FIU

Robert Stempel College of Public Health & Social Work

8TH INTERNATIONAL CONFERENCE

GLOBAL HEALTH CONSORTIUM

BUILDING ALLIANCES IN GLOBAL HEALTH

MAY 22 - 25, 2018

Lead and Mercury in Colombia: A challenge for public health

Ministry of Health and Social Protection
Department of Promotion and Prevention
Environmental Health Division

May 2018

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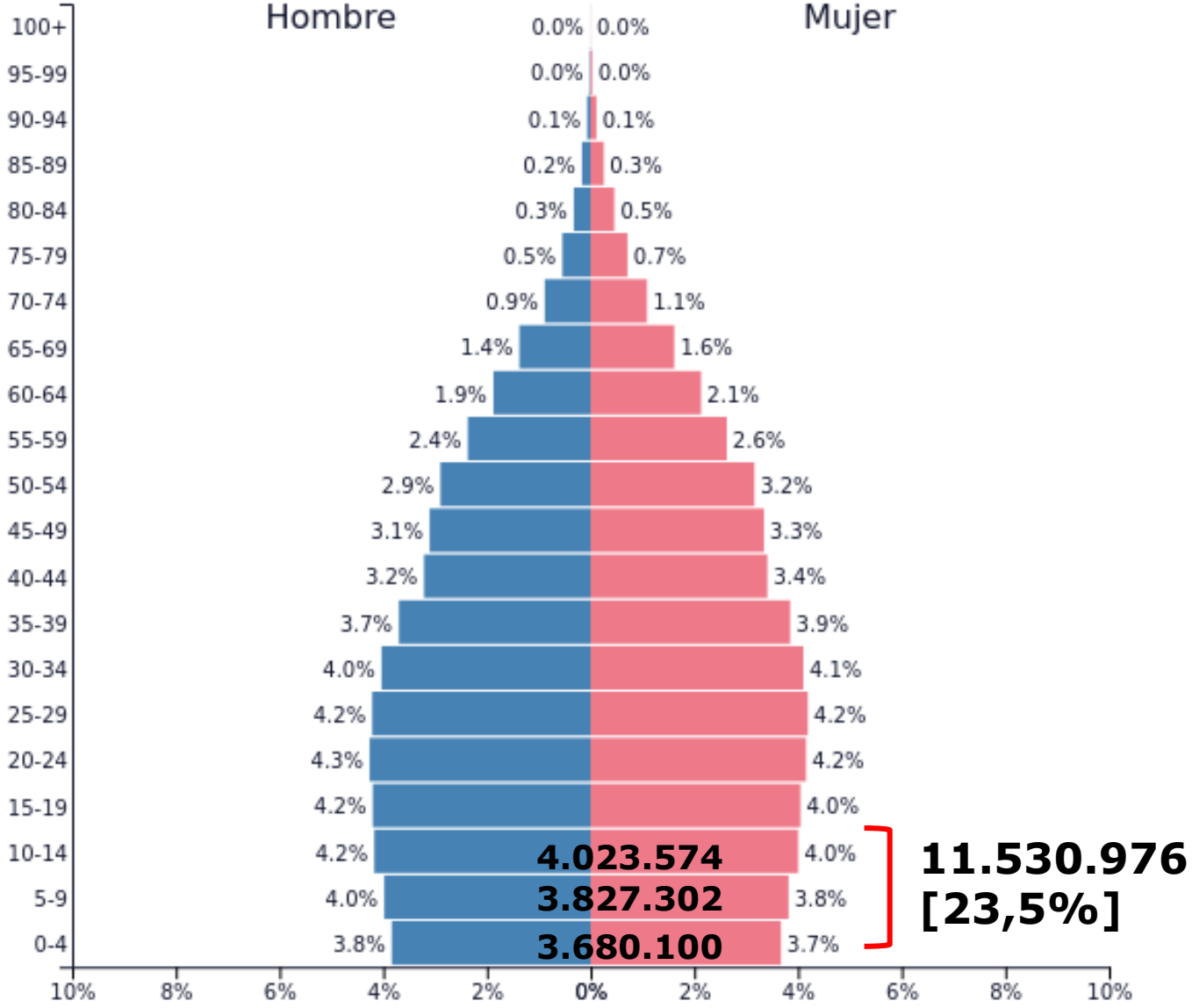
GOBIERNO DE COLOMBIA

