



# THE ROAD TO TRUTH AFTER 8 YEARS OF IMPUNITY IN THE SONORA RIVER

A new assessment and keys to understanding the environmental disaster caused by Grupo México, one year into the official dialogue and working sessions in pursuit of justice and remediation following the massive toxic spill in the Sonora and Bacanuchi Rivers



AUGUST 2022

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# Introduction

August 6, 2022, marks eight years since the Sonora and Bacanuchi Rivers were polluted with 40 million liters of acidified copper sulfate from a leachate pond at the Buenavista del Cobre mine, owned by Grupo México, the world's third largest producer of copper, directly affecting 22 thousand people in eight municipalities, their health, the ecosystem, and the economy of the state of Sonora. The Mexican government (2012-2018) considered the spill the worst environmental disaster in the history of mining in Mexico.

Due to the magnitude of the environmental disaster, in the year 2014, residents of the municipalities affected by the spill organized and formed a movement to seek justice and compensation. The collective, named the Sonora River Basin Committees (Comités de Cuenca Río Sonora CCRS), is made up by people from eight municipalities: Arizpe, Banámichi, Huepac, Aconchi, San Felipe de Jesús, Baviácora, Ures, and rural Hermosillo. Their movement is accompanied by the civil society organization specialized in corporate accountability Project on Organizing, Development, Education, and Research (PODER).

After eight years of peaceful struggle against the giant conglomerate controlled by German Larrea, the CCRS have gained the recognition of local and international authorities and public opinion and have emerged as an influential actor working to shift the balance in response to the disproportionate corporate abuses committed by Grupo México.

After eight years of struggle, the voice of the CCRS reached the current administration and in 2021 and a series of dialogues and working sessions was launched to undertake this government's first actions in pursuit of truth, justice, and compensation for the harm caused. It is in this context that, a year after initiating this process, the inhabitants of the Sonora River region now present an assessment of the actions undertaken by the federal government, in coordination with the communities, of the so-called Cananea Plan for Justice, which defenders have now rechristened as the Cananea-Sonora River Plan for Justice.

This new assessment presents for the first time - based on official information produced in response to the demands for justice put forth by the CCRS - the main findings on the real harm to human rights, health, the environment, the ecosystem, and the economy. These include the presence of massive amounts of metals like lead, arsenic, and cadmium in residents at different points in the basin, decreasing insect populations, and economic losses to the state of Sonora and Mexican society totaling **10.2 billion pesos** - triple the amount initially estimated by the previous administration (**3 billion pesos**) and **five times the amount allocated by the defunct Sonora River Trust (2 billion pesos), which in reality disbursed only slightly more than half that amount (1.2 billion pesos)**. Also, we present an assessment of advances and intentions of the current administration in pursuit of justice.

This new information shows that **the version constructed by Grupo México, and embraced by the previous administration, does not hold up and a new plan is needed that includes actions leading to effective compensation for the harm caused, in the interests of corporate accountability and as a counterweight to corporate capture of the Mexican state.**

# Context

## Process of dialog, 2021 to 2022

In May 2021, the Sonora River Basin Committees (CCRS) met with the federal authorities charged with responding to the problem of the pollution that Grupo México caused in 2014. This dialogue was the result of a constitutional appeal (amparo) resolved in favor of the CCRS in which the Mexican Supreme Court (Spanish acronym SCJN) questioned the claim that the mechanism designed to remedy socioenvironmental damage in the basin had accomplished its purpose. As a result, the court voided the contract terminating the Sonora River Trust, leaving a door open for the federal government to repay the debt to the communities of the Sonora River and hold the company responsible for assuming the cost of damages.

With the judgment as a precedent and thanks to the social mobilization of the communities, the Ministries of Health (Spanish acronym SSA) and Environment and Natural Resources (Spanish acronym Semarnat) opened a channel for dialogue with the CCRS and other affected parties. As part of this process, monitoring and diagnostics were proposed to address the problem based on the current situation, but also addressing the violations of the Trust, which have festered due to negligence on the part of the mining company and the previous government's mismanagement of the spill during the contingency.

The official initiative, titled “Cananea Plan for Justice<sup>1</sup>,” began in September 2021, though it was publicly announced by President Andres Manuel Lopez Obrador in November of the same year in the city of Cananea, Sonora. It was symbolic that in the presentation, Grupo México was included in the conference, but there were no representatives of the affected communities. From its inception, the communities rejected the name “Cananea Plan for Justice” because, although it was intended to serve the Sonora River basin, it did not mention the Sonora River explicitly. The CCRS protested to the authorities affirming that they intended to call it “Cananea-Sonora River Plan for Justice,” since they were the people who were behind its creation and who had earned that recognition.

The Ministry of Labor and Public Welfare (Spanish acronym STPS) is charged with the coordination of the plan. Environmental issues are dealt with by Semarnat, and matters of diagnostics and treatment of potential victims are coordinated by the SSA. Each agency operates the plan through commissions and institutions that are under its responsibility.

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<sup>1</sup> Mexican Government. (2021). Cananea Plan for Justice: First Results. August 1, 2022, from Mexican Government website: <https://www.gob.mx/stps/documentos/plan-de-justicia-para-cananea-288328>

## GENERAL COORDINATION OF THE CANANEA-SONORA RIVER PLAN FOR JUSTICE

**STPS**

Ministry of Labor and Public Welfare

### HEALTH

**CENAPRECE**

National Center for Preventive Programs and Disease Control

**SSA**

Ministry of Health

**Cofepris**

Federal Commission for Protection against Sanitary Risks

**Coesprisson**

State Commission for Protection against Sanitary Risks

### ENVIRONMENT AND WATER

**Semarnat**

Ministry of Environment and Natural Resources

**INECC**

National Institute of Ecology and Climate Change

**Profepa**

Federal Environmental Protection Agency

**IMTA**

Mexican Water Technology Institute

**Conagua**

National Water Commission

To date, the Plan for Justice has accumulated nine months' work with presentations of results from environmental and health monitoring, nine planning meetings between health authorities and communities in the river basin, and four working meetings for the implementation of a comprehensive intervention on health issues. In this period, logistical support was also provided for the Cenaprece to collect blood and urine samples from 678 people, deliver laboratory results, and arrange medical consultations. Also, the communities have accompanied the environmental authorities in sampling surface water, ground water, and residential pipelines, as well as in the assessment of purification plants.

The CCRS have insisted that a comprehensive remedial plan will fulfil the function of compensating victims only if the authorities coordinate their efforts for the benefit of the basin. The government agencies participating in the plan need to harmonize their actions and pay closer attention to understand the territory and ensure that the presence of pollutants is not underestimated. The results are clear regarding the persistence of heavy metals in air, soil, water, and local residents. Comprehensive remedial action can be achieved only when each authority identifies sources of pollution, gives them priority attention, allocates the necessary resources, and creates a detailed working plan. Thus far, in the area of health, actions have been undertaken under the auspices of the

"Health Intervention Strategy, Cananea-Sonora River Plan for Justice," focused on the thousands of people affected by pollution with heavy metals. The strategy calls for employing toxicologists who will be in charge of advising and training the general physicians who will address the problem. The program includes a process of sensitization and offer of healthcare with an environmental and toxicological perspective. On the other hand, to date the Sonora Department of health has not given a concrete response on the 381 healthcare files misplaced<sup>2</sup> in the Sonora Epidemiological Vigilance Unit [and] the Grupo México clinic and the previous administration left their work unfinished<sup>3</sup>.

