

Effects of Mercury on Our Health

- Exposure to mercury – even small amounts – may cause serious health problems, and is a threat to the development of the child in utero and early life;
- Mercury may have toxic effects on the nervous, digestive and immune systems, and the lungs, kidneys, skin and eyes.
- Mercury is considered by the World Health Organization (WHO) as one of the top ten chemicals or groups of chemicals of major public health concern.
- People are mainly exposed to methylmercury, an organic compound, when they eat fish and shellfish that contain the compound

Symptoms of Mercury Exposure in Children

Tremors,
Headaches,
Difficulty sleeping,
Impaired sensations,
Muscle weakness and twitching,
Emotional changes (mood swings, irritability, nervousness)
Kidney damage.
Breathing difficulties.

Who are the Vulnerable Groups at Risk of Mercury Toxicity?

The vulnerable groups to mercury toxicity are children and pregnant women.

As children and teenagers, your bodies and brains

are still developing. You are more sensitive to mercury than adults. Pregnant women are also highly vulnerable, as mercury can harm the baby before it is even born.

About this flyer:

This flyer is developed under the planetGold Nigeria; "GEF GOLD+ NIGERIA PROJECT: ENHANCING THE FORMALIZATION AND MERCURY-FREE GOLD IN NIGERIA" with the support of GEF, implemented by UNIDO and executed by the Federal Ministry of Environment in Collaboration with Ministry of Solid Minerals Development.

The aim of this flyer is to share knowledge, create awareness and provide information on mercury, its sources, use in the ASGM sector, environmental and health effect and the vulnerable groups who are potentially exposed to mercury emissions and releases.

For more Information, please contact:

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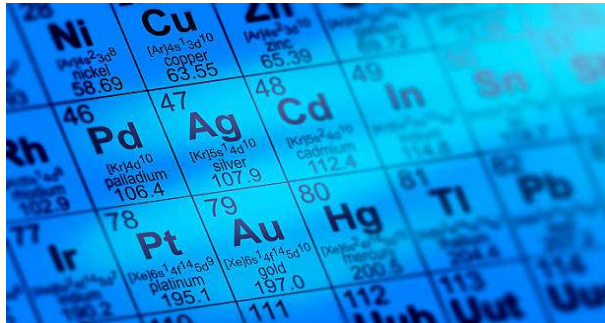
"GEF GOLD+ NIGERIA PROJECT: ENHANCING THE FORMALIZATION AND MERCURY-FREE GOLD IN NIGERIA"

*Educating families, students, and educators
on the hidden dangers of mercury.*

What is Mercury?

Mercury is a naturally occurring metal, but unlike others, it is a liquid at room temperature. It is often called "Quick Silver." While it looks fascinating, it is a potent **neurotoxin**—meaning it is poisonous to the brain and nervous system.

On the periodic table, it has the symbol "**Hg**" and its atomic number is 80. It exists in several forms: Elemental (metallic) mercury.



Ni Nickel 28 58.69	Cu Copper 29 63.55	Zn Zinc 30 65.39
Pd Palladium 46 106.4	Ag Silver 47 107.9	Cd Cadmium 48 112.4
Pt Platinum 78 195.1	Au Gold 79 197.0	Hg Mercury 80 200.6

Where Does Mercury Come From? (Sources)

There are two (2) Sources of Mercury – natural and human sources.

- **Natural Sources:** Volcanic eruptions, weathering of rocks, water movements, biological processes and forest fires.
- **Human Sources:** Includes coal burning, cement production, Incineration of municipal and medical waste, pulp and paper industries and most importantly, **Artisanal and Small-Scale Gold Mining (ASGM)**.

Mercury is also used in the production of certain products like: barometers, thermometers, pesticides, pharmaceutical preparations, cosmetics, reflecting surfaces of mirrors, and dental amalgams, in certain switches, lamps, and other electric apparatus.



Why is Mercury used in ASGM?

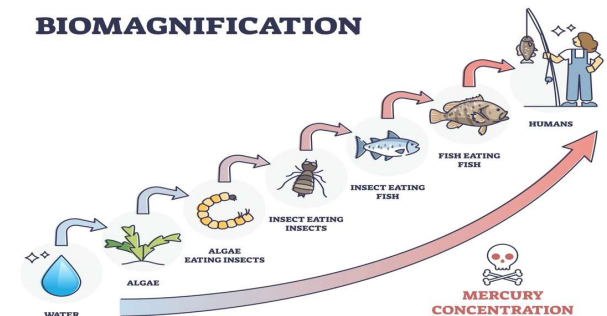
Miners use mercury because it is a cheap and easy way to collect gold. It acts like a magnet, sticking to small gold particles to form an "amalgam." This is then heated, evaporating the mercury into the air and leaving the gold behind.

