

Mercury in illegal gold mining in countries of the Amazon Biome:

Diagnosis of commercial flows, scientific information and policy responses



Report by:

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Consultant

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- I. Mercury supply, trade and demand dynamics**
 - II. Information on the environmental and health effects of mercury releases and releases**
 - III. Responses at regional and country level**
 - IV. Conclusion and potential actions in response**

ASGM and Hg in Latin America

- ▶ In 2010, Latin America and the Caribbean: 15% of atmospheric anthropogenic emissions of mercury in the world compared to 48% emitted in Asia, 17% in Africa, 11% in Europe and 3% in North America (all sources).
- ▶ The largest source of emissions in Latin America is the use of mercury in the ASGM, which represents **71% of the total emissions in the region**, followed by the production of non-ferrous metals (11%) and the production of gold in projects on a large scale (7%) (UNEP, 2014).

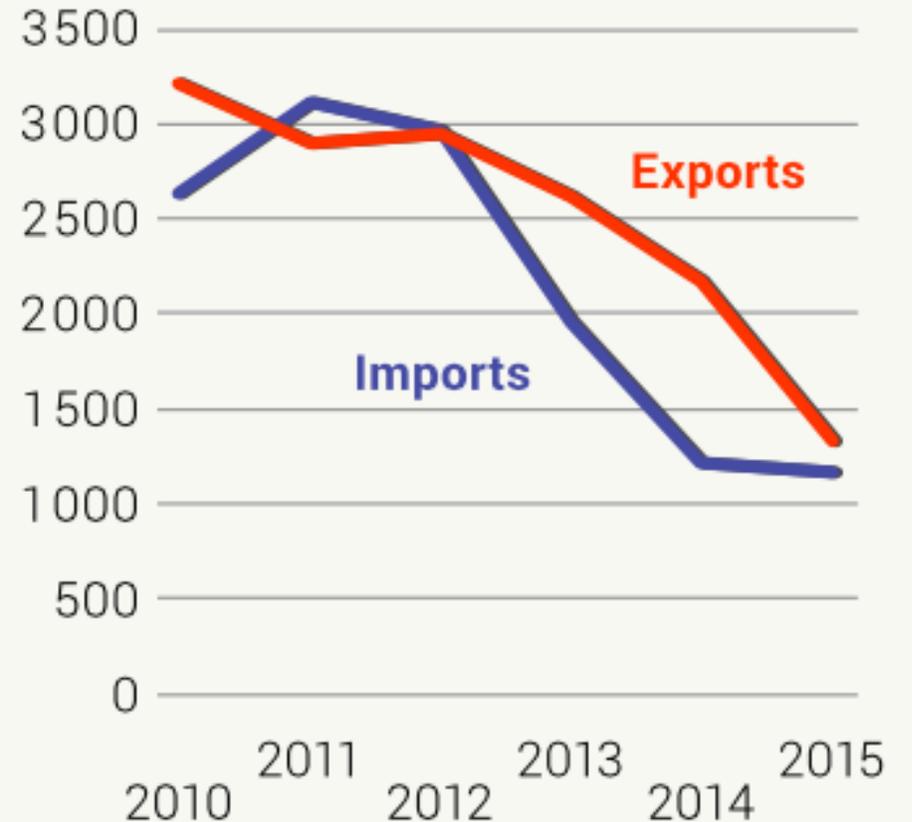
I. MERCURY TRADE

2010: imports were around 2600 tons and exports of approximately 3300 tons.

2015: imports were less than 1200 tons and exports were not more than 1300 tons.

Global mercury trade

Tonnes



Note: Total quantities reported as mercury imports from and exports to the rest of the world according to the UN Comtrade Database (HS 280540–Mercury).

Trade between Amazonian countries and the world – 2008 and 2015

- Excluding French Guiana and Suriname that did not report information, the Amazonian countries **imported a total of 396.5 tons of mercury in 2008 (world total: 2600)**.
- Excluding Suriname and French Guiana that did not report data in that year, Amazon countries **imported 627.6 tons of mercury in 2015 (world total: 1200)**.