## Constant work

From September 2021 to July 2022, the authorities and the CCRS held 21 working meetings and conducted 10 days of field work.

**Nine roundtables** with authorities from the Semarnat, the Department of Health, and STPS

**Three working meetings** for the implementation of health interventions

**Nine meetings** between communities in the basin and health authorities

**Two workdays** to collect samples of surface and ground water

**One workday** for monitoring of air quality

**One workday** for soil sampling

**One workday** for collection of water samples from domestic networks and purification plants

**One workday** to gather family data

**One workday** for collection of blood and urine samples

**One workday** for delivery of results

**One workday** to inspect the condition of purification plants in the region

**One workday** to visit wells that supply communities on the Sonora River



<sup>2</sup> Lydiette Carrion. (2021). Derrame Río Sonora. Autoridades federales habrían perdido cientos de expedientes médicos de afectados. January 28, 2022, from the Pie de Página website: <https://piedepagina.mx/derrame-rio-sonora-autoridades-federales-habrian-perdido-expedientes-medicos-de-afectados/>

<sup>3</sup>(PODER) August 23, 2021. La UVEAS: obra negra a #7AñosdeImpunidad en el #RíoSonora. Facebook Video. [https://fb.watch/eDHzwVC\\_eP/](https://fb.watch/eDHzwVC_eP/) Documentación en video divulgada por la organización PODER sobre el estado de la clínica UVEAS.



# Ten fundamental findings in the last year

After one year working in the context of the Cananea-Sonora River Plan for Justice, we share a summary with the most relevant points that the CCRS have identified. The information in this section was provided by federal authorities and the direct sources can be consulted in the footnotes to this section.

**1 HEAVY METALS IN HUMANS<sup>4</sup>.** Residents of the basin present a consistent and evident, homogenized exposure to metals like lead, arsenic, manganese, and cadmium, the bioaccumulation of which exacerbates their medium- and long-term health impact.

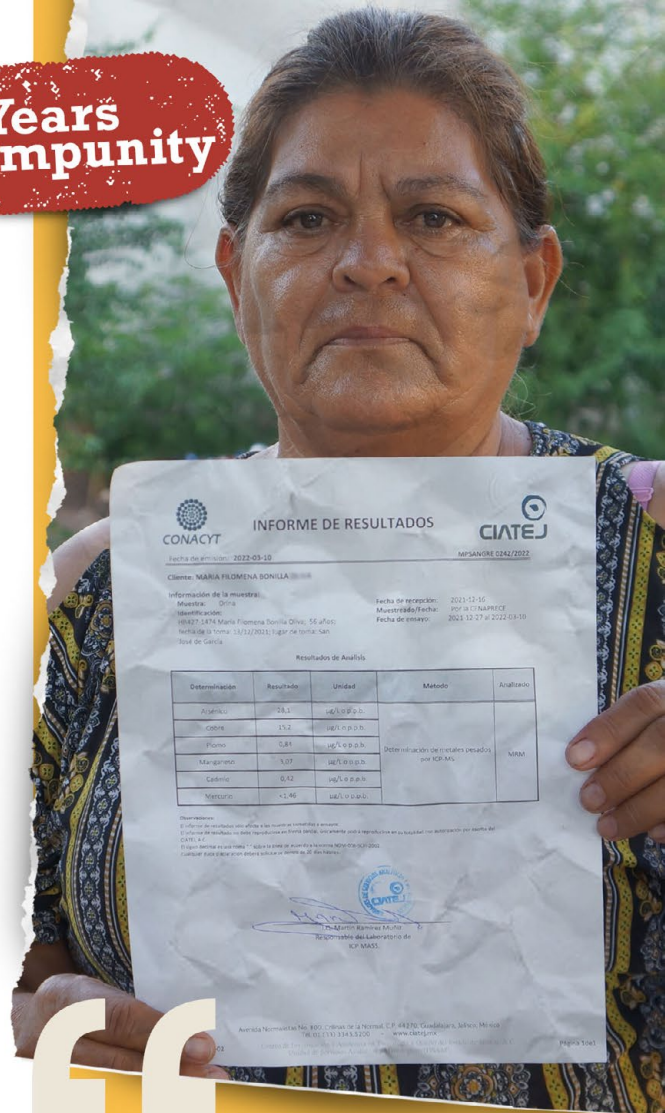
On April 8, health authorities delivered to the CCRS the results of an analysis performed on some 650 persons, which confirmed the presence of lead in more than 95 percent of the population, arsenic in more than 50 percent, and cadmium in more than 79 percent. To this information, it should be added that the percentages of the population in which “High Risk” and “Very High Risk” were detected vary from 1 to 10 percent in each municipality, where studies recognized the risk of developing arsenic poisoning and neuropathy. In blood samples, positive and high exposure to lead was reported in percentages ranging from 58 to 90 percent of the population, and exposure to manganese between 19 and 50 percent, depending on the municipality<sup>5</sup>. According to the health authorities, the presence of lead in urine and blood indicates recent and chronic exposure to that pollutant. The objectives of this study, as identified by the authorities, included:

- “Identify general population potentially exposed to environmental pollutants associated with mining activities in the region of interest, with possible health impacts self-reported with the application for family and occupational health data.
- Conduct toxicological monitoring in the general population potentially exposed to inorganic pollutants (heavy metals and metalloids) located in the strategic municipalities that

<sup>4</sup> Ministry of Health / Cenaprece (2022) Abordaje toxicológico de la salud, reunión para presentación de resultados plan de justicia para Cananea-Río Sonora, slides 12, 13, and 14. Available at: <https://share.mayfirst.org/s/JrNgDetgtFRByEZ?dir=undefined&path=%2F&openfile=13022633>

<sup>5</sup> Ibid., slide 14.

#8Years  
OfImpunity



*It made me angry and saddened me (learning the results) because I've been sick a long time and did not know it was because of the pollution. The woman who gave me my results said that my ailments had to do with the metals in my body. The results alarm you because you have no way of explaining what is happening to you. And then I felt great sorrow because my husband died last year; he left me and never knew that his ailments were caused by the metals he had ingested; he didn't live long enough to see his results.”*

**MARIA FILOMENA BONILLA,  
SAN JOSÉ DE GRACIA,  
HERMOSILLO**

experienced the greatest impact in the Sonora River basin.

- Identify and evaluate harm to health in general population imputable to chronic exposure to inorganic pollutants associated with mining activities and related environmental contingencies in the region."

The slides shown below, taken from a PowerPoint presentation released by the authorities, details the level of prevalence of heavy metals in communities of the 8 municipalities sampled: Arizpe, Banámichi, Huepac, San Felipe de Jesús, Aconchi, Baviácora, Ures, and rural Hermosillo. The percentages of metals and highest prevalence of metals by community are shown in red.