Effects of Mercury on Our Environment

- **Water Poisoning:** Mercury enters our rivers and turns into *Methylmercury*, which builds up in fish.
- **Bioaccumulation:** When we eat the fish, the poison enters our bodies.
- **Land Degradation:** ASGM activities often involve clearing vast forests and digging deep pits that are never refilled, leaving the land scarred and barren.



BIOMAGNIFICATION



Artisanal Gold Miners and communities living near and mining sites are exposed to mercury in to two ways:

- Inhalation of mercury vapour when miners burn amalgam
- Ingestion of mercury as a result consuming contaminated fish and other aquatic organisms

Inhalation or ingestion leads to:

- Neurological disorders such as tremors, memory loss, and loss of motor skills.
- Organs failure such as damage to kidneys, lungs, and the digestive system.
- Minamata Disease: Severe impairment of vision, hearing, and speech.



Who are the vulnerable groups to Mercury Toxicity?

Children and Women of Childbearing Age are vulnerable groups to mercury toxicity. Mercury exposure in these groups leads to irreversible developmental delays and neurological damage in newborns.

What is Nigerian Government doing to reduce human exposure from mercury emissions and releases?

- Discouraging the use of mercury in the ASGM sector.
- Encouraging the use of alternative technologies such as gravitational

concentration and cyanidation.

- Encouraging artisanal miners to form cooperative group with a view to support formalizing the sector.
- Strengthening government policies, laws and regulations to the environment and the health of general populace.
- Supporting the phase-down/phase-out of non-essential and certain mercury containing products
- Conducting advocacy, sensitization and awareness on effects of mercury to human health and the environment

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Mercury is a heavy metal of global concern due to its long-range atmospheric transport and its ability to persist in the environment. Under the **Minamata Convention**, Nigeria is committed to reducing and eliminating its use.

Mercury in Products & Artisanal Small-scale Gold Mining (ASGM)

- **Products:** Found in older thermometers, "skin lightening" creams, certain batteries, and dental amalgams.
- **ASGM:** This sector is the largest source of mercury pollution in Nigeria. The "open-burning" of amalgams releases toxic vapors directly into the atmosphere.

Environmental Degradation & ASGM Beyond chemical pollution, unregulated ASGM leads to:

- **Deforestation:** Loss of biodiversity and carbon sinks.
- **Siltation:** Soil runoff Choking local

waterways.

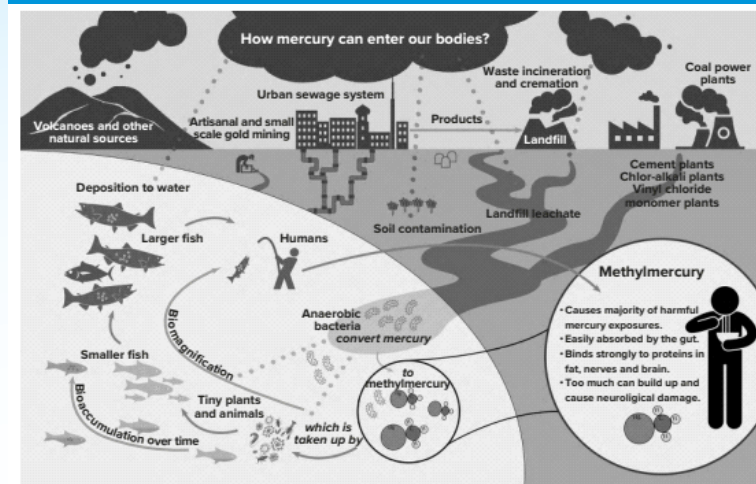
- **Unreclaimed Sites:** Dangerous abandoned mines that destroy agricultural land.

MERCURY Impacts on the Environment

Mercury can be particularly harmful for the environment because it can accumulate in organisms. A very important factor in the impacts of mercury to the environment is its ability to build up in organisms and travel along the food chain. This occurs through:

- **Long-range transportation:** Mercury and its compounds can move globally through air, water bodies, soil, and the food chain.
- **Persistence:** Mercury and its compounds, which are not degraded, can persist in the environment for a long time.
- **Bioaccumulation:** Mercury and its compounds can be accumulated in the food chain through different transmission pathways continuously increasing the mercury content in organisms.

SOURCES AND EXPOSURE PATHWAY OF MERCURY



Source: *Guidance on the Management of Contaminated Sites*, www.mercuryconvention.org, (GMCS) December 2019.

What are the Health Consequences Associated with Mercury?

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