Where did mercury come from

- The main suppliers of mercury to the Bioma countries between 1997 and 2016 were the **United States, Spain, Mexico and Germany.**
- Uncertainty about illegal flows – **China and Mexico?**

Figure 5. Global mercury trade, 2008

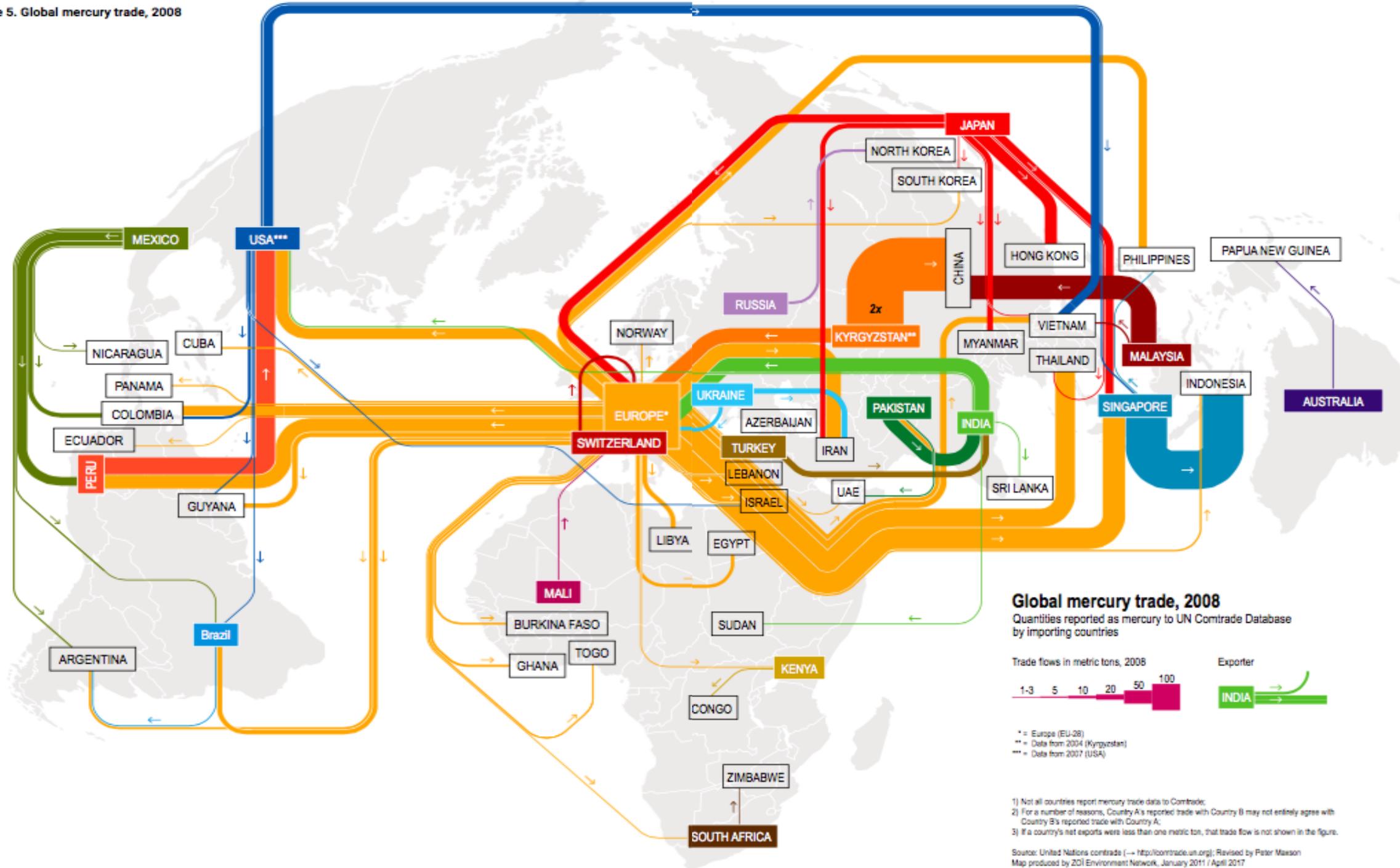
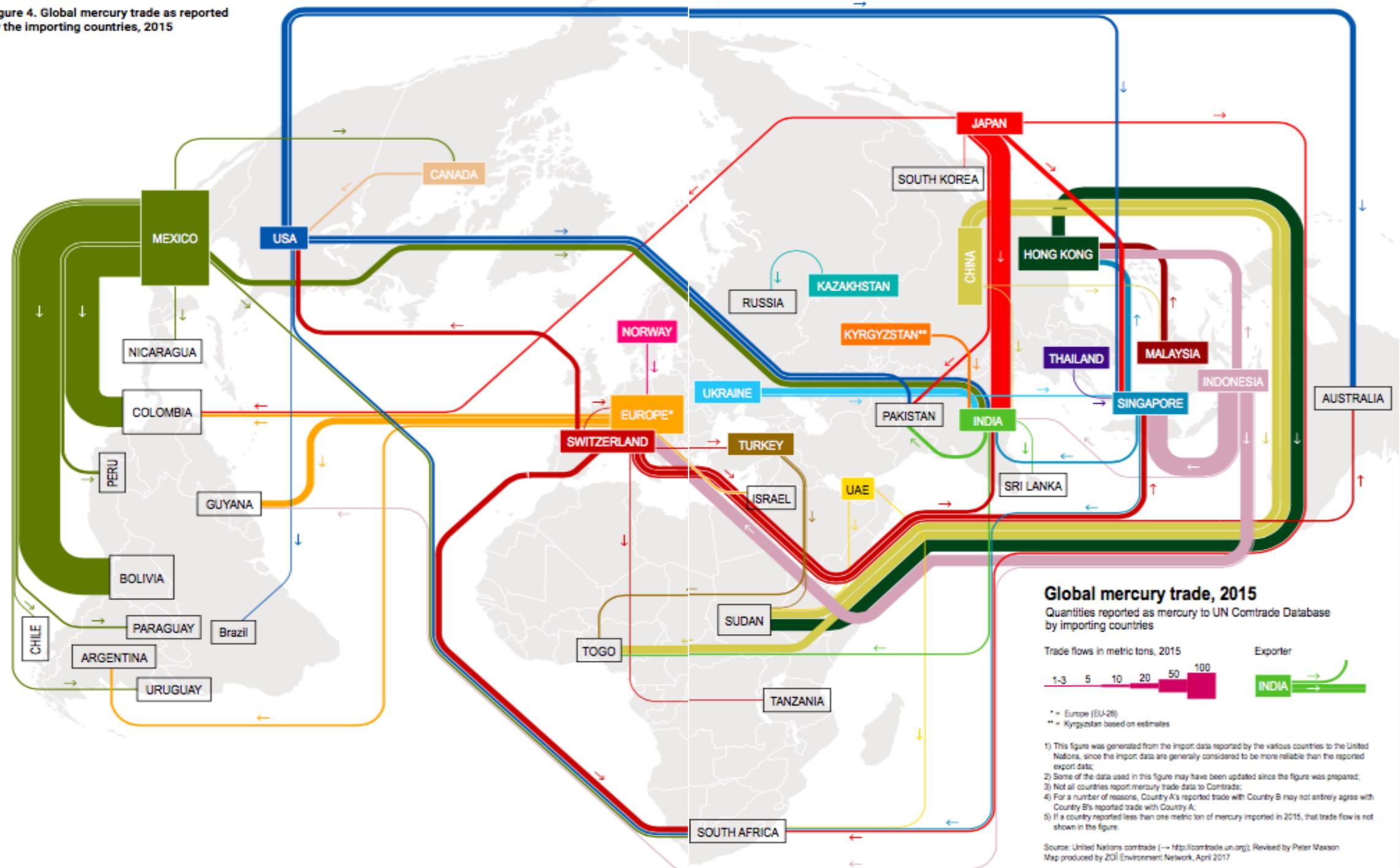
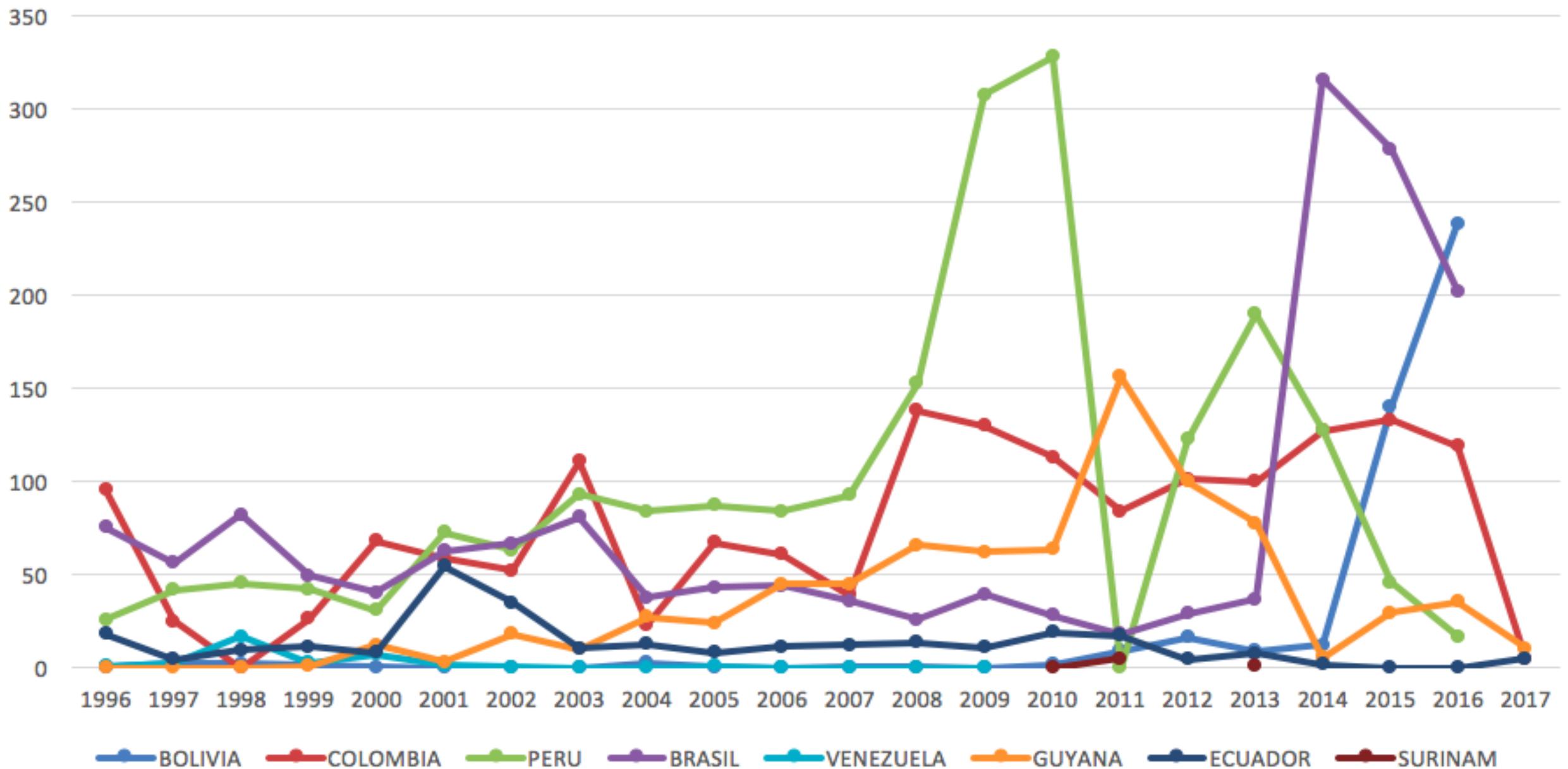