## RESULTADOS TOXICOLÓGICOS EN ORINA

PREVALENCIAS (%) DE EXPOSICIÓN A METALES PESADOS Y ARSÉNICO										
	COMUNIDADES	POBLACIÓN TOTAL	BACANUCHI	TAHUICHOPA	BANÁMICHÍ	HUÉPAC	ACONCHI	BAVIÁCORA	URES	HR TOPAHUE SAN JOSÉ DE GRACIA
	TAMAÑO POBLACIÓN DE ESTUDIO	678	31	53	129	63	215	58	64	57
ARSÉNICO EN ORINA	< 10.0 ug/L NO EXPOSICIÓN	24%	23%	24%	16%	17%	21%	33%	22%	28%
	10.0-24.0 ug/L POSITIVO EXPOSICIÓN	53%	55%	51%	57%	60%	47%	55%	50%	52%
	≥ 25.0 ug/L EXPO. RIESGO	9%	7%	11%	16%	5%	7%	7%	14%	8%
	≥ 35.0 ug/L. RIESGO ARSENICOSIS PIEL	4%	3%	6%	5%	3%	5%	2%	5%	4%
	≥ 50.0 ug/L RIESGO NEUROPATÍA	5%	6%	4%	4%	8%	7%	3%	3%	4%
	≥ 100.0 ug/L RIESGO MÚLTIPLE	5%	6%	4%	2%	5%	8%	0%	6%	4%
PLOMO ORINA	< 0.085 ug/L NO EXPOSICIÓN	0.4%	0%	0%	0%	0%	0.9%	2%	0%	0%
	0.086-9.9 ug/L POSITIVO EXPOSICIÓN	99.0%	100%	96%	98%	100%	98%	98%	98%	100%
	≥ 10.0 ug/L ALTO RIESGO	0.6%	0%	4%	2%	0%	0.5%	0%	2%	0%
MANGANESO ORINA	< 7.9 ug/L NO EXPOSICIÓN	97%	94%	96%	95%	94%	98%	100%	100%	100%
	≥ 8.0 ug/L POSITIVO EXPOSICIÓN	3%	6%	4%	5%	6%	2%	0%	0%	0%
CADMIO ORINA	< 0.11 ug/L NO EXPOSICIÓN	6%	3%	6%	10%	6%	2%	9%	8%	16%
	0.12-0.9 ug/L POSITIVO EXPOSICIÓN	89%	94%	85%	88%	91%	93%	86%	86%	79%
	≥ 1.0 ug/L EXPOSICIÓN RIESGO	5%	3%	9%	2%	3%	5%	5%	6%	4%

ARSÉNICO. World Health Organization. Exposure to arsenic: A major public health concern. In: Geneva: Public Health and Environment; 2003:1-6. World Health Organization (WHO) arsenic case definition algorithm. Lifted from Causy D, World Health Organization. A Field Guide for Detection, Management and Surveillance of Arsenicosis Cases; 2005.

PLOMO: LivonitHealthPapers107:391. 396(1999). [Online] April 1999; [http://www.ncbi.nlm.nih.gov/pubmed/99107391-396a1/21abatch31m03] Los valores de Pb en orina que superan los límites de cuantificación (LMC) se consideran positivos para exposición endógena (PE) y por la tanta orina. Valores 10 ug/L se consideran de alta exposición (AUX) Sommer, J., Heilmann, M., Lueck, T. et al. Investigation of lead concentrations in whole blood, plasma and urine as biomarkers for biological monitoring of lead exposure. J Expo Sci Environ Epidemiol 24, 51-57 (2014). <https://doi.org/10.1038/jes.2013.4>

CADMIO: Valores de cadmio que superan los LMC se consideran positivos para exposición. Los valores >1.0 ug/L refieren una exposición de riesgo (R). COBRE: Niveles normales en orina, 15 a 60 ug/L, esto equivale a 100 a 600 ug/L.

MANGANESO: Valores de manganeso en orina por arriba de los 8.0 ug/L refieren una exposición positiva de riesgo. ATSDH, 2000. Agency for Toxic Substances and Disease Registry.





## RESULTADOS TOXICOLÓGICOS EN SANGRE

PREVALENCIAS (%) DE EXPOSICIÓN A METALES PESADOS										
	COMUNIDADES	POBLACIÓN TOTAL	BACANUCHI	TAHUICHOPA	BANÁMICHÍ	HUÉPAC	ACONCHI	BAVIÁCORA	URES	TOPAHUE_SAN JOSÉ DE GRACIA
	TAMAÑO POBLACIÓN DE ESTUDIO	615	29	56	118	59	181	52	55	60
PLOMO EN SANGRE	< 10.0 ug/L NO EXPOSICIÓN	20%	10%	21%	13%	40%	22%	21%	18%	3%
	≥ 10 ug/L POSITIVO EXPOSICIÓN	74%	90%	68%	80%	58%	74%	79%	73%	80%
	≥ 50 ug/L ALTO RIESGO	4%	0%	9%	5%	2%	2%	0%	9%	10%
	≥ 100 ug/L MUY ALTO RIESGO	2%	0%	2%	2%	0%	2%	0%	0%	7%
MANGANESO EN SANGRE	< 15.0 ug/L NO EXPOSICIÓN	73%	72%	52%	82%	50%	77%	81%	71%	63%
	≥ 15.0 ug/L POSITIVO EXPOSICIÓN	27%	28%	48%	18%	50%	23%	19%	29%	37%
CADMIO EN SANGRE	< 0.27 ug/L NO EXPOSICIÓN	61%	59%	41%	60%	83%	62%	65%	76%	52%
	≥ 0.28 ug/L POSITIVO EXPOSICIÓN	39%	41%	59%	40%	17%	38%	35%	24%	48%

CADMIO: Valores en sangre por arriba de los LMC refieren exposición positiva y crónica. Concentraciones en sangre total de 18ug/L refieren exposición crítica y concentración de 34ug/L refieren una exposición muy crítica. 1992. Cadmium. Environmental Health Criteria. Ginebra: OMS.

COBRE: Valores por arriba de los 1800ug/L en sangre total se consideran positivos para exposición por inhalación de partículas finas de Cu(I) o por ingestión de agua que contiene desde 7.5 a 300 mg/L de Cu(I). ATSDR 2002. Agency for Toxic Substances and Disease Registry Division of Toxicology/Toxicology Information Branch.

ARSENICO: Los valores de arsénico en sangre sólo se pueden referir a una exposición muy aguda y reciente ya que el tiempo de vida media del arsénico en sangre es de 6 horas. En este sentido valores arriba de los 70ug/l ó 7ug/dl serían considerados como indicador de exposición reciente aguda (EXPAR).

W.H.O. (1996). Arsenic. Guidelines for drinking-water quality, 2nd ed. Vol. 2. Health criteria and other supporting information. Geneva: 156-167.