Contenido

Colombian Context

Fuente: http://laportadahotel.com/mapa2.jpg



PopulationPyramid.net

Colombia - 2017
Población: **49,067,981**

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Mercury related problems

Fuente:
http://www.elcolombiano.com/documents/10157/0/1060x701/8c90/998d562/none/11101/BOAV/image_content_22162664_20141121093630.jpg

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Mercury related problems – Colombia

Mercury use in gold mining

↓

Conducted research

↓

Impacts

Fuente: https://www.las2orillas.co/colombia-mineria-tragedia-social/Minería ilegal
Foto: elespectador.com

Mercury related problems – Colombia

Mercury importation 2003-2013:
1020 tons

Smuggled mercury for ilegal mining
Aprox. 50 tons

Anual mean:
95.1 tons

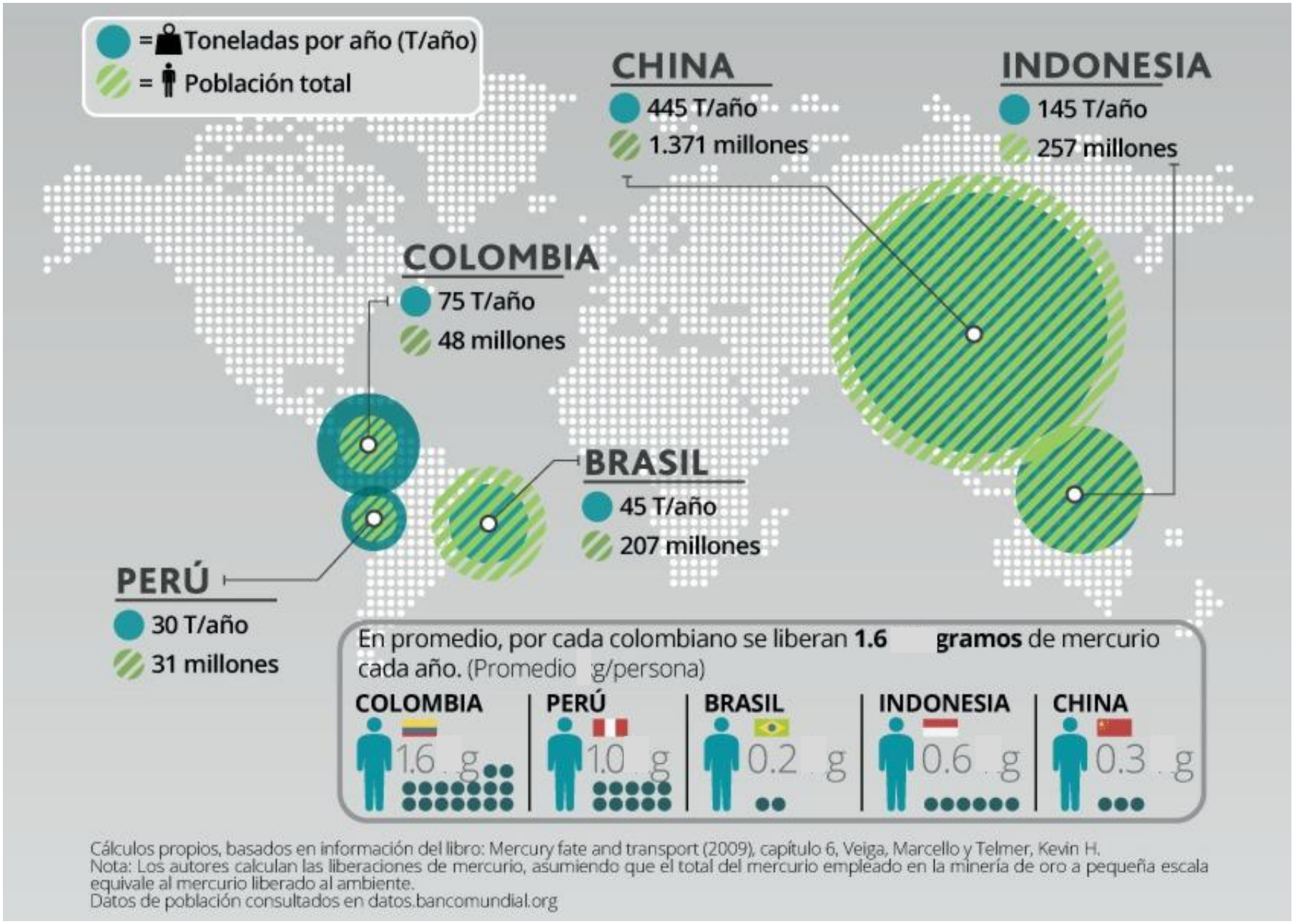
Annual estimated mining consumption :
193 tons
- 105 legal activity
- 88 ilegal activity