Figure 4. Global mercury trade as reported by the importing countries, 2015



Importaciones de mercurio por país en toneladas 1996-2017



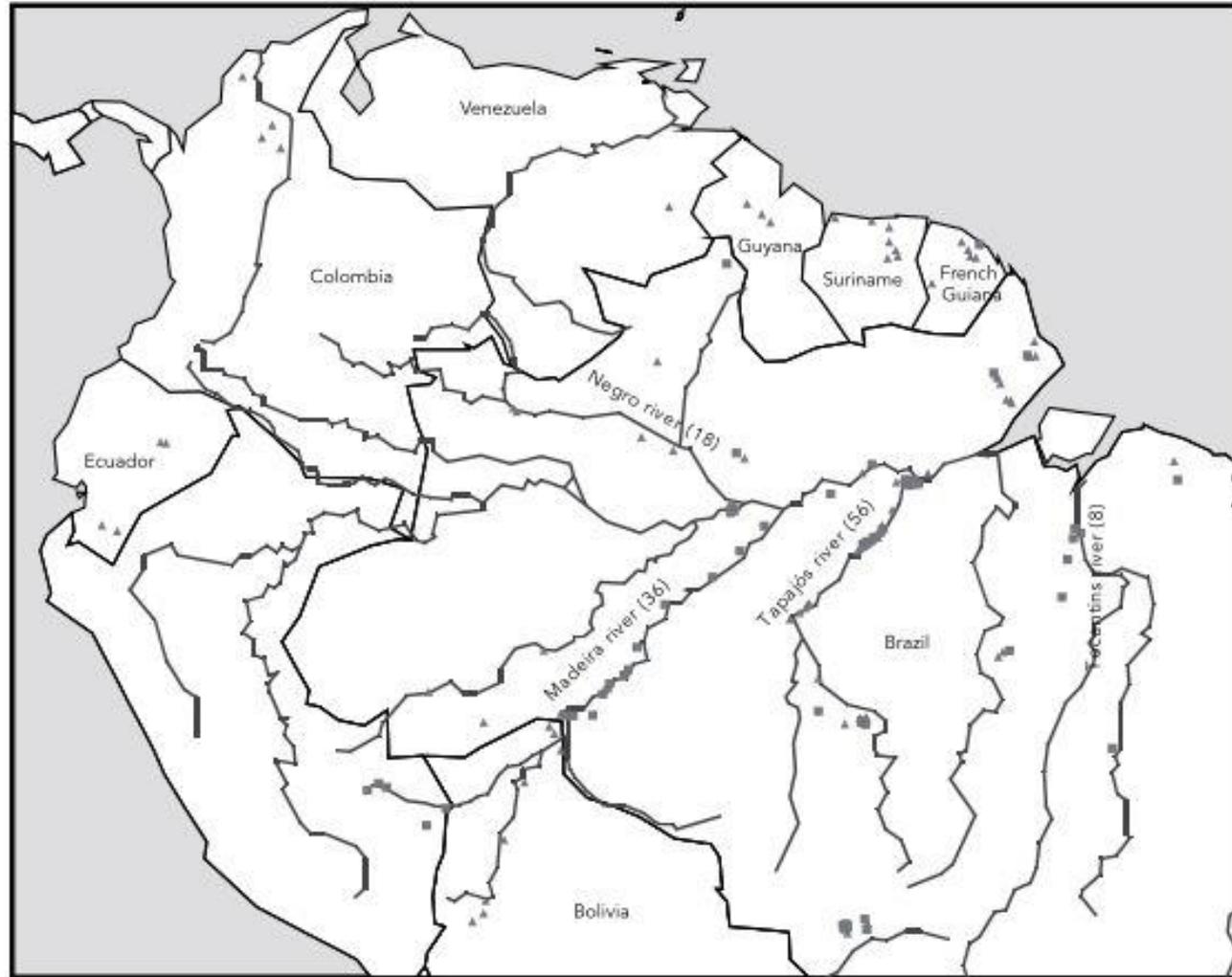
Mercury use

- ➔ In 2015 South America: the region of the world that used the highest amount of mercury in ASGM: 680 tons (85%).
- ➔ Other sectors in South America, marginal contribution
- ➔ Total: South America: **794 tons.**

Region	ASGM	VCM production	Chlor-alkali production	Batteries	Dental applications	Measuring and control devices	Lamps	Electrical and electronic devices	Hg compounds and other applications ²	Regional totals
	mean ³	mean ³	mean ³	mean ³	mean ³	mean ³	mean ³	mean ³	mean ³	mean ³
East and Southeast Asia	645	1 215	8	95	52	208	69	52	62	2 407
South Asia	4	5	27	33	72	39	12	12	59	263
European Union (28 countries)	0	0	85	8	56	3	13	1	84	249
CIS and other European countries	24	6	45	13	19	12	7	7	37	171
Middle Eastern States	0	0	38	13	13	18	7	9	9	107
North Africa	0	0	11	8	4	6	4	2	5	41
Sub-Saharan Africa	366	0	1	24	7	11	5	19	15	447
North America	0	0	8	9	32	2	8	19	61	137
Central America and the Caribbean	16	0	19	9	6	9	4	6	8	78
South America	680	0	35	18	12	20	9	8	13	794
Australia, New Zealand and Oceania	0	0	0	1	3	1	3	13	1	22
Total per application	1 735	1 226	277	231	274	330	142	147	354	4 715

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- ▶ On average, 199 of the 727 tons of mercury are emitted annually into the atmosphere from the ASGM zones of the Amazon biome countries (UNEP 2013). In other words, **27.5% of global mercury emissions come from ASGM in the Amazon countries.**
 - ▶ In all of South America, 313 tons are released by the ASGM sector, which correspond to **35% of the total releases from ASGM in the world.**
 - ▶ Unlike emissions data, there is no certainty about how many of the 313 tons of releases from the South American region come from the Amazon countries.

