

A photograph of a mining site with a large, reddish-brown earthen pit. Several workers in safety gear are visible in the background, some appearing to be working on a structure within the pit. The background shows a rocky, excavated hillside.

## Cooperation of BGR with MINEM/Peru

**BGR-Peru cooperation projects**

Dr. Malte Drobe

16.04.2026

# BGR headquarter Hanover and branches



## Tasks of the BGR



- Advising the Federal Government and German industry
- Promoting science and industry
- **National and international geoscientific and technical cooperation**
- Collection, standardization, harmonization, and provision of geoscientific and raw materials data and related coordination activities
- Federal Earthquake Service
- National Nuclear Test Ban Data Center

# BGR's raw materials work - advising business and politics on securing raw materials supplies



*science-based advice*

Applied research (e.g. mineral deposit research, exploration, processing...)

Application of geoscientific methods (geophysics, geochemistry, etc.)

Operation and maintenance of raw material databases

Analysis and evaluation

Consulting for companies and politics



German Mineral Resources Agency

## BGR expertise: post-mining and monitoring

### Capacity building within the technical cooperation project MinSus

BGR conducted trainings for officials from CEPAL member countries in Peru on

- Geotechnical exploration and sampling of tailings at a former copper mine
- Use of drones to survey post-mining areas by analysing multi-spectral-images and deriving digital elevation models using photogrammetry



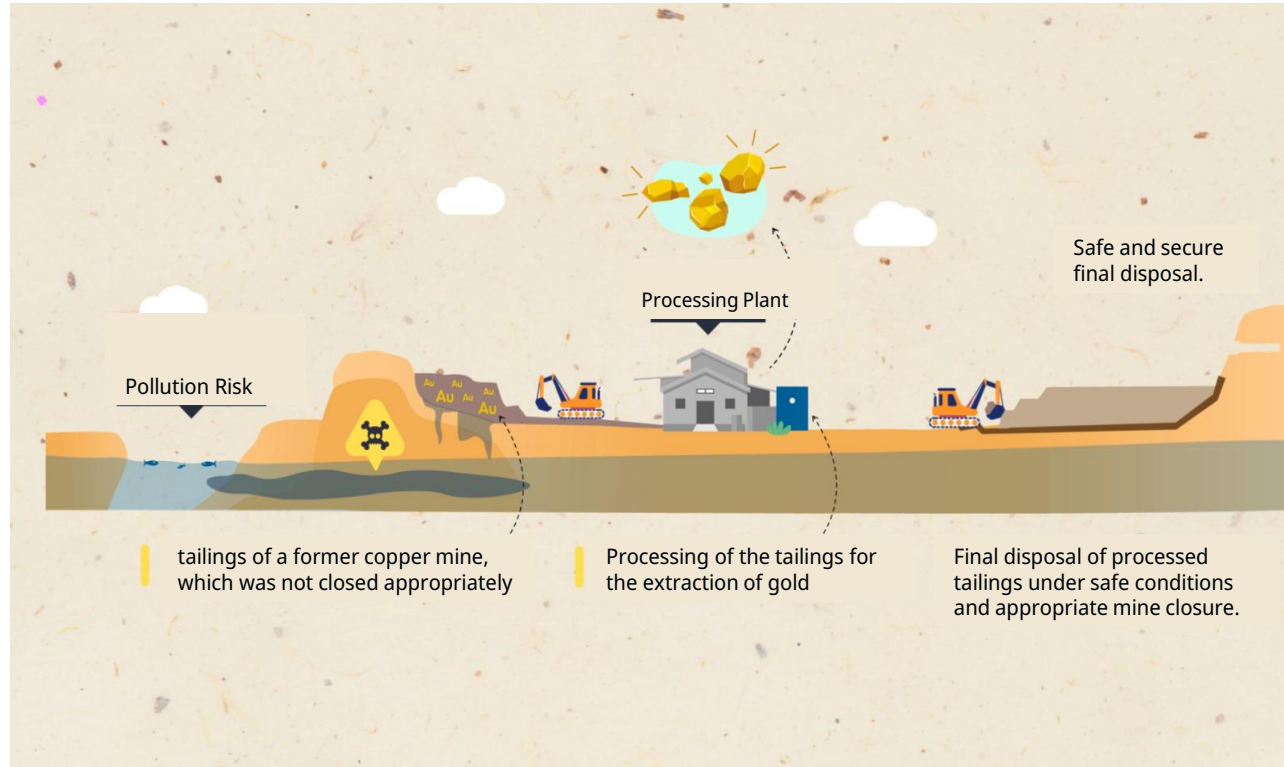
# Pilot project Tailings “La Ciénega” (Pataz, Peru)