MANGANESO: Valores de manganeso en sangre por arriba de los 15ug/L se consideran positivos para exposición de riesgo (PEXPR) ATSDR, 2000. Agency for Toxic Substances and Disease Registry Division of Toxicology and Human Health Sciences



## VALORES PROMEDIO DE LAS CONCENTRACIONES DE METALES PESADOS EN SANGRE

	PLOMO > 10.0 ug/L; >50.0 ug/L; >100.0 ug/L			MANGANESO >15 ug/L			CADMIO > 0.27 ug/L		
	VMÍN	MED GEO	VMÁX	VMÍN	MED GEO	VMÁX	VMÍN	MED GEO	VMÁX
POBLACIÓN TOTAL	0.60	16.30	494.72	5.66	12.90	44.67	0.28	0.50	3.61
BACANUCHI	8.43	17.08	42.19	9.46	13.13	17.23	0.28	0.45	0.97
TAHUICHOPA	4.14	19.51	125.24	6.55	13.79	24.58	0.28	0.45	1.80
BANÁMICHÍ	0.60	17.25	210.45	6.33	11.85	17.28	0.28	0.48	2.44
HUÉPAC	3.94	12.13	66.36	5.66	14.63	30.44	0.28	0.42	0.83
ACONCHI	4.94	15.30	420.93	7.76	13.10	44.67	0.28	0.51	3.61
BAVIÁCORA	6.32	13.49	38.33	6.05	11.36	28.90	0.28	0.50	1.59
URES	5.60	15.12	88.02	6.81	13.28	36.97	0.32	0.58	3.11
TOPAHUE_SAN JOSÉ DE GRACIA	1.78	25.28	494.72	6.90	12.95	28.36	0.28	0.52	1.74



# Presence of heavy metals in water and in blood and urine of residents of the Sonora River region.

Eight years after the spill, pollution with heavy metals persists at sampling points on the Sonora and Bacanuchi Rivers. This is related to a homogenized presence of heavy metals -mainly lead and arsenic- in blood and urine samples from residents of the affected municipalities.

**RESULTS FOR HEAVY METALS IN WATER, 2021**  
[Predominant when presence is confirmed at 67-100% of sites, and low when presence is confirmed at 1-33% of sites]

## 1 CANANEA

- Predominant presence of aluminum and manganese

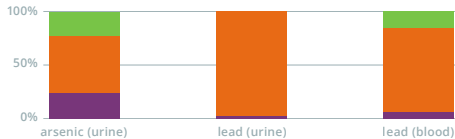
## 2 ARIZPE

- Predominant presence of aluminum and iron  
- Medium presence of manganese  
- Low presence of nickel, mercury, lead, chrome, arsenic, barium, sulphates, and cadmium

- Bacanuchi - Tacuichopa

### TOXICOLOGY RESULTS IN THE POPULATION, 2022

NO EXPOSURE  
EXPOSURE  
AT RISK



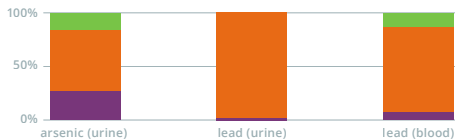
## 3 BANÁMICHÍ

- Predominant presence of aluminum  
- Medium presence of manganese, iron, nickel, mercury, lead, chrome, arsenic, barium, sulphates, and cadmium

- La Mora - Banámichi

### TOXICOLOGY RESULTS IN THE POPULATION, 2022

NO EXPOSURE  
EXPOSURE  
AT RISK



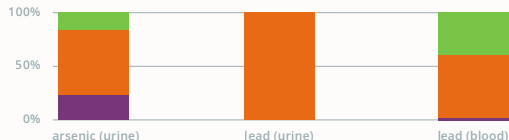
## 4 HUÉPAC

- Predominant presence of aluminum, manganese, and iron  
- Medium presence of nickel, lead, chrome, arsenic, and barium

- Huépac

### TOXICOLOGY RESULTS IN THE POPULATION, 2022

NO EXPOSURE  
EXPOSURE  
AT RISK



### LOCALITIES WHERE TOXICOLOGY ANALYSES WERE PERFORMED



## 5 SAN FELIPE DE JESÚS

- Predominant presence of aluminum manganese, iron, nickel, lead, chrome, arsenic, and barium

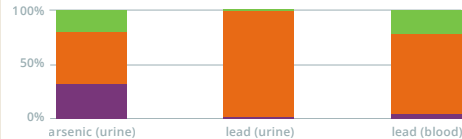
## 6 ACONCHI

- Predominant presence of aluminum, manganese, iron, nickel, lead, and chrome  
- Medium presence of arsenic and barium

- San Pablo - El Rodeo  
- La Estancia - Aconchi

### TOXICOLOGY RESULTS IN THE POPULATION, 2022

NO EXPOSURE  
EXPOSURE  
AT RISK



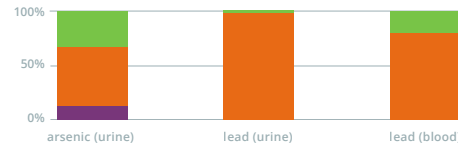
## 7 BAVIÁCORA

- Medium presence of aluminum, manganese, iron, nickel, lead, and chrome  
- Low presence of nickel, mercury, lead, chrome, arsenic, barium, and sulphates

- Las Tortugas - La Aurora - La Capilla  
- Mazocahui - La Labor - Sinoquipe

### TOXICOLOGY RESULTS IN THE POPULATION, 2022

NO EXPOSURE  
EXPOSURE  
AT RISK



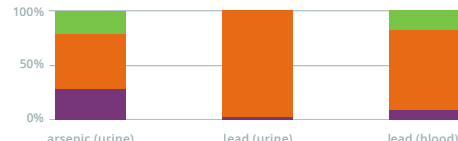
## 8 URES

- Medium presence of aluminum, manganese, and iron  
- Low presence of nickel, mercury, arsenic, sulphates, and fluorides

- Guadalupe de Ures - San Rafael  
- Rancho San Pedro - El Sauz  
- Puerta del Sol

### TOXICOLOGY RESULTS IN THE POPULATION, 2022

NO EXPOSURE  
EXPOSURE  
AT RISK



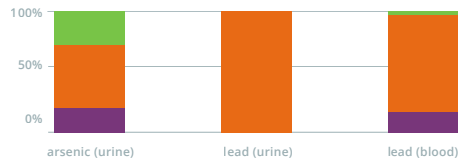
## 9 HERMOSILLO

- Predominant presence of aluminum  
- Medium presence of manganese, iron, and sulphates  
- Low presence of mercury and arsenic

- Topahue - San José de Gracia

### TOXICOLOGY RESULTS IN THE POPULATION, 2022

NO EXPOSURE  
EXPOSURE  
AT RISK



**SOURCES:** Sampling of water (CONAGUA, IMTA, COESPRISSON, 2021) and toxicology results (MINISTRY OF HEALTH, CENAPRECE, 2022)





## 2 LOSS OF BIOTA AND ARTHROPODS.

On April 8, the INECC reported that the Buenavista del Cobre mine negatively affects the structure and functionality of arthropods in the Sonora River Basin; “therefore, it also affects the ecosystem services they provide, such as pollination, pest control, recycling of nutrients, and the biodiversity of the region.” Populations have fallen, in particular of bugs, hornets, flies, mosquitos, and beetles, reducing the capacity for resilience in agriculture. Also, it represents a risk due to the accumulation of metals that make their way into the food chain. Such impacts are seen in the vicinity of Cananea. “Our evidence suggests that the primary source of impact are particles from this mining area. We recommend completely eliminating the influence of such particles, which most likely come from the tailings dam south of Cananea. Physical barriers will be needed to block the movement of pollutants, for example applying a layer of soil”, the available official documents affirm<sup>6</sup>.