Fuente: https://www.dnp.gov.co/Paginas/%E2%80%9CTambi%C3%A9n-tenemos-que-hacer-la-paz-con-la-naturaleza-porque-el-mercurio-sigue-causando-estragos%E2%80%9D-Sim%C3%B3n-Gaviria-Mu%C3%B1oz.aspx

Colombia mercury related problems

- Production of one gram of gold requires seven grams of mercury
- Colombian gold production: 58 ton /year
- **Estimated annual environmental release : 75 ton**
- Third country that releases more mercury in the world (1°China - 2° Indonesia)
- Greatest release per capita

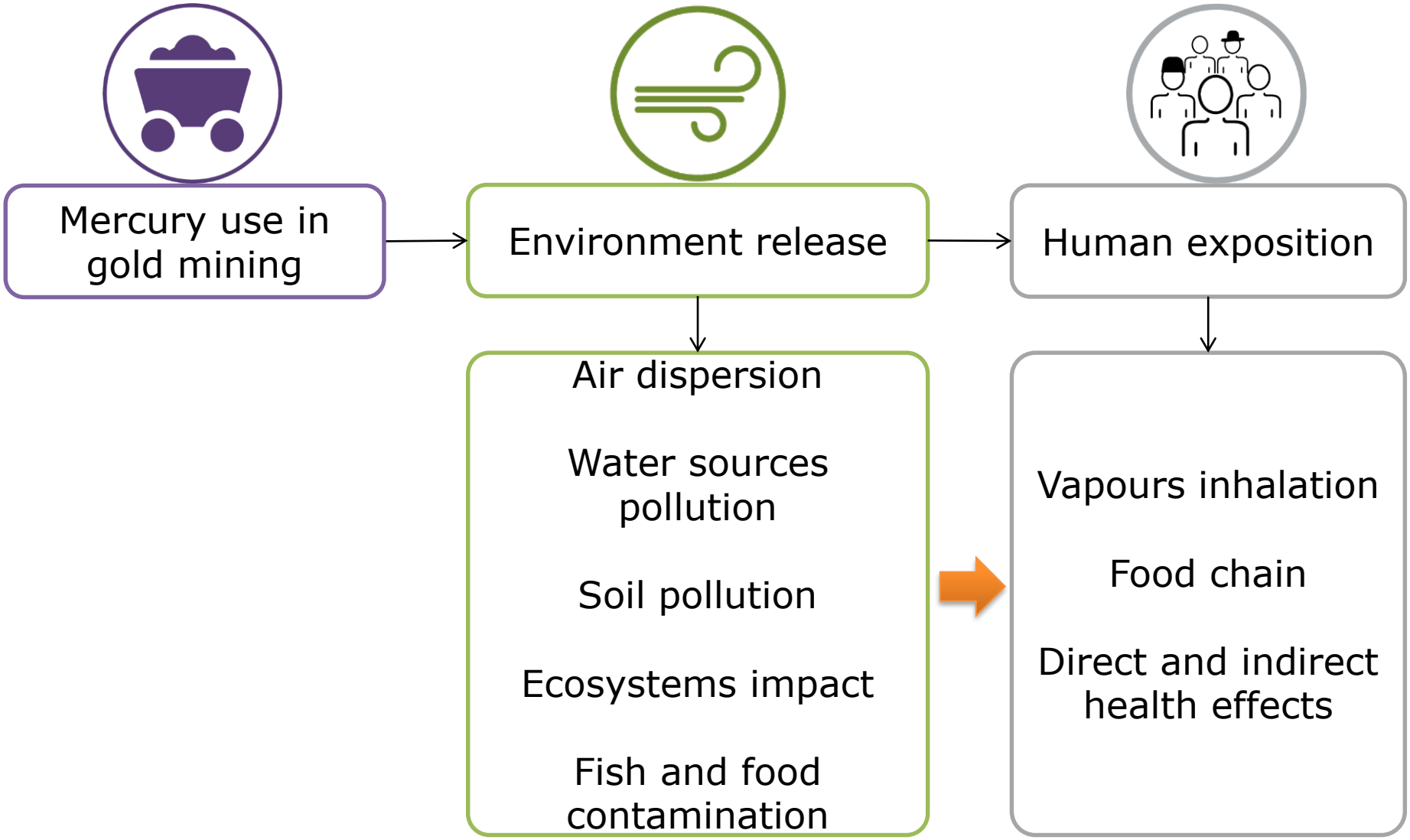
Fuente: https://www.dnp.gov.co/Paginas/%E2%80%9CTambi%C3%A9n-tenemos-que-hacer-la-paz-con-la-naturaleza-porque-el-mercurio-sigue-causando-estragos%E2%80%9D-Sim%C3%B3n-Gaviria-Mu%C3%B1oz.aspx



