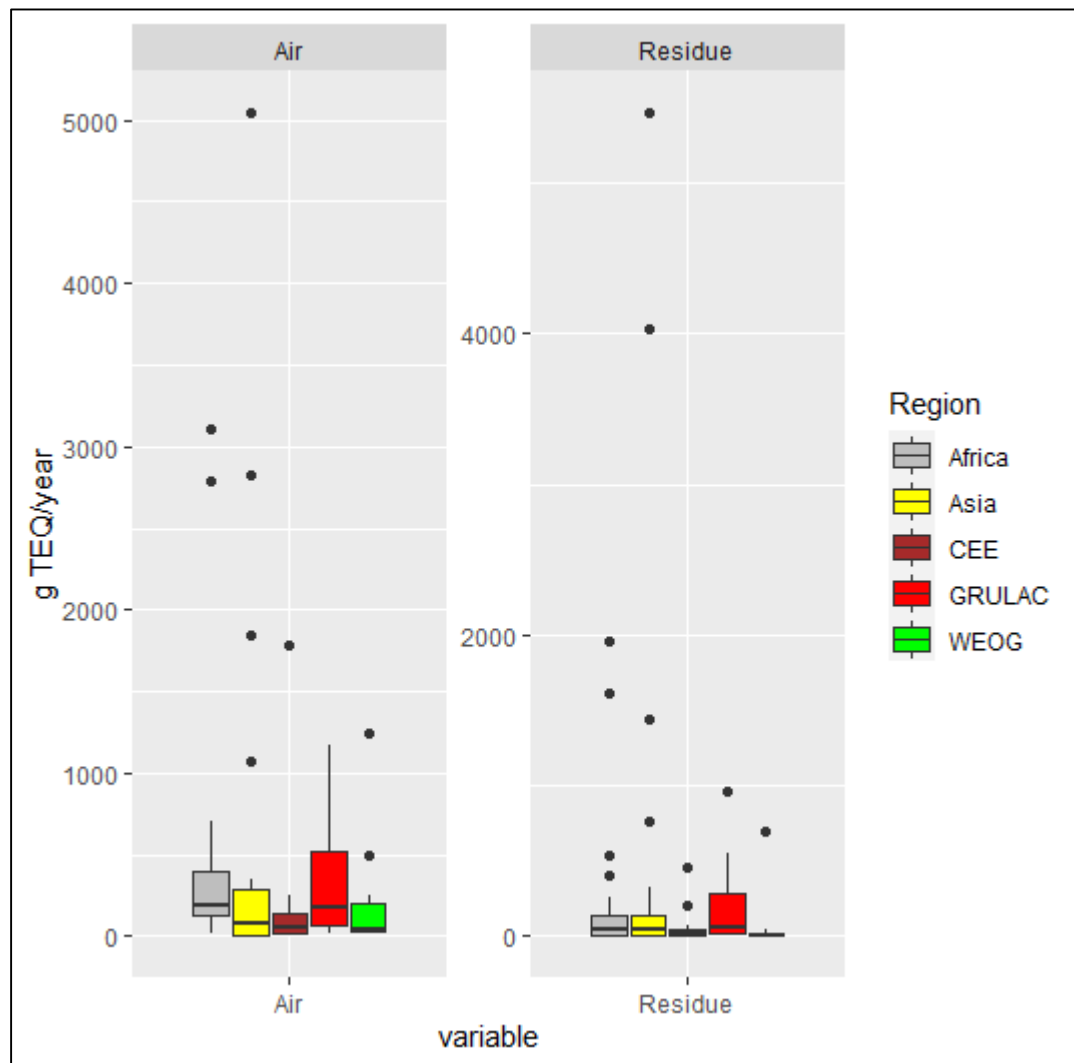
Region	Air	Water	Land	Product	Residue	Total
Africa	11,425	111	3,670	205	5,712	21,122
Asia	13,137	268	1,824	4,807	12,929	32,967
CEE	2,739	858	39	50	873	4,559
GRULAC	3,941	56	819	529	2,524	7,869
WEOG	2,439	6	1,426	131	770	4,773
<b>Grand Total</b>	<b>33,681</b>	<b>1,299</b>	<b>7,778</b>	<b>5,723</b>	<b>22,808</b>	<b>71,289</b>