- abandoned tailings deposits of La Ciénega, contain about 90.000t Tailings of former gold Mine
- Sampling campaigns in 2016 and 2019 revealed that concentrations of contaminants such as cadmium, lead, and arsenic significantly exceeded both international environmental standards
- heavy metal and metalloid contents pose health risks and cause harmful impacts on the environment
- Tailings still contain considerable amounts of valuable metals, particularly gold
- various remediation options were developed, including partial removal and confinement of the tailings,
- Feasibility study for the reprocessing of the tailings: mineralogical and metallurgical investigations (Recovery of residual gold and decontamination of the tailings)
- More Information: download [Final Report](#)

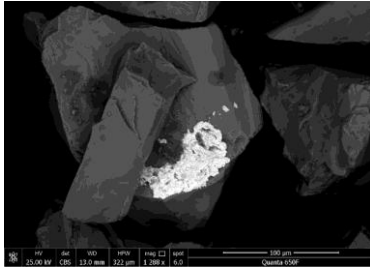


# Los Rosales/Peru pilot project: tailings reprocessing



# Los Rosales/Peru pilot project: tailings reprocessing

Electron Microscopy



Gravimetric Testing



Flotation



Optimize cyanidation



## Objectives:

- Provide technical assistance to improve gold recovery from tailings and strengthen water pollution management
- Disseminate a case of good tailings reuse practices.



# Planning for new regional technical collaboration project – start at the end of 2026



## The Project:

- Regional project with a focus on Chile, Peru, Bolivia and Brasil

## Planned contents:

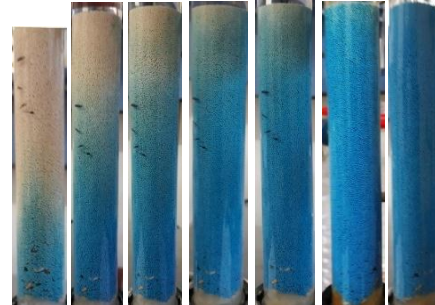
- Potential for additional critical elements
  - Several critical elements are by products of other raw materials
  - Are there new zones interesting for critical elements
- Responsible mining, processing and closure
  - Improvement of the regulatory framework incl. capacity building
  - Cooperation with EULACRM in the sectors of remining and impacts of lithium mining on salt lakes
  - CRM Potential of medium mining companies. This includes ESG and possible support of governments (Cooperation with GiZ module MinJust who work on similar topic in ASM sector)

# “EULACRM“ Strengthen Cooperation between Geological Surveys of the EU and LAC for CRM



## Work Packages

- Map critical raw materials (CRMs) resources in LAC countries. Work on mineral predictability areas, and identification of hotspots for more detailed exploration.
- Map extractive waste areas in LAC and assess their potential to recover CRMs
- **Identify mineral potential of tailings and link to industry actors/technology that could process/manage (lead by BGR)**
- Hydrogeological studies in the salt flats
- **Processing of tailings with innovative techniques (lead by INGEMMET and BGR)**
- Macro study on accumulated impact of multiple operations in same salares/aquifer.



# Peruvian exports to Germany 2023: US\$ 1.14 bn. total

## ~50% are mineral raw materials and metals: US\$ 589 million



Total: \$589M

Copper ores and concentrates	Anthracite, not agglomerated		Zinc, not alloyed, unwrought, <99% pure	
	3.67%		6.37%	
	Silver ores and concentrates		Tin not alloyed unwrought	Zinc, not alloyed, unwrought, >99% pure
	3.51%		2.28%	1.49%
	Zinc ores and concentrates	Lead ores and concentrates	Zinc plates, sheets, strip and foil	Wire, copper zinc base alloy
	1.51%	1.05%	1.42%	1.3%
75.4%		0.35%	0.2%	
		0.2%	0.19%	
		0.11%		
		0.23%	0.17%	

Source: OEC Trading Economics 2025

# German-Peruvian Raw Materials Partnership



Raw materials partnership between Peru and Germany since 2014;  
BGR-INGEMMET cooperation since 2017.

**Project: Carbonate-hosted zinc and lead deposits in central and northern Peru and the potential for the high-tech CRMs Ge and Ga:**

- A total of four deposits were investigated, two of which were visited and sampled: **Florida Canyon (Bongará)** and **San Vicente**.
- Highest **Ge-content** in hydrothermal sulfide vein in the Florida Canyon MVT deposit with **>1000 ppm**.
- Ge and Ga in the ore and concentrates from **San Vicente is lower compared to Florida Canyon**, at least one zone with yellow-colored massive sphalerite type with up to **1000 ppm Ge and 500 ppm Ga**.
- Different generations of mineralization of Zn+Ge+Ga within certain zones of the deposits **requires separation of the ores** (and finally of the concentrates) to extract Ge and Ga.





**Muchas  
gracias**

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