<sup>6</sup> Government of Mexico. April 8, 2022. Cananea Comprehensive Plan for Justice. Roundtable on Environmental Health. Component on soil, air, and biota. Slide 13. Available at: <https://share.mayfirst.org/s/JrNgDetgtFRByEZ?dir=undefined&path=%2F&openfile=13022622>



*Grupo México must respond for the damage it caused and for all the resulting harm to health and the environment. It is wrong to promote mining when they are destroying the environment and the water (...). Animals have also been harmed. We have all been harmed.”*

**ALMA PATRICIA IBARRA,  
TOPAHUE, HERMOSILLO**





### **3 ECONOMIC LOSSES TRIPLED, EQUAL TO FIVE TIMES THE VALUE OF THE FAILED SONORA RIVER TRUST, AND THE NEED FOR A NEW REMEDIAL PLAN.**

Eight years after the spill, the real cost of damages to the State of Sonora and society in general amounts to **10.2 billion pesos**<sup>7</sup>, more than triple the initial estimate (**3 billion pesos**) announced by the INECC in 2014 during the administration of Enrique Peña Nieto; and **five times the value of the Sonora River Trust, which disbursed only 1.2 billion pesos, slightly more than half the amount promised, according to an investigation published by the organization PODER**<sup>8</sup> which uncovered irregularities in decision-making processes, opacity, and destination of public funds. Following the environmental disaster, the **Profepa imposed a 23-million peso fine on the mining company**. The figures were provided by the INECC in a meeting held July 29, in the presentation entitled: "Estimate of economic losses due to damage caused by the spill in the Sonora and Bacanuchi Rivers."<sup>8</sup> The basis of the analysis for the estimate were the "limitations on access to water and other associated costs," "economic losses in farm production," "economic losses in other sectors of the economy (commerce, industry, and services)," "harm to physical and mental health and other costs of healthcare," "damage to soil and river vegetation," and "spending incurred by the environmental sector for monitoring." Below, a transcript with the summary of results.

<sup>7</sup> Semarnat, INECC, July 2022. Estimate of economic losses due to damages caused by the spill in the Sonora and Bacanuchi Rivers, final results, slide 12. Available at: <https://share.mayfirst.org/s/6crdzB7eZFAem9M>

<sup>8</sup> PODER, Julieta Lamberti, (2018). Análisis del Fideicomiso Río Sonora. Simulando la remediación privada en un Estado capturado. Available at: <https://poderlatam.org/2018/07/analisis-del-frs/>



*Neither the amount of the fine paid nor the compensations delivered by the Sonora River Trust, under any scenario, covered the direct, indirect, and cumulative impacts on the population, ecosystems, and the economy or the costs of monitoring health and the quality of the environmental and health matrices."*

**INECC**

<b>Impact</b>	<b>Area</b>	<b>Cost (Millions of pesos)</b>	<b>Subtotal by Area (Millions of pesos)</b>
Limitations on access to water and other associated costs	Estimated cost assuming that 50 percent of the population consumes bottled water	\$155.50	<b>\$1,036.81</b>
	Cost for consumption of drinking water supplied by tank cars	\$0.70	
	Deterioration of water due to pollution of the river	\$100.67	
	Deterioration of ground water	\$3.67	
	Deterioration of water due to pollution of the river	\$756.70	
	Estimated expenses to make water purification plants operational	\$19.57	
Economic losses in farm production	Losses in the agricultural sector	\$82.84	<b>\$121.87</b>
	Losses in the livestock sector	\$39.03	
Economic losses in other sectors of the economy	Attention to economic units (commerce, industry, and services)	\$172.90	<b>\$172.9</b>
Harm to physical and mental health and other expenses in healthcare	Annual cost of treatment for cancer or other conditions (cohort 2016)	\$1,018.23	<b>\$4, 536.25</b>
	Annual cost of treatment for cancer or other conditions (cohort 2022)	\$1,718.43	
	Costs of medical consultations	\$1.55	
	Cumulative total spending not disbursed for UVEAS (phase 3)	\$1,601.14	
	Workdays missed	\$0.08	
	Impact on children's health	\$196.82	

Damages to soil and river vegetation, and in the riverbed	Deterioration of river ecosystems	\$7.07	<b>\$4, 325,31</b>
	Costs of stabilization of river sediments	\$104.60	
	Costs of cleanup of riverbed	\$1,898.05	
	Risk of loss of ecosystem services	\$2,315.59	
Disbursements made by the federal environmental sector	Disbursements by the federal environmental sector	\$16.16	<b>\$16.16</b>
		<b>TOTAL</b>	<b>\$10,209.30</b>

## ***Estimación de pérdidas económicas por los daños ocasionados a partir del derrame en los ríos Sonora y Bacanuchi***

***Resultados finales***

***Realizó: Dirección de Economía Ambiental y de los Recursos Naturales  
Julio de 2022***



**MEDIO AMBIENTE**  
SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES



**INECC**  
INSTITUTO NACIONAL  
DE ECOLOGÍA Y  
CAMBIO CLIMÁTICO

**10 años**



**2022** *Ricardo Flores*  
*Año de Magón*  
PRECURSOR DE LA REVOLUCIÓN MEXICANA

Source: "Estimate of economic losses due to damage caused by the spill in the Sonora and Bacanuchi Rivers," July 29, 2022, prepared by the Directorate of Environmental Economy and Natural Resources. In this meeting, the participants shared the latest and most recent up-to-date data on losses. According to the CCRS, these figures may increase if the criteria are further refined to estimate damage to agriculture and livestock, among others.



Based on the INECC's conclusions, "Neither the amount of the **fine paid (23 million pesos)** nor the compensations delivered by the Sonora River Trust (**1.2 billion pesos**), under any scenario, covered the direct, indirect, and cumulative impacts on the population, ecosystems, and the economy or the costs of monitoring health and the quality of the environmental and health matrices.<sup>9</sup>"

**On the new remedial plan**, according to Official Notice DGGIMAR.710/004283,<sup>10</sup> the General Directorate of Integral Management and Hazardous Activities is preparing a new remedial plan after it was proven that the first one was never implemented. Previously, the Sonora River Trust never invested in remedial actions for the river and only paid for a diagnostic study the results of which were not confirmed to have been implemented.

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<sup>9</sup> Ibid., Slide 12.

<sup>10</sup> General Directorate of Integral Management and Hazardous Activities. Official Notice DG-GIMAR.710/00428. Available at:



## 4 GRUPO MÉXICO UNPUNISHED AND WITHOUT A WASTE MANAGEMENT PLAN

Grupo México denies responsibility for persistent environmental pollution in the Sonora River. On September 3, 2019, German Larrea, owner of Grupo México and Mexico's second wealthiest man, assured the publication *Pie de Página* that "the (Sonora) River was dirtied, not contaminated."<sup>11</sup> This echoes the position the company has maintained for 8 years despite all evidence to the contrary. In "Public Informative Meetings" - meetings organized by the authorities in response to demands by the communities filed in the courts - the company's representatives remain silent and express no position; they are not required to identify themselves and continue to operate opaquely. Nor have they been called upon to account for the company's actions and omissions, and instead were invited to attend the announcement of the so-called Cananea Plan for Justice, with none of the persons affected by the pollution of the river in attendance. On March 3, 2022, the DGGIMAR informed the CCRS that **Grupo Mexico has been operating for 11 years without a plan for management of hazardous waste**. This information was made available at an encounter resulting from the constitutional judgment handed down in docket 144/2015, in the Ninth District Court in the State of Sonora, and upheld in 2021 by the Second Collegiate Court in Penal and Administrative Matters of the Fifth Circuit, in its ruling on motion for reversal 247/2019.