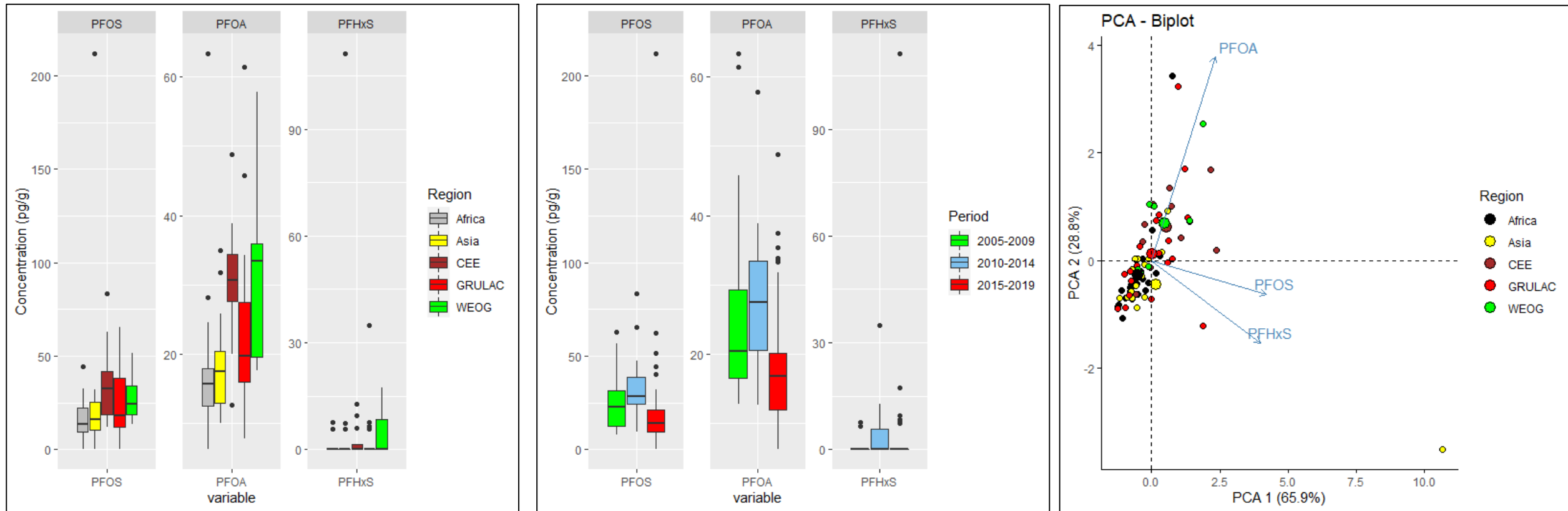
# Principal component analysis – Dioxin inventories



