



Soil evaluation of the school grounds of the Educational Institution No. 1689 Pampayacu in the District of Conchucos, Province of Pallasca, Department of Ancash, Peru.

Report of Results and Recommendations

Date of Report: July 19, 2026

Prepared by: Bryn Thoms, RG, Dr. Nicholas Robins, Kevin Quispe Zea

Field team: Dr. Nicholas Robins, Mg. Ruben Espinoza, Kevin Quispe Zea, Dr. Enrique Ecos (Lima Site Coordination)

Date of Sample Collection: July 10, 2026

The Environmental Health Council (EHC) is a U.S.-based nonprofit organization dedicated to identifying, evaluating, and remediating the effects of environmental toxins on affected communities. We work through a combination of scientific assessment, advocacy, and collaboration with communities and authorities to promote environmental and public health.

Within this framework, the Environmental Health Council analyzed and evaluated the soil of the school grounds of the Educational Institution No. 1689 Pampayacu in the District of Conchucos, province of Pallasca, department of Ancash, Peru.

The technical evaluation aimed to:

1. Determine whether contamination from historic mining operations—including mineral processing and refining activities dating from the 18th century—has left heavy metal pollution (*legacy contamination*).
2. Quantify concentrations of heavy metals—specifically lead (Pb), mercury (Hg), and arsenic (As) that may affect children at the Educational Institution No. 1689 Pampayacu.
3. Compare these concentrations with the Environmental Quality Standards (ECAs) established by the Peruvian government (*Supreme Decree N° 011-2017-MINAM*) for residential/park soils.
4. Identify any critical areas within the school requiring attention, assess potential health risks to the student and staff community, and propose technical recommendations based on the findings.

12 soil samples that were collected and analyzed in the following spaces: 1) First Garden, 2) Playground, and 3) Second Garden.

The analysis was conducted using a portable X-ray fluorescence (XRF) spectrometer (SciAps model X550), with results expressed in parts per million (ppm or mg/kg) to evaluate the presence of lead (Pb), mercury (Hg), and arsenic (As). Additional metals were analyzed by the XRF but only the metals of interest, due to their association with legacy mining impacts and because of their toxicological relevance, are presented in this report.

The ECAs for residential/park soils are:

- Arsenic (As): 50 mg/kg (ppm)
- Mercury (Hg): 6.6 mg/kg (ppm)
- Lead (Pb): 140 mg/kg (ppm)

The results of the analysis of the samples are presented in the tables below:

Sample	Sample Location	As (ppm)	Hg (ppm)	Pb (ppm)	Exceeds ECA
CONCHU26-R-36	First Garden	102	ND	72	As
CONCHU26-R-37	First Garden	52	4.3	107	As
CONCHU26-R-38	First Garden	30	ND	89	None
CONCHU26-R-39	First Garden	ND	ND	68	None
CONCHU26-R-40	Average	46	ND	84	None

* ppm = parts per million.

* ECA = Environmental Quality Standard.

* ND = Not detected at approximately 1 ppm

Sample	Sample Location	As (ppm)	Hg (ppm)	Pb (ppm)	Exceeds ECA
CONCHU26-R-41	Playground	90	3.3	149	As, Pb
CONCHU26-R-42	Playground	66	3.7	132	As
CONCHU26-R-43	Playground	46	ND	91	None
CONCHU26-R-44	Playground	50	ND	100	As
CONCHU26-R-45	Average	63	ND	118	As

* ppm = parts per million.

* ECA = Environmental Quality Standard.

* ND = Not detected at approximately 1 ppm

Sample	Sample Location	As (ppm)	Hg (ppm)	Pb (ppm)	Exceeds ECA
CONCHU26-R-46	Second Garden	38	ND	95	None
CONCHU26-R-47	Second Garden	56	3.9	108	As
CONCHU26-R-48	Second Garden	33	7.8	298	Hg, Pb
CONCHU26-R-49	Second Garden	64	ND	111	As
CONCHU26-R-50	Average	48	ND	153	Pb

* ppm = parts per million.

* ECA = Environmental Quality Standard.

* ND = Not detected at approximately 1 ppm

As results in soil range from 30 to 102 ppm and 7 out of 12 samples exceed the ECA of 50 ppm. The highest concentration was detected at sample location CONCHU26-R-36 at 102 ppm which exceeds the ECA by 2.0 times.

Hg results in soil range from 3.3 to 7.8 ppm and 1 in 12 samples exceed the ECA of 6.6 ppm. The highest concentration was detected at sample location CONCHU26-R-48 at 7.8 ppm that exceeds the ECA by 1.2 times.

Pb results in soil range from 68 to 298 ppm and 2 of 12 samples exceed the ECA of 140 ppm. The highest concentration was detected at sample location CONCHU26-R-48 at 298 ppm which exceeds the ECA by 2.1 times.

Areas of concern:

The following summarizes the results:

1. *Most critical points of contamination:* Samples CONCHU26-R-36, 37, 41, 42, 44, 47, 48 and 49 (First Garden and Second Gardens) show elevated levels that are in excess of the ECA for 3 of the metals analyzed.
2. *Localized contamination in the school:* Soil contamination in the educational institution is not homogeneous. On the one hand, in some areas CONCHU26-R-38, 39, 43 and 46 present levels of 2 metals within the ECAs. On the other hand, areas from CONCHU26-R-36, 37, 41, 42, 44, 47, 48 and 49 show somewhat concerning contamination for 3 of the metals analyzed.
3. *Student and staff health risk:* The area of the Second Garden (CONCHU26-R-48, not ruling out CONCHU26-R-36, 37, 41, 42, 44, 47 and 49) presents concerning levels of mercury and lead (Hg 7.8 ppm and Pb 298 ppm) significantly exceeding the ECA. Contact with and exposure to mercury or lead, especially in children and adolescents, can cause irreversible neurological damage, attention deficit and decreased IQ.

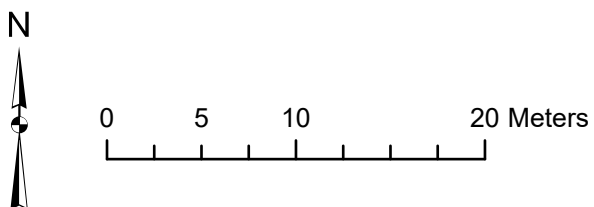
Conclusions:

1. Critical areas were identified within the Educational Institution No. 1689 Pampayacu that exceed the screening levels established in Supreme Decree No. 011-2017-MINAM – Environmental Quality Standards (ECA) for residential land/parks of the Government of Peru.
2. The areas of the First and Second Gardens (CONCHU26-R-36, 37, 41, 42, 44, 47, 48 and 49), present greater concern, with high levels of 3 of the metals analyzed and immediate action is required from the competent authorities to manage this risk, prioritizing the protection of the health of children, adolescents and the community in general.
3. There are health risks for students and staff who use the facility's facility and spaces.

Recommendations:

1. Restrict access to the First and Second Garden areas (CONCHU26-R-36, 37, 41, 42, 44, 47, 48 and 49) contaminated with mercury and lead.
2. Cover the contaminated area with clean materials, placing layers of clean soil and geotextile, followed by grass, to avoid direct contact and the generation of dust.
3. Notify the authorities of the educational institution and parents about the findings and preventive measures and the actions to be taken.
4. Perform additional tests to both confirm the contamination and to understand the extent and magnitude of contamination.
5. Inform the relevant local, regional and national authorities of the findings.

Attachment: Figure – Sample Locations



Soil Sample Locations
July 2026
IE 1689
Conchucos, Ancash