Cálculos propios, basados en información del libro: Mercury fate and transport (2009), capítulo 6, Veiga, Marcello y Telmer, Kevin H.
Nota: Los autores calculan las liberaciones de mercurio, asumiendo que el total del mercurio empleado en la minería de oro a pequeña escala equivale al mercurio liberado al ambiente.
Datos de población consultados en datos.bancomundial.org

Fuente: García, C. et al (ed) (2017). El convenio de Minamata. Así actúa Colombia frente al mercurio. Cali. Colombia: WWF – Colombia

Mercury related problems – Colombia



Areas with the highest mercury contamination

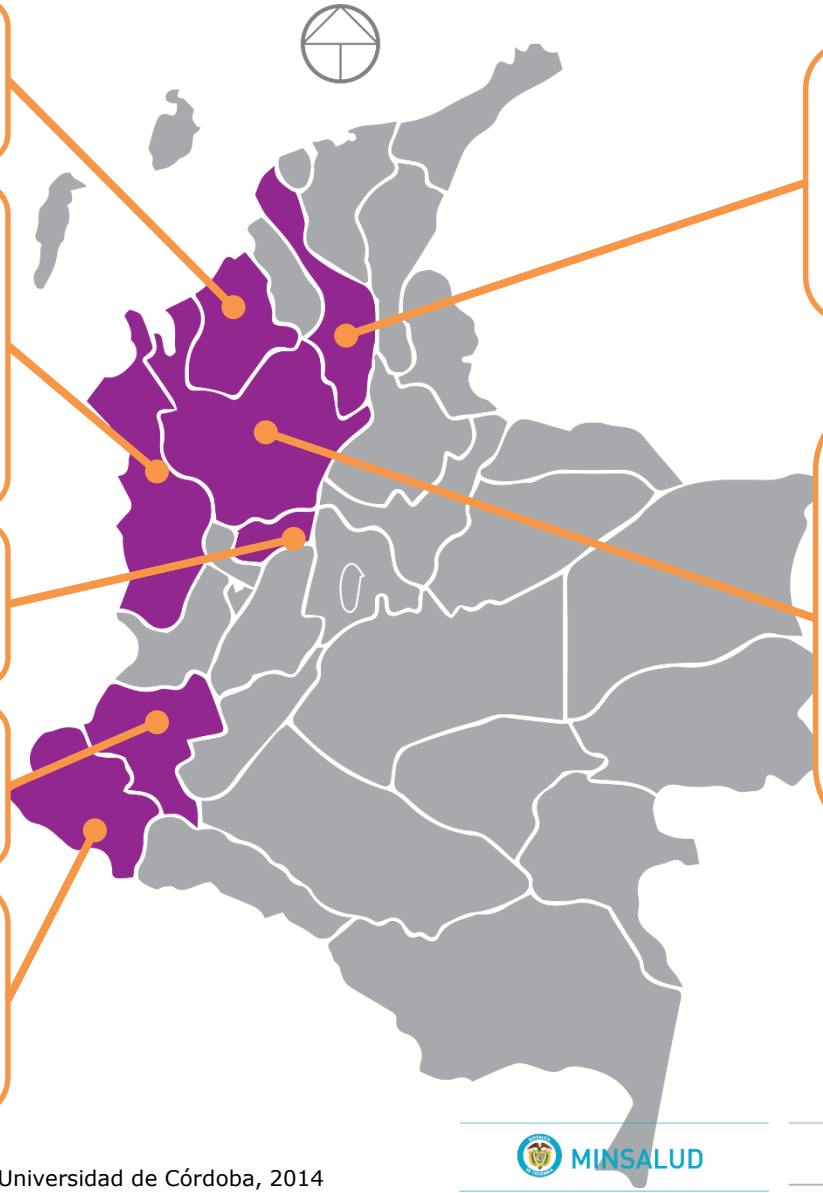
CÓRDOBA
Puerto Libertador

CHOCÓ
Lloró
Tadó
Unión Panamericana
Condoto

CALDAS
Marmato
Manizales

CAUCA
Suárez
Buenos Aires

NARIÑO
Los Andes
Colón
Mallama



BOLÍVAR
Arenal
Morales
Barranco de loba
San Martin de Loba

ANTIOQUIA
Frontino
Buriticá
Segovia
Zaragoza
El Bagre
Remedios
Cáceres

Fuente: Estudio de la Cadena del Mercurio, Universidad de Córdoba, 2014
https://imagenestotales.com/mapa-de-colombia/