# Dioxin releases region: per country vs. per person



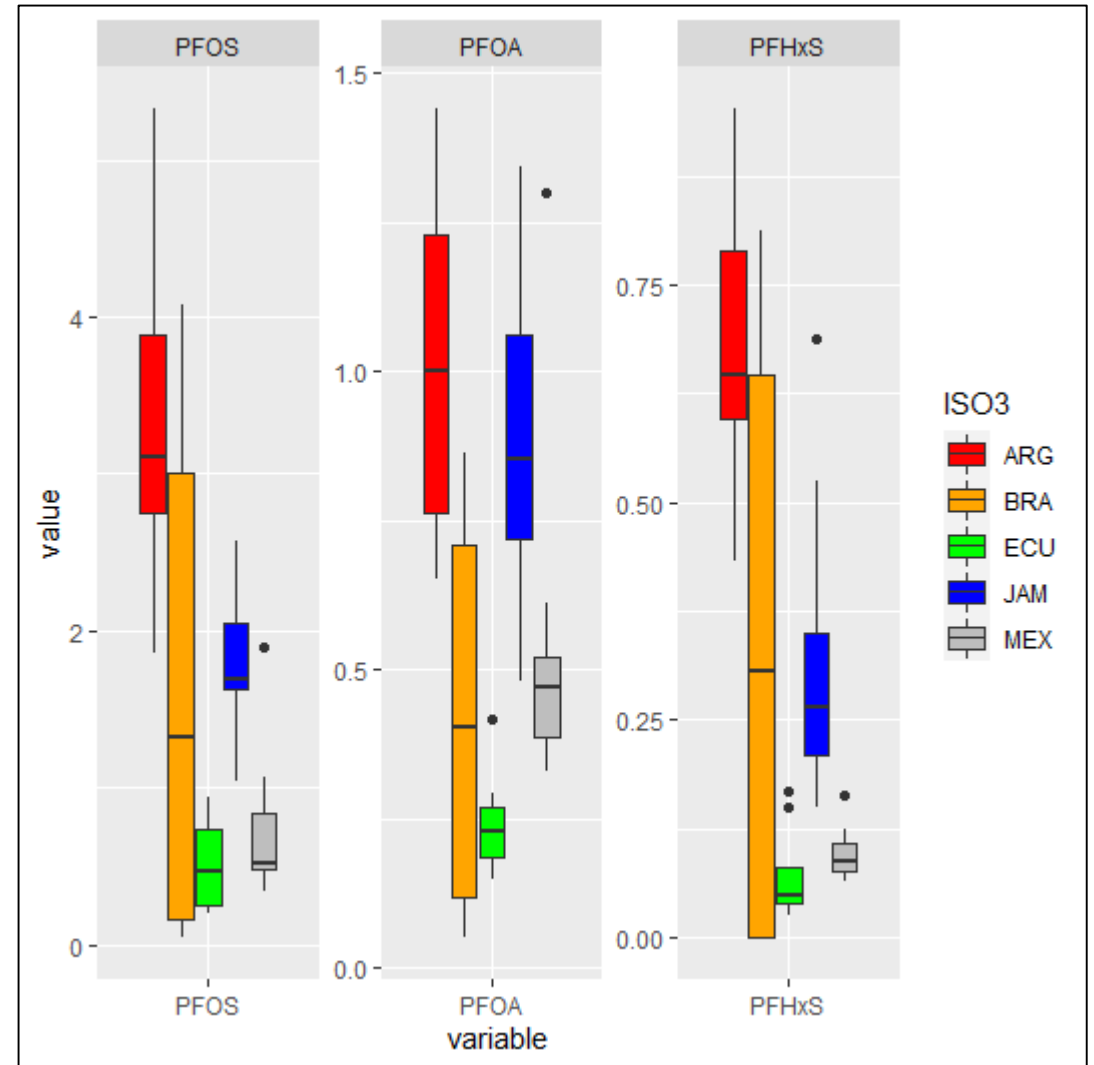
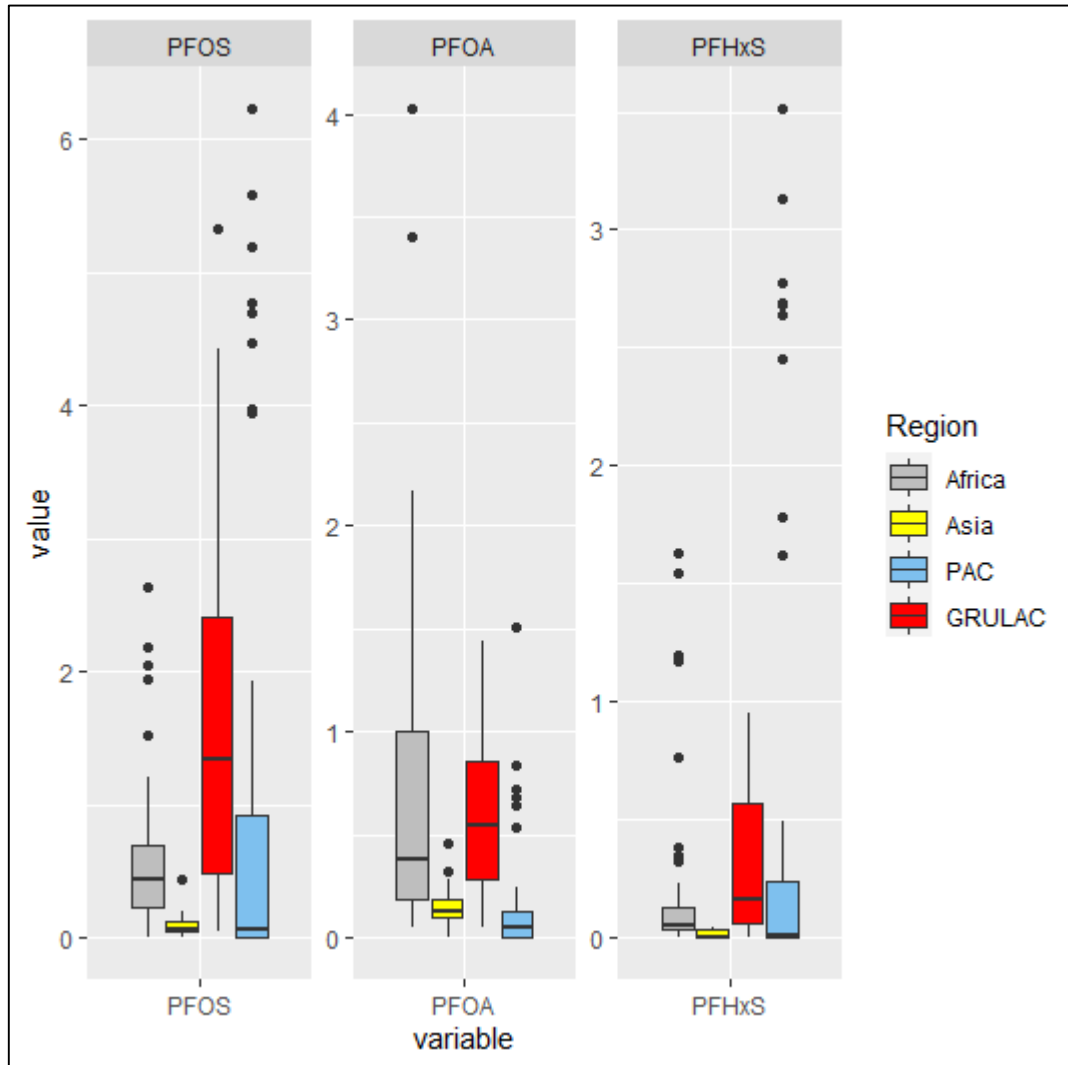
# POPs Monitoring (GMP), 3 PFAS in human milk (n=86)