<sup>11</sup> Jose Ignacio de Alba. (2019). La minería moderna cuida el medio ambiente: Germán Larrea. August 1 2020, from the *Pie de Página* website: <https://piedepagina.mx/la-mineria-moderna-cuida-el-ambiente-german-larrea/> Semarnat/Conagua (2021). Resultados de los Análisis del Monitoreo de Calidad del Agua Superficial y Subterránea en los Ríos Bacanuchi y Sonora. August 2021, slides 11 to 16. Available at: <https://share.mayfirst.org/s/KbitRXkQiXpNWPpy>



*We want Grupo México to be ordered to pay all costs of remedial action and healthcare. We don't want the government to pay for the harm the mine caused; we want Grupo México to pay."*

**MARTHA AGUIRRE,  
TAHUICHOPA, ARIZPE**

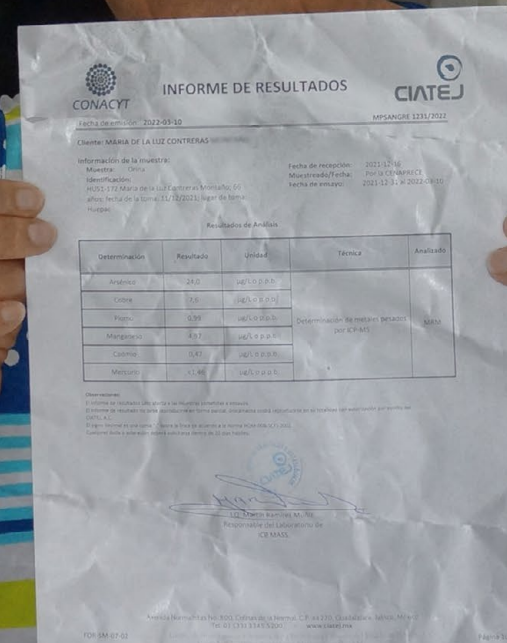


## 5 POLLUTION BY METALS IN SOURCES OF SUPPLY AND SURFACE WATERS.

Pollution by heavy metals persists in different sources of water supply for human consumption, and in river water. The report *Monitoring the Quality of Surface and Ground Water in the Bacanuchi and Sonora Rivers*, presented by the water authorities in September 2021 and in February 2022,<sup>12</sup> which considered more than 30 samples taken from surface water sites (including residential lines), 37 from ground water sites, and 8 sediment samples, states:

- We recommend that the water drawn from the Tahui-chopa well, where aluminum and iron have been found more than once, be subject to a purification process.
- We recommend that the water drawn from the La Labor and La Aurora wells, where manganese has been found several times, be subject to a purification process.
- We recommend that the water drawn from the San Jose de Baviácora well, where for the second time mercury was found, be subject to a purification process.
- At three surface water sites, iron and aluminum were detected in concentrations that exceed the Ecological Criteria for Quality of Water Used as a source of supply for drinking water (CECAAP): Bacanuchi River, La Trampa, El Molinito Boquilla Oregano (El Molinito Dam Reservoir 1).
- Among surface water sites, manganese was found in concentrations exceeding CECAAP limits at Bamori Río, Baviácora Río Sonora, and San Rafael de Ures Río Sonora.
- In a residential pipeline at La Capilla, iron concentrations of 2.4 mg/L were found, exceeding by 8 times the permissible limit of .3 mg/L.
- At least 12 wells present parameters that fail to comply with NOM 127 or international standards established by the WHO.

#8Years  
OfImpunity



**The mining company must respond for the health of everyone, because the mining company caused all this."**

**MARÍA DE LA LUZ CONTRERAS,  
DE HUÉPAC**

<sup>12</sup> Semarnat/Conagua (2021). Results of the Analysis of Monitoring of Quality of Surface and Ground Water in the Bacanuchi and Sonora Rivers. August 2021, Slides 11 to 16. Available at: <https://share.mayfirst.org/s/KbitRXkQIXPnWPp>



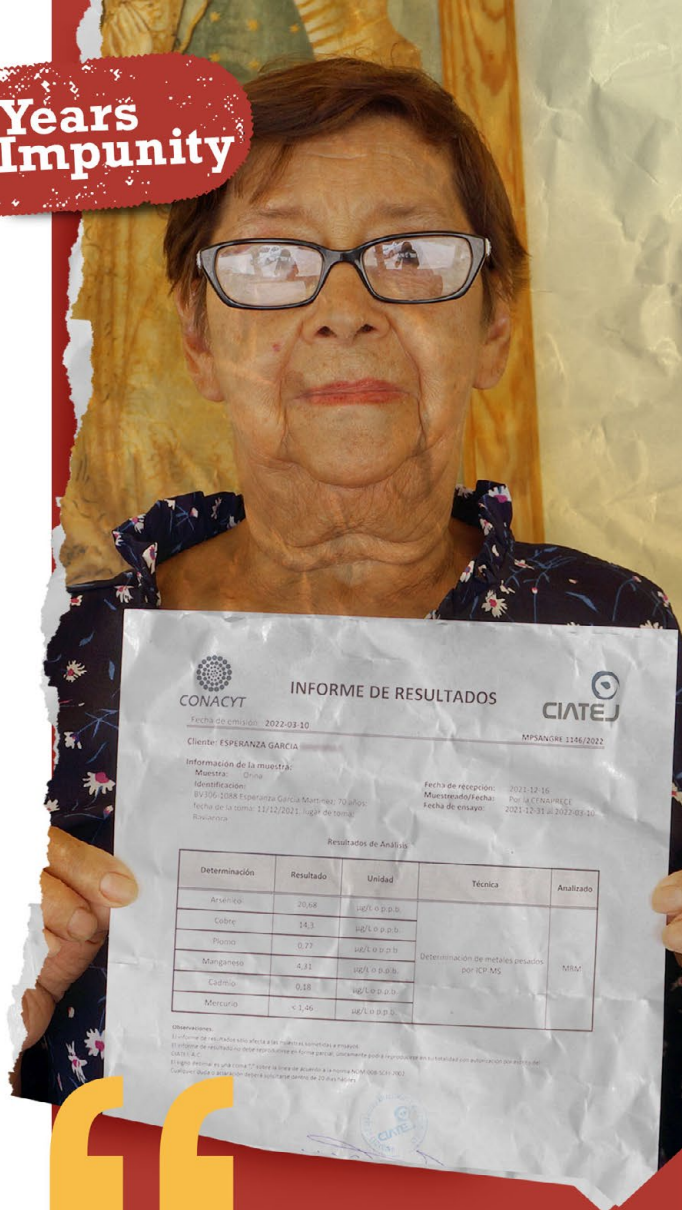
## 6 STILL WITHOUT PURIFICATION PLANTS, AND WELLS STILL POLLUTED.