Mercury related problems – Colombia

Conducted research

State institutions
Universities
NGO

Evaluation of populations exposed to mercury in areas with and without influence of gold mining

- Determination of mercury levels in biological samples (blood - urine - hair)
- Occupational and environmental exposure assessment
- Determination of mercury levels in environmental samples (water - soil - sediment - fish)
- Evaluation of effects on human health

Areas in which human and environmental mercury assessment studies have been carried out

Study of the effects on health due to exposure to mercury in prioritized departments (Chocó, Vaupés and Nariño) with the presence of gold mining
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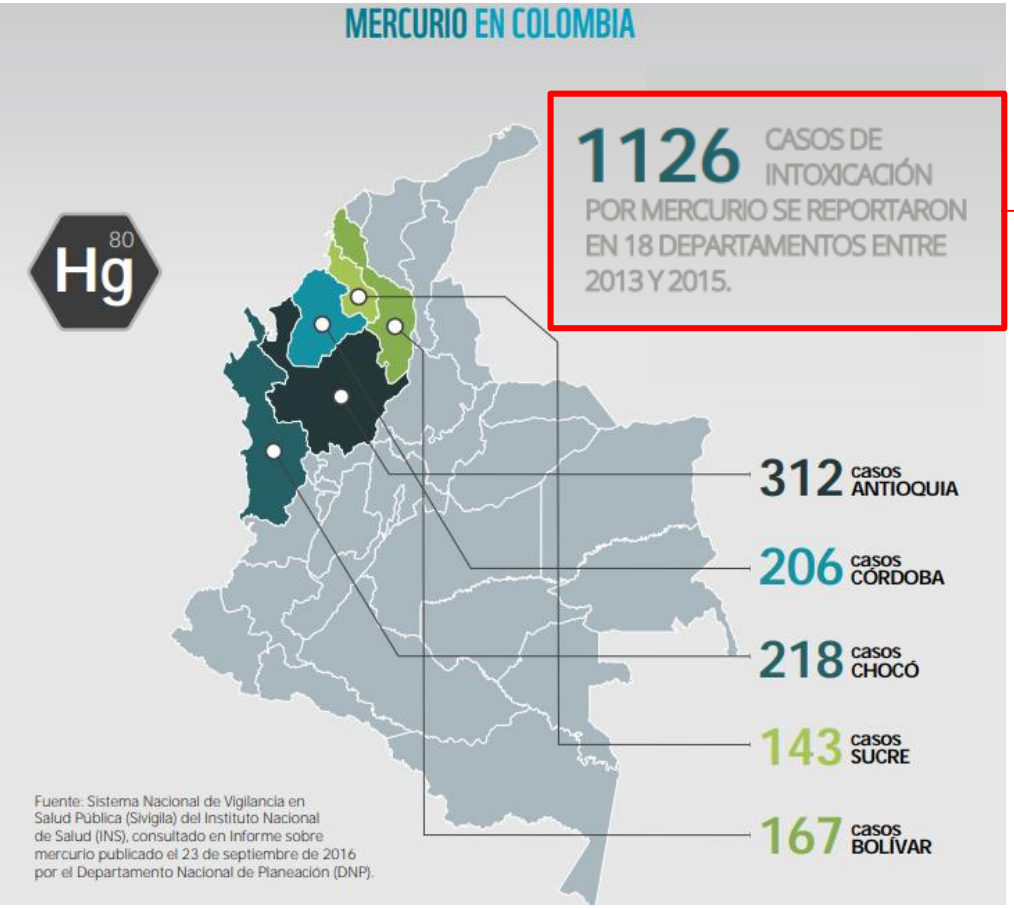
n= 1795 persons

General findings:

- **High mercury levels** in different biological matrices (values vary by location)
- Neurological alterations in groups with **high exposure**
- High levels of mercury in **some fish species**