44 samples from UNEP/GMP2 projects (2016-2019), PFHxS (new POP in 2021?) was detected only in 4 countries:

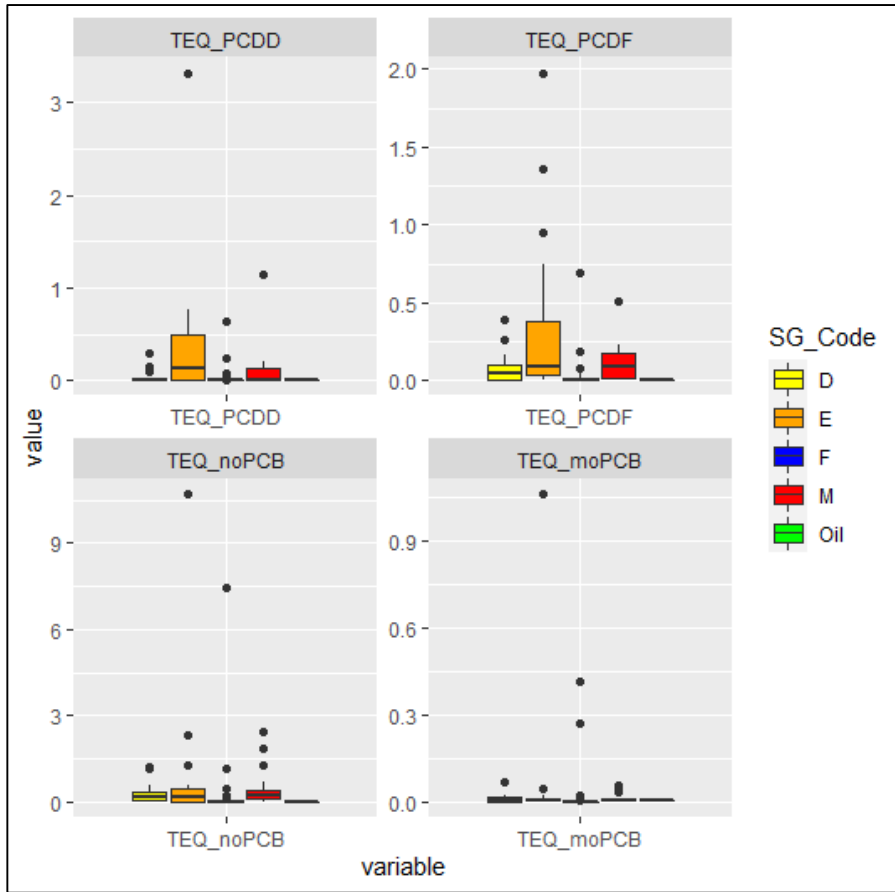
- Kiribati, Thailand, Switzerland, and Sweden

