Water and mining in the DRC

A critical input.
A strategic asset.

Abundant resources need responsible management

Prof. Dieudonné-Louis TAMBWE KASONG 'A MWIMBA
C.T.C.P.M. Coordinator
Ministry of Mines
Democratic Republic of the Congo

Why mines need water

01 **Mineral processing** Washing, grinding and separation

02 **Metal extraction** Water in process solutions

03 **Site operations** Dust control and equipment needs

04 **People** Drinking water, hygiene and sanitation

Conceptual illustrations

02

The DRC’s water endowment

Rivers and tributaries

Lakes and wetlands

Groundwater

National abundance

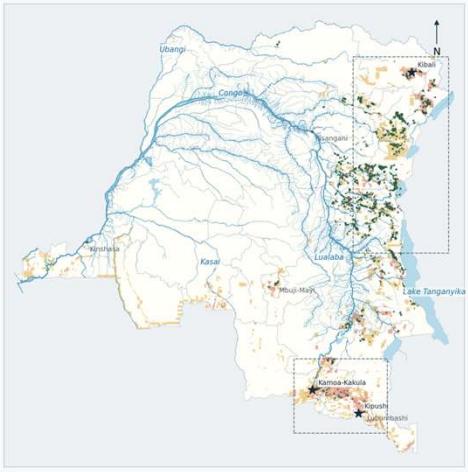
Local conditions vary

A water resource becomes useful when its supply is reliable and its quality fits the use.

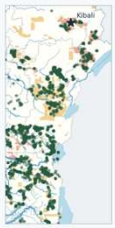
03

DRC | Mining rights, mining sites and hydrography

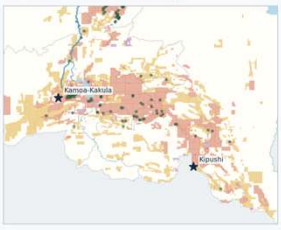
CAMI cadastral snapshot: July 2023 • IPIS field observations: 2009–2025 • Compiled 8 October 2026



EASTERN DRC • artisanal mining observations



COPPERBELT • Lualaba – Haut-Katanga



Exploration / quarry research
Exploitation / quarry permits
Artisanal zones (ZEA)
Rivers and lakes
Artisanal sites: workers observed
Selected producing industrial mines

A mining right does not prove production. Field visits are dated observations, not confirmation of activity today.

Sources: CAMI public ArcGIS map; DIAF / WRI Forest Atlas hydrography; IPIS open data (ODC-BY); Ivanhoe Mines and Barrick. Generalised national map.

04

WATER & MINING | DEMOCRATIC REPUBLIC OF THE CONGO

One country, four water risks

TOO LITTLE

Dry-season limits; groundwater drawdown; unreliable supply.

TOO MUCH

Mine inflows; stormwater; floods; storage and tailings risks.

TOO DIRTY

Sediment, metals, salts and process chemicals, where present.

TOO CONTESTED

Competing needs of communities, agriculture, mines and ecosystems.

National abundance does not remove local risk.

Water at tomorrow's mining sites

01	**Quantity over time**	Dry-season flows and groundwater recharge
02	**Suitable quality**	Process requirements and existing pollution
03	**Reliable access**	Pumping, storage, power and infrastructure
04	**Shared demand**	Communities, ecosystems and other mines

WATER & MINING | DEMOCRATIC REPUBLIC OF THE CONGO

Different minerals, different water pathways

Commodity / mode	Water-intensive tasks	Primary assessment focus
Copper-cobalt	Grinding; flotation / leaching; solution circuits	Freshwater make-up, chemistry, tailings
Gold - industrial	Grinding; gravity / leaching; residue management	Chemical controls, seepage, river protection
Gold - artisanal	Ore / gravel washing; gravity concentration	Streams, sediment, mercury where used
Zinc	Underground dewatering; grinding; flotation	Aquifer response, inflows, process recovery
Diamonds	Gravel washing; screening; separation	Sediment, channels, floodplains, rehabilitation

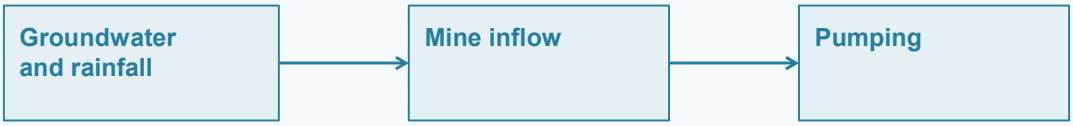
Water pressure is not ranked using tonnes of metal and carats alone...