Epidemiological trend of mercury poisoning notification in Colombia 2013 -2017



Year	Notified poisonings by metals	Mercury cases	%
2013	125	**89**	71,2
2014	839	**780**	93
2015	319	**257**	80
2016	946	900	95
2017	187	137	73

2014 – 2016 increase

Due to research studies on characterization of mercury levels on population and workers in resident in prioritized areas of the country

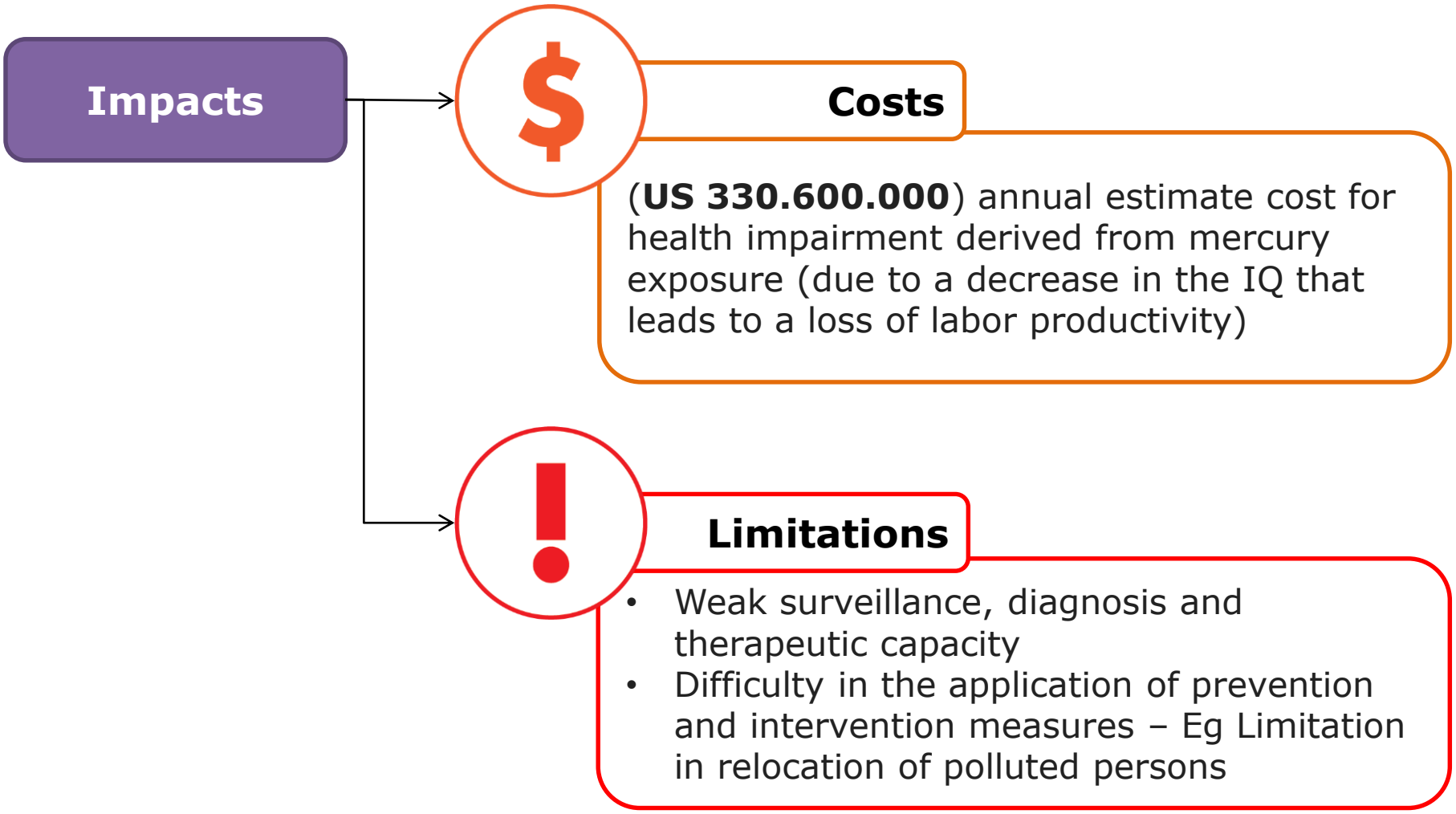
Fuente: SIVIGILA – Instituto Nacional de Salud