Key demands remain unresolved, such as the urgent installation of purification systems to separate metals, and the relocation of wells in each community with a written commitment to take charge of operating expenses for water infrastructure and a long-term water supply plan in the affected municipalities. Based on observations by the CCRS, today 5 of the 6 existing fixed plants are not operating; the other plant operates sporadically. On the other hand, none of the 4 mobile plants are operational. The commitment assumed previously by the defunct Sonora River Trust was to build 36. This information is relevant because in August 2021, CONAGUA and the IMTA reported that the levels of heavy metals exceed Mexican and international standards in wells, including those in Tahuichopa, San José de Baviácora, and La Labor, among others. Also, in 2019, Coesprisson released the results of its analyses of wells in the Sonora River basin, detecting that more than 90 percent of sources of supply for human consumption have alarming levels of arsenic and lead<sup>13</sup>.

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<sup>13</sup> Cofepris, Official Notice No. S00132 2020. Available at: <https://share.mayfirst.org/s/DW2BsdHT8IERPPf>



*There are more mines than we can support. There are three mines that are exhausting the water tables. Soon we will see more pollution from them. Local residents are constantly in contact with toxic waste because they use the river for sewage and dump heavy metals".*

**ESPERANZA GARCÍA,  
DE SAN JOSÉ DE BAVIÁCORÁ**



## 7 PROFEPA WEAK AND UNRESPONSIVE.

The Profepa has played an inadequate role in demanding that the company contribute funds to the Sonora River Trust to help it fulfil its purpose as a mechanism to remedy environmental pollution and the socioeconomic harm the spill has caused. Also, it does not respond to the communities' demand to order the provisional measures the CCRS demanded in July 2021<sup>14</sup>.



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*They have been evasive with the provisional measures claiming that they are part of a legal process; however, in the legal process they say no. They are also evading a plan of action for agriculture and livestock. And the other topic they have not mentioned again is the declaration of a health emergency.”*

**RAMÓN MIRANDA,  
ACONCHI**

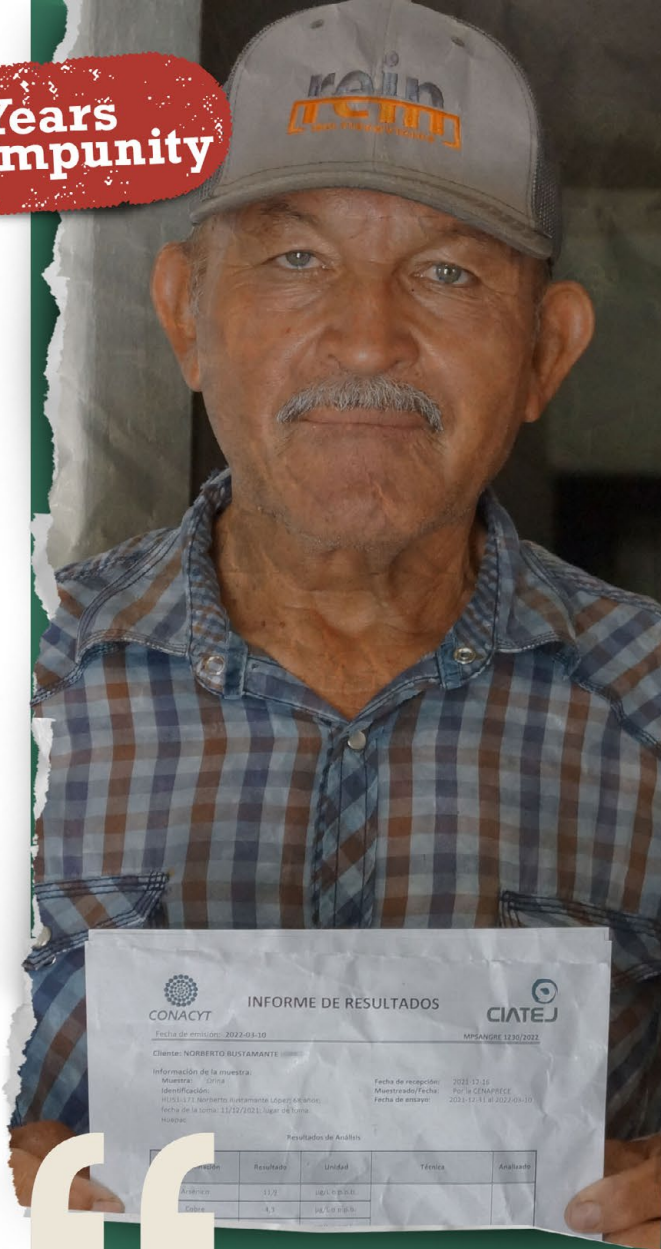
<sup>14</sup> CCRS. (2021). Persons affected by the Grupo México spill demand that Profepa impose provisional measures. August 1, 2022, CCRS website: <https://comitescuencariosonora.wordpress.com/2021/08/04/exigen-personas-afectadas-por-grupo-mexico-medidas-cautelares-a-profepa-por-derrame-en-rio-sonora/>



# 8 CONAGUA SLOWS PROGRESS.

In the roundtables for dialogue on the Cananea-Sonora River Plan for Justice, CONAGUA has minimized the severity of the situation, contributing to delays in implementing urgent solutions and disregarding its obligation as guarantor of the human right to water. The agency has not shown the political will to move forward in the dialogue or find solutions, and constantly makes excuses or disavows any competency to make substantive contributions in the area of compensation.

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**CONAGUA has not been on our side. They have said the lands of the Sonora River have no right to water and Buenavista del Cobre does. It is bad policy on the part of their representatives."**

**NORBERTO BUSTAMANTE,  
DE HUÉPAC**





## **9 COORDINATION NEEDS TO IMPROVE.**

The lack of interinstitutional coordination to address all facets of the problem is reflected in the absence of an official written document with a timetable and concrete actions, and in the lack of a strategy for social communication and alerts to keep residents of the state of Sonora abreast of the situation. Information on the encounters and their results does not flow effectively for all interested parties.

“

*If government agencies would take a greater interest in our problem, we would see more progress.”*

**NORBERTO BUSTAMANTE,  
DE HUÉPAC**



# 10 TRUTH AND REASON.

Negligence and denial of the problem by a sector of the authorities and by the company have placed residents across the basin at risk for nearly a decade. Today there are advances and good will from some actors like Semarnat, Cenaprece, INECC, IMTA, and SSA, while others like Profepa and Conagua hinder the capacity to take urgent action, and the company remains unpunished.