Professor Dieudonné-Louis TAMBWE | October 2026

Mining operations and their water needs – potential risks

Commodity / setting	Production (2025)	Mining water needs	Principal potential risks
Copper-cobalt | Lualaba and Haut-Katanga	Copper : 3 407 134.98 tonnes Cobalt : 201 000 tonnes	Grinding, flotation or hydrometallurgy, washing, cooling, dust control and tailings.	Dry-season competition; dewatering effects; dissolved metals, salts, contact-water releases and tailings failures.
Zinc | Kipushi / Haut-Katanga	Zinc : 209 141.87 tonnes	Underground dewatering, wet grinding, flotation and tailings handling.	Aquifer drawdown, water inflows, sediment and metal-bearing drainage where geochemistry permits.
Industrial gold | North-East and East	Gold : 25 882.6 Kg	Ore grinding, gravity separation and/or leaching; reagents; tailings and camp services.	Chemical releases where reagents are used; mine drainage, seepage, floods and competing demand.
Artisanal gold | Eastern and North-Eastern districts	Gold : 2 320.22 Kg	Gravel or ore washing and gravity concentration; chemical use at some sites.	Turbidity, eroded banks, altered channels and mercury contamination where used.
Diamonds | Kasai region and associated tributaries	Diamonds : 8 127 875.47 cts	Excavation, gravel washing, screening and gravity separation.	Sediment pulses, channel and floodplain disturbance, abandoned pits and habitat loss.

When water enters the mine



Flood risk and effects on nearby groundwater need management.

Dewatering protects access and safety

…but costs heavily in Energy

06

Water use and dewatering costs

Water supplied for production

A resource used by the operation

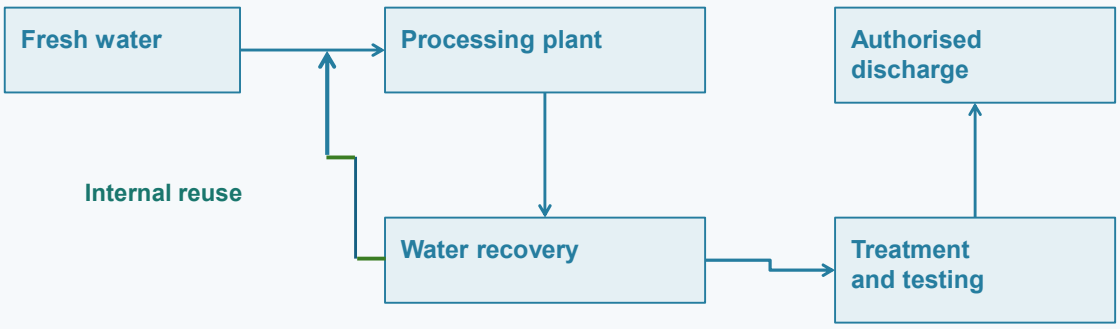
Water pumped for mine safety

An inflow that creates a pumping obligation and a cost

Any charging rule needs a clear legal basis and a clear definition of the water flow.

07

The mine water circuit



Quality suitable for the process

Quality suitable for the receiving water

08

Water quality before release

Suspended solids

Dissolved metals

Process chemicals

Clear-looking water can still require treatment.

09

WATER & MINING | DEMOCRATIC REPUBLIC OF THE CONGO

Reduce freshwater demand without shifting harm

SEPARATE AND REDUCE

Keep clean runoff clean; meter inputs; fix leaks; optimise demand.

RECOVER AND REUSE

Recover suitable water from thickeners, tailings and process circuits.

CONTROL CHEMISTRY

Reuse only where water quality remains compatible with the process.

TREAT AND PROTECT

Engineer storage and residue controls; verify discharges; fund closure.