Mercury research sites in the Amazon Biome

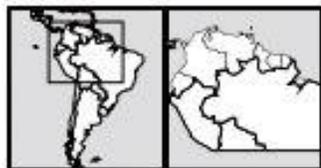


Publication year

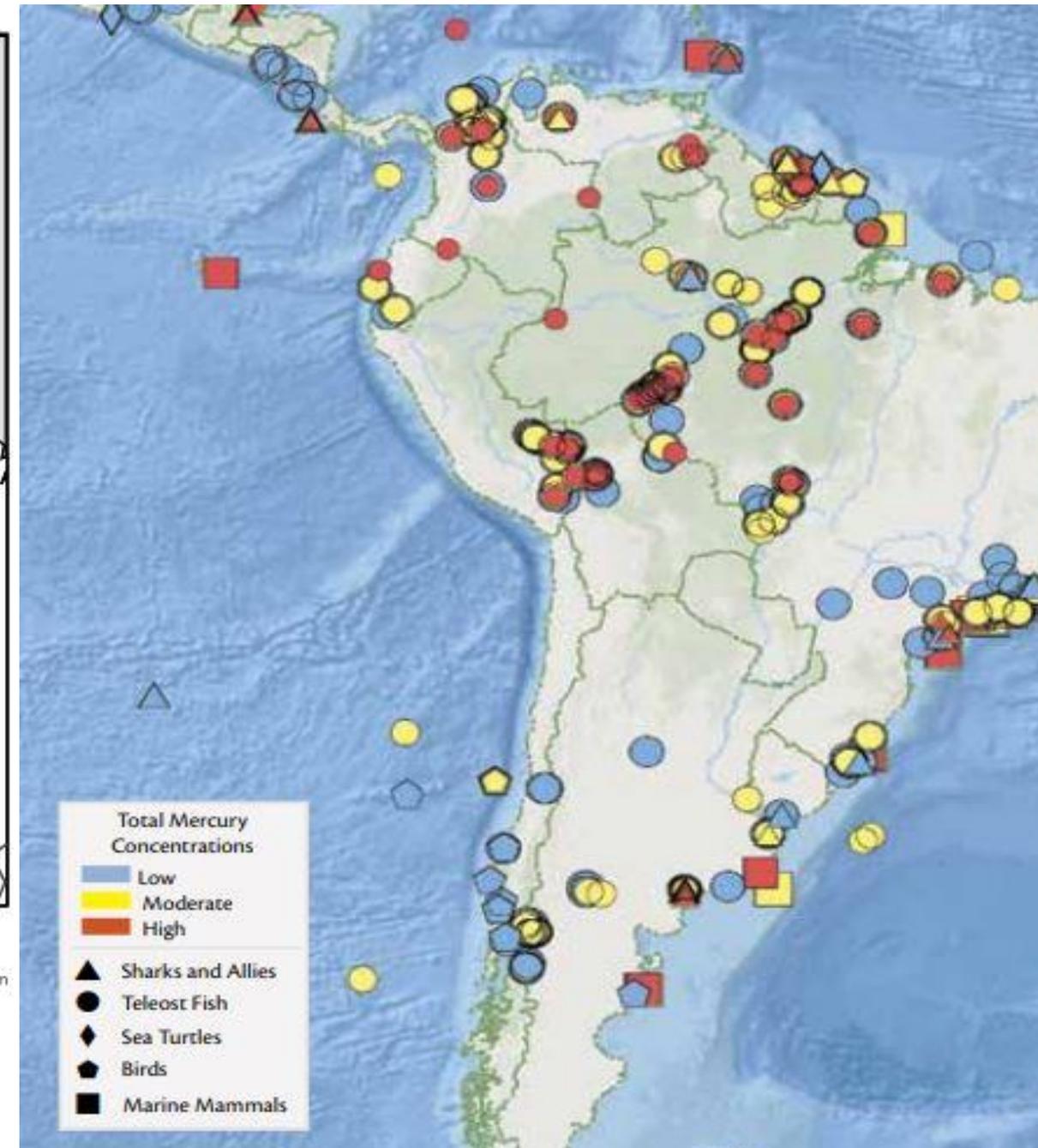
■ 1990 to 1998

▲ 1998 to 2005

— Main rivers



0 250 500 km



Total Mercury Concentrations

Low

Moderate

High

▲ Sharks and Allies

● Teleost Fish

◆ Sea Turtles

● Birds

■ Marine Mammals

Signatures and ratifications of the Minamata Convention in Amazonian countries

PAÍS	FIRMA	RATIFICACIÓN
Bolivia	Oct. 10/2013	Ene. 26/2016
Brasil	Oct. 10/2013	Ago. 8/2017
Colombia	Oct. 10/2013	PENDING (law approved in Mar. 21/2018 judicial review pending)
Ecuador	Oct. 10/2013	29/07/2016
Perú	Oct. 10/2013	Ene. 21/2016
Venezuela	Oct. 10/2013	PENDING
Guyana	Oct. 10/2013	Sep. 24/2014
Francia (Guayana F.)	Oct. 10/2013	Jun. 15/2017
Surinam	Ago. 2/2018	Ago. 2/2018

Amazon Cooperation Treaty Organization

▶ In 2006, ACTO, together with the Ministry of Environment of Brazil and with the support of the Dept. of the State of EE UU., Issued a Regional Action Plan for the Prevention and Control of Mercury Pollution in Amazonian Ecosystems

▶ Work Plan 2016-2018 of the Regional Health Coordination of the ACTO: project "Regional Proposal for the protection of Health in Amazonian Populations exposed to mercury in the Member Countries of the ACTO" and proposed to be carried out within the next three years a "Second Amazon Regional Meeting on Mercury and its effects on health" (pending)



OTCA

Organización del Tratado
de Cooperación Amazónica

1. Regional platform for dialogue and action on mercury and, in general, mining in the Amazon
2. Research on regional and local mercury flows
3. Tool for interactive visualization of trade and supply flows (creation of awareness)
4. The social, cultural and economic dimensions of mining and mercury pollution
5. Biomonitoring network at national level and in transboundary basins and atmospheric emissions monitoring network
6. Identification of contaminated sites under Art. 12 of the Minamata Convention
7. Discussion on the viability of market mechanisms in Amazonian territories

8. Local impact: Amazonian vision in the construction of the Action Nations Plans for ASGM