Mercury related problems – Colombia

Impacts → **Public health impact**

- Fish consumption from contaminated areas (risk according to species)
- Inhalation of vapors due to amalgam burning
  - Handling of mercury without personal protection
  - Residence near to areas of exploitation and benefit of gold
- Use of contaminated water sources - agriculture
- Chronic impact on the health of the population

Mercury related problems – Colombia



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Activities in progress

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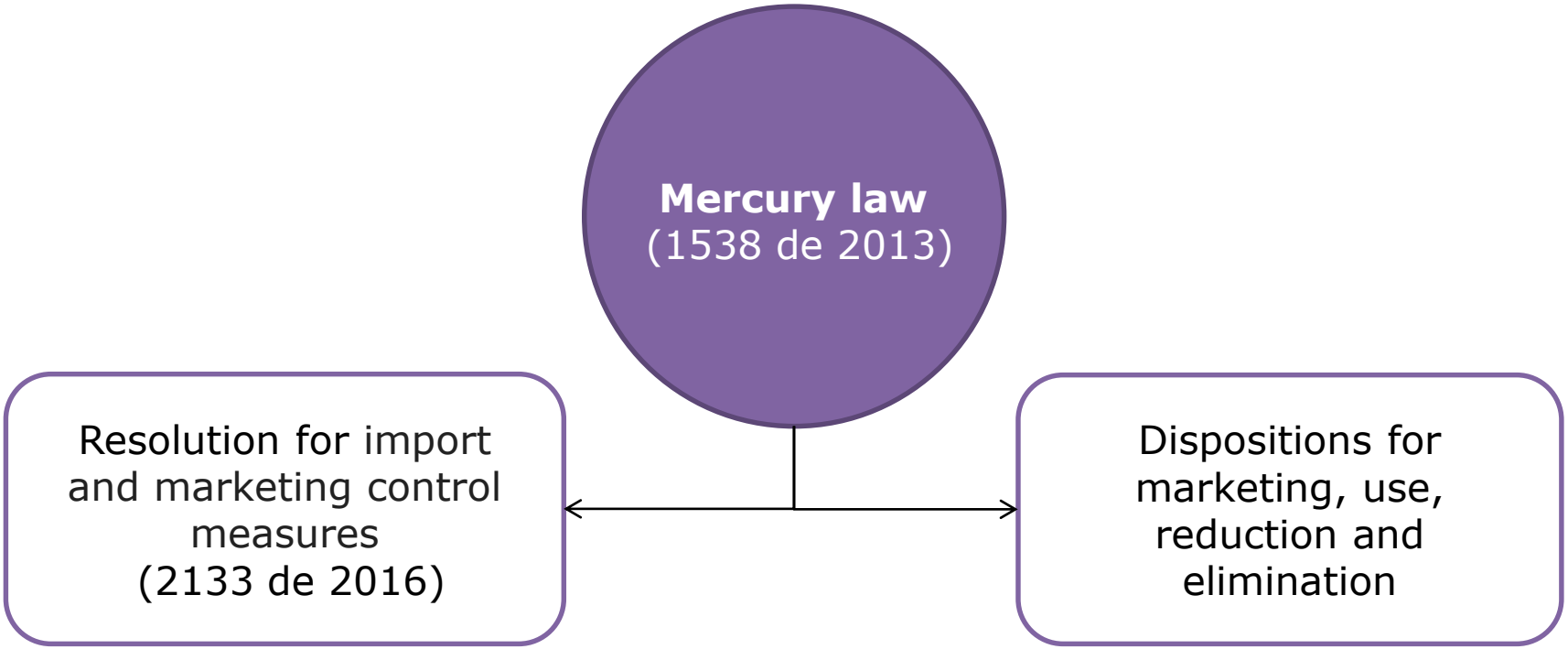
Normative actions



2018 Eradication of mercury use in mining

2023 Eradication of mercury use in all industrial and productive processes

Intersectoral management actions

Protection of human health and the environment from anthropogenic mercury emissions

- Subscription: 2013
- Ratification: 2018

Programs and activities for the reduction and progressive elimination of the use of mercury

Programs:
Institutional strengthening
Management
Monitoring and evaluation

Medical devices
(Dx substitution – disposition GEF)

Lead related problems

Lead related problems – Colombia (Estimation)

High levels of Pb in decorative paints

- Use of lead in the production of decorative paints: **1385.9 tones / year**
- National inventory: **53% of households paints with levels higher than 90 ppm**