# PFAS in Water: Global vs. GRULAC

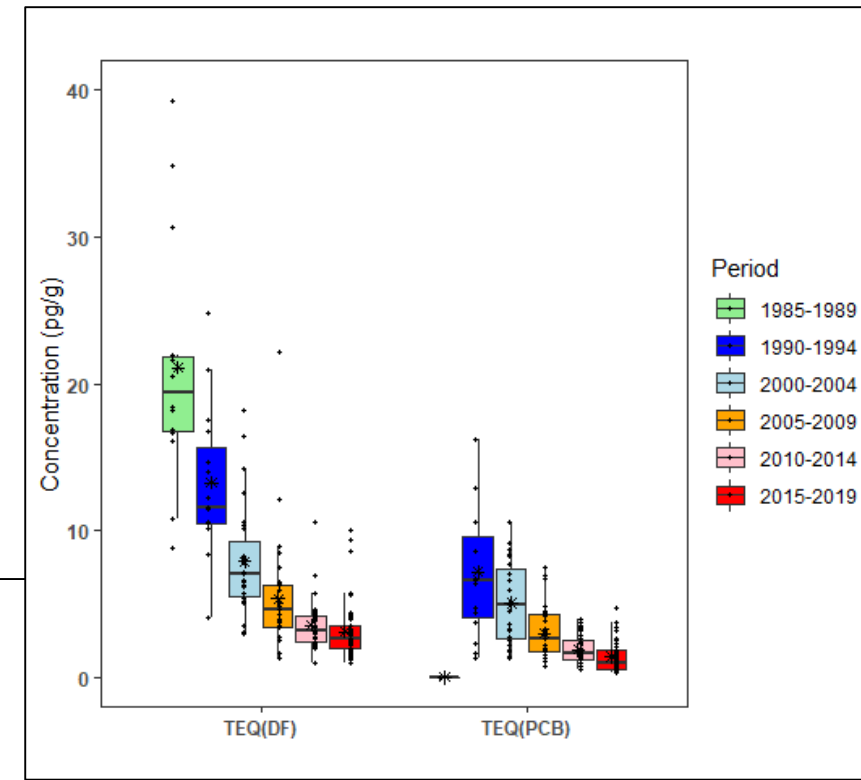
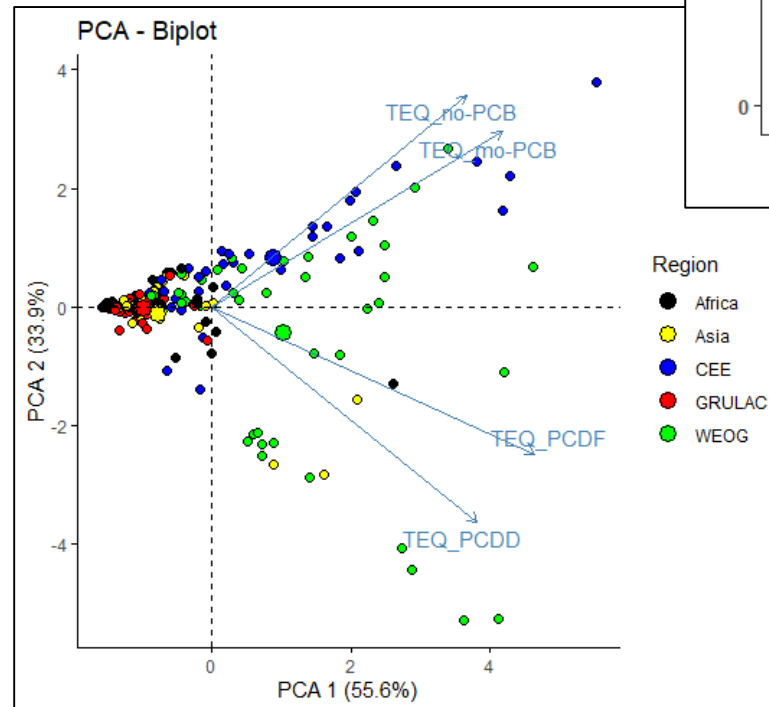


# PCDD/PCDF (as pg TEQ/g) in food (2016-2019)

D=dairy, E=egg, F=fish, M=meat



# PCDD/PCDF (pg TEQ/g fat) in human milk (n=174)



# Next Steps / Work Underway

- Assessment of progress towards PCB elimination (2025 and 2028 goals)  
Work is underway, SIWG established, method under development, report to COPs (2021, 2023)  
Support for effectiveness evaluation committee (to be established in 2021)
- POPs monitoring in core matrices for
  - Regional reports and global report
  - Effectiveness evaluation
  - Interlaboratory assessments of POPs laboratories (for quality assessment and control)
- Dioxin inventories and application of BAT/BEP
  - As a process, no firm assessment of inventories and associated measures -> effectiveness evaluation committee with group of experts on Toolkit and BAT/BEP ?



Muchas gracias – Thank you