9. Incidence in pan-Amazon processes: ACTO, ACN, PAHO, bi-and tri-national agendas

10. Global impact: COP 2 Minamata

11. Inclusion of the mercury issue in agendas on deforestation, climate change and energy (thermoelectric plants and dams)

BOGOTA DECLARATION OF REPRESENTATIVES OF CIVIL SOCIETY ON MERCURY CONTAMINATION IN THE AMAZON BIOME

We, civil society representatives from Bolivia, Colombia, Ecuador, Guyana, and Peru, within the framework of the Working Group on the Implications of Mining Activities in the Colombian Amazon conducted in the city of in October 24th-25th 2018, we express our concern about the serious effects on public health and ecosystems caused by the indiscriminate use of mercury by informal and illegal mining in the Amazon region of our countries in particular and in the Amazon biome in general.

Therefore, following the meeting for the Latin American and Caribbean region in preparation for the Second Meeting of the Conference of the Parties (COP2) in the Minamata Convention on Mercury to be held on October 30 and 31, 2018 , we declare that in order to promote the reduction of mercury in air, water, soil, flora and fauna we urge:

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1. That countries implement measures for the integral attention of the cultural, ecological, social and public health affectations derived from mercury use in ASGM.
 2. That gold certification processes be promoted in a way that ensures the traceability of the mineral for international and national trade.
 3. That a regional strategy be developed to combat mercury smuggling where governments allocate human and financial resources to do so.
 4. That the countries develop a strategy for the care of people affected by chronic and acute mercury contamination.

Center for Amazon Scientific Innovation (CIN CIA), Cesar Ipenza, Consultant,, Foundation for Conservation and Sustainable Development (FCDS), Zoologico Society of Frankfurt (SZF) Colombia, Zoologic Society of Frankfurt (SZF) Peru, Peruvian Society of Environmental Law (SPDA), World Wildlife Fund (WWF) Peru