The legal framework already exists

01	**Water Law (2015)**	Rules for water use, other users and aquatic ecosystems
02	**Mining Code (2018 revision)**	Approved impact assessment and environmental management plan
03	**Mining Regulations (2018)**	A water management plan with balances and treatment systems

11

Reference notes: legislation

Water Law: Law No. 15/026 of 31 December 2015

Articles 23–31: authorisations, concessions and duties
Article 35: royalty on conceded water use
Article 58: priority of uses

Mining Code: Law No. 007/2002, amended by Law No. 18/001

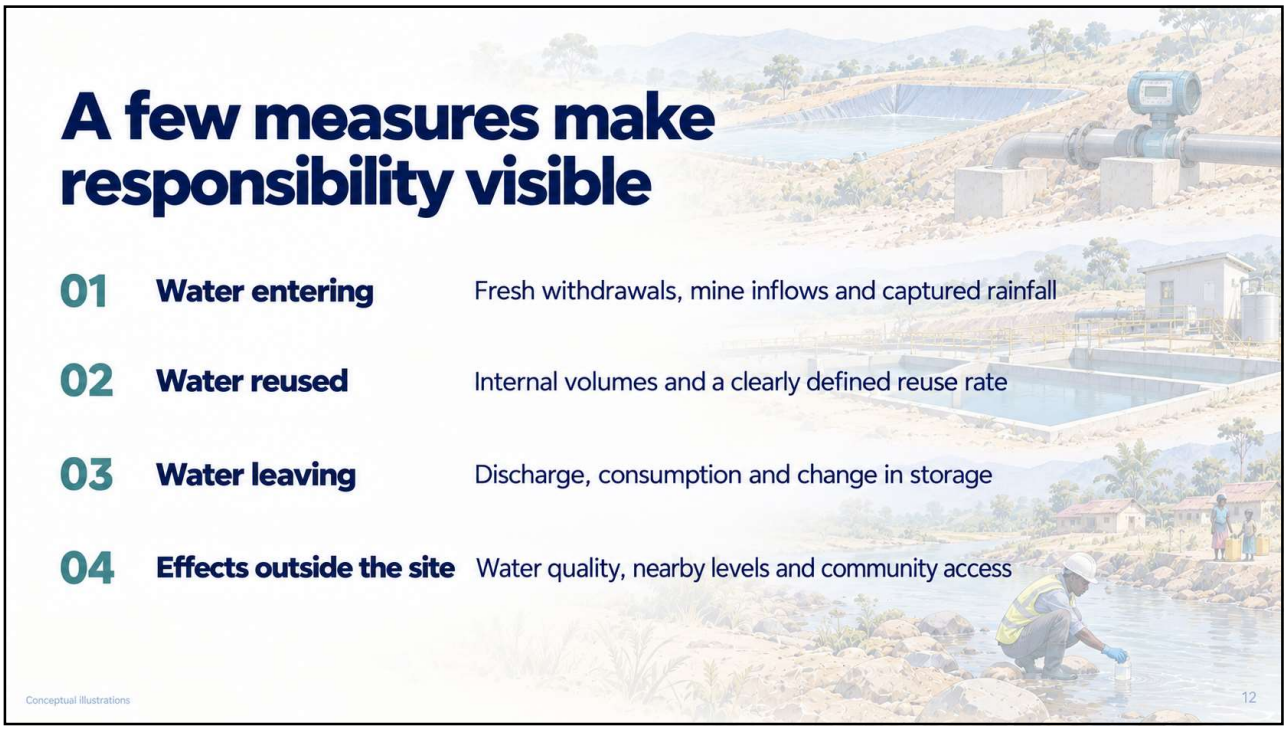
Article 204: environmental assessment and management obligations

Mining Regulations: Decree No. 038/2003, amended by No. 18/024

Annex VIII, Article 68: water management plan
Annex IX: closure measures

12

A few measures make responsibility visible



01	**Water entering**	Fresh withdrawals, mine inflows and captured rainfall
02	**Water reused**	Internal volumes and a clearly defined reuse rate
03	**Water leaving**	Discharge, consumption and change in storage
04	**Effects outside the site**	Water quality, nearby levels and community access

Conceptual illustrations

12

WATER & MINING | DEMOCRATIC REPUBLIC OF THE CONGO

Turn water wealth into durable mining value

Three tests for every mining catchment

ACCOUNT

Can each operator explain its withdrawals, reuse, consumption and returns?

PROTECT

Can independent evidence demonstrate safe shared water downstream?

SECURE

Are rehabilitation and post-closure water obligations financially covered?

The DRC's advantage is abundant water.
Its responsibility is to keep that water usable, shared and safe.

Professor Dieudonné-Louis TAMBWE | October 2026

Water in a lasting mining sector

The DRC has abundant water. Responsible management makes that abundance a lasting asset.

Critical for operations. Strategic for the future.