Lead related problems – Colombia

High levels of Pb in decorative paints

Unawareness of blood lead levels prevalence in the population and their related health effects

Lack informationof contaminated sites and areas of risk

Unawareness of current impact on public health

Limited number of studies to identify current level of contamination in the general population and children

Unknown real impact on public health

Actions

Actions toward lead

Actions done

- Normativity:
- Regulation of lead levels in gasoline (1995)
- Regulation of Pb levels in toys and tableware (2008)

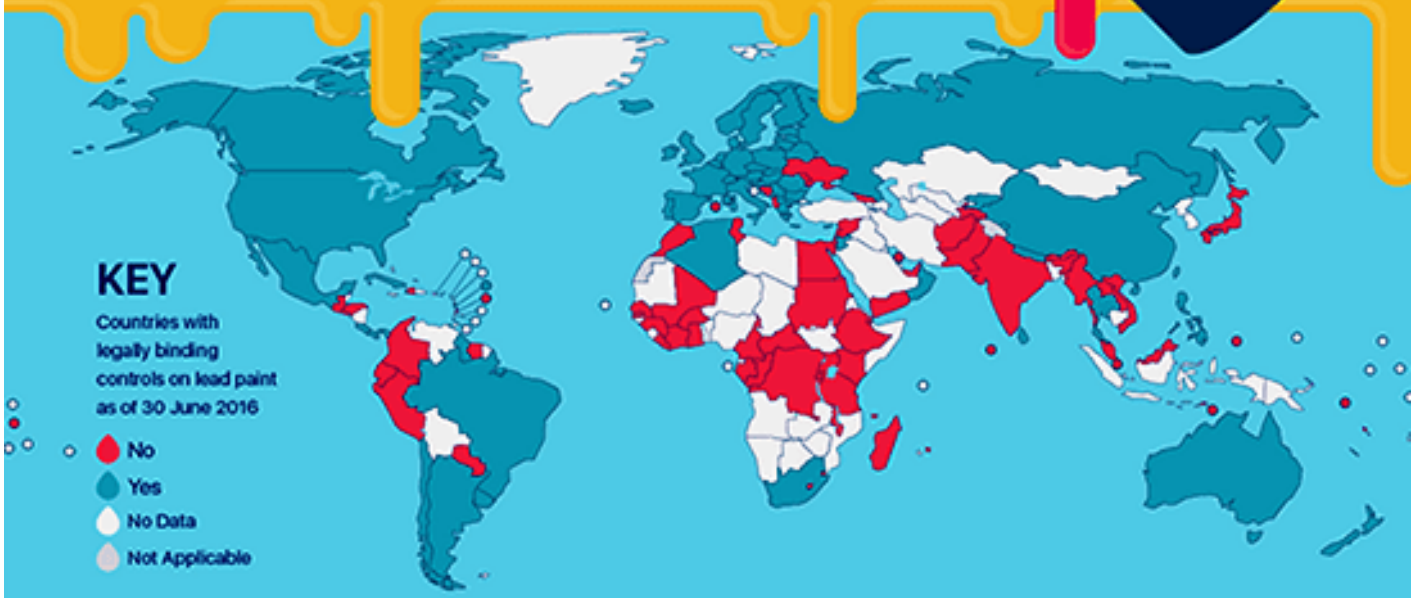
Actions to be taken

- Regulation of levels of lead in decorative paints and school supplies
- Link to the WHO global alliance to eliminate lead Paint

LEAD PAINT MUST GO #BanLeadPaint

The Global Alliance to Eliminate Lead Paint says that all countries should ban lead paint by 2020

FACT: As of June 2016, only 1/3 of countries have legally binding controls on lead paint



THAT'S WHY

GOVERNMENTS + INDUSTRY + CONSUMERS

Must work together to ensure all paint is free from added lead by 2020

There is no safe level of lead exposure

World Health Organization

Challenges Hg & Pb

Challenges to mercury and lead

Hg

Mercury

- Implementation of mercury plan
  - Reduce population exposure
  - Optimize food safety

Pb

Lead

- Establish a population base line for blood lead levels
- Identify contaminated areas, sources of exposure and population at risk
- Issue standards of lead levels in decorative paints and school supplies
- Position problematic as a priority

- Strengthen risk communication
- Intensify surveillance and diagnostic capacity
- Improve timely diagnosis and treatment of intoxicated
- Estimation of related costs

Thanks

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