#8Years  
OfImpunity



“

*Something that characterizes us as CCRS is our love of our land, of justice. They stripped us of our right to water and to life. Water is what gives us everything. Health, agriculture, livestock. This process has taught us to fight, to document our struggles, to endure.”*

**ELDA LEÓN,  
BANÁMICHÍ**

# Urgent demands and commitments

Unlike the last seven years and during the entire period of the previous federal administration, this is the first year in which we are seeing advances in the pursuit of justice. However, the fundamental demands that remain unresolved for the CCRS are:

1. A comprehensive and effective long-term plan for justice and compensation in the areas of health, socioenvironmental welfare, and other rights affected by Grupo México in the context of a Cananea-Sonora River Plan for Justice.
  - This plan should consider the definitive installation of a specialized clinic and a healthcare program that covers all affected persons, with an ecotoxicological perspective and with emphasis on vulnerable populations like children and the elderly, who were exposed to metals like lead, arsenic, and cadmium, among others.
  - The Sonora River Trust should be reopened as soon as possible, redefining its objectives so it provides effective compensation for the benefit of the affected population and never again as a tool of state capture. Full execution of the judgment for its reopening and an explanation of how the Technical Committee will be formed and the substantive participation of the affected persons remain pending.
  - The installation of water purification plants in each community with the capacity to separate heavy metals, with adequate funding and a written, long-term commitment to pay for operation and services.
  - The plan should also contemplate damages caused to livestock, agriculture, and tourism.
2. The Mexican government should oblige Grupo México to pay for the damages caused, and impose criminal liabilities in proportion to the harm caused to health, the ecosystem, the state of Sonora, and Mexican society. It is essential that the company be held accountable for the severe harm to human rights it has caused.
3. An end to minimization of the problem by the Profepa and CONAGUA, who have for years failed to acknowledge the magnitude of the environmental disaster, and further complicate the efforts of other institutions which have advanced in the process, such as the Semarnat, INECC, Cenaprece, and IMTA. The Profepa should publicly clarify why it has rejected the petition for urgent provisional measures requested July 2021.
4. The authorities of all three branches of government need to articulate a mass social communication strategy to keep the population informed of the health and socioenvironmental status of the basin. Many people remain unaware of the situation.
5. A health emergency declaration for Sonora, given the situation and recognition of the fact that the water in the basin and parts of its soil and air, present a presence of heavy metals.
6. Presentation of the waste management plan for the Buenavista del Cobre mine and an explanation by Profepa of why the mine has operated for more than 11 years without such a document.



# Legal and ecotoxicological perspective

## The long road to justice

Efforts to achieve justice in the Sonora River, undertaken by the Sonora River Basin Committees (CCRS), move through two deserts: one, the landscape of the region that they love deeply, with its vast expanses, filled with light, offer a glimpse of eternity, whose austerity inspires us to focus on what is valuable, filtering out the superfluous; the other is the desertic space of a legal system that turns away, incapable of connecting with the communities, prone to lose itself in formalisms before turning toward justice.

As it is, the scales of justice operate with an inherent imbalance, and as it becomes enmeshed in the structural biases of the justice system, and the chasm the oppressed must cross to obtain justice grows not only wider but deeper. We estimate that one of the great deficiencies of the system, speaking in particular of action for constitutional relief, lies in its apathy in the face of abuses of those rights perpetrated by business and corporations.

On this journey, there has been no lack of challenges for the CCRS: opportunities for solution at times seem to vanish in an endless tunnel, while at the same time we are immersed in an extraordinary situation resulting from the Covid-19 pandemic engulfing the world, in particular -we cannot fail to emphasize- society's most vulnerable members. Challenges have not ceded, and the CCRS have been constant and persistent in their efforts.

One of the causes of the CCRS, expressed in its lawsuits, has been the participation of the affected persons following the 2014 mine spill. Despite judgments both in the federal Supreme Court (Spanish acronym SCJN) and in lower courts, the challenge has been centered on community building to ensure that they have tangible results. It is an arduous task to make a right set forth on paper materialize with effective, real-world value. It has required work from showing courts and authorities that Public Information Meetings (Spanish acronym RPI) are not enough, making clear to them that this option does not mean that meetings can be held under any conditions, which, while it may satisfy formalist criteria, does not assure true enjoyment of the right. Timing, including calls notified in a timely fashion, but also openness to evaluate the suitability of the proposed dates, presentations in simple, understandable language, the real chance for communities to express themselves: all these must be present in the effective exercise of the right.

During the pandemic, other issues have arisen, such as the impossibility of conducting RPI when high risk conditions warrant stricter epidemiological restrictions and the need to adopt public health measures contemplated in the calls for meetings, among others.

Although progress has been made, much remains to be done in relation to core elements of human rights; for example, participation implies the chance of influencing the decisions to be made, and the fact that such participation goes hand-in-hand with balancing powers, which necessarily entails reverting entrenched dynamics relating to de facto powers, like those exercised by companies.

It should be acknowledged that, in relation to the issues described above, the justice system has powerful inertias that make it oscillate between astonishment and that turning of the judicial view toward the magnetism of empty formalism, which turns the effective exercise of the law into the participation in a cumbersome machinery, and its mobility, when achieved, is limited, as moving each cog in the machine represents a struggle.

The Sonora River case started with a catastrophe and solidified in a compensation which, far from remedial, proved even more disastrous. The conclusion we arrive at is eminently clear: we cannot trust companies without controls in captured states for compensation. To rely on compensation in such conditions places the affected persons in a space that is rendered asunder time and again, a lack of effective regulation and controls on industry, the absence of a state that takes control and relinquishes the role of an inefficient administrator, the need for society to realize that it is unsustainable for the maxim of human life to be unfettered profit.

Broken promises are part of the environmental disaster after the spill. Thirty-six promised water purification plants reduced to ten, which have not been functional. A hospital left unbuilt, and fifteen years of medical care limited to only five years -and deficient. In this regard, there is a case that controverts the facts described. Eight years and a retrial later, the matter is awaiting its day in court. Throughout the trial an impossible burden was placed upon the CCRS: to prove omissions and decisions that were never reported by the authorities, which is, precisely, one of their demands.

We hope that the magistrates will assume their commitment to justice seriously and rule promptly so that the competent authorities respond for these pending matters, build what they have to build and hire the specialists needed in the areas of health and water, with the company that caused the spill assuming the resulting costs, but above all, that root cause solutions are found to reverse the dynamics of captured states, so that the affected population is no longer held hostage to economic power of their avarice, as occurred before with compensation that was lost in the labyrinth of simulations. No more.

To date, complaints in the National Human Rights Commission have been reopened and several court rulings are in execution, among them one related to the closure of the Trust, in which the Supreme Court judgment in favor of the company has been reinterpreted, and the case initiated against the authorization for construction and operation of a new tailings dam, owned by Buena-vista del Cobre, without consulting the communities. In another order of ideas, the perseverance of the communities regarding their need to be taken into consideration is taking shape in the context of the Cananea-Sonora River Plan for Justice. Gradually, the exposure of the population to metals hazardous to their health; the persistence of pollution in the region which creates a real possibility for remedial action; and the company's intention to cede a site intended for a hospital to the National Guard, the early termination of the relevant free loan agreement, and the order for the site to be used for a public hospital have been laid bare.

May there never cease to be people in resistance.

May the feet that open paths for yearnings for justice never tire.

May silenced voices make such noise that they open spaces to be heard.

May all different roads meet at a place of truth, compensation, and justice.

*\* Text by Victoria Beltran and Cynthia Arco Amarillo,  
attorneys for PODER who accompany the CCRS in legal cases.*

# Ecotoxicological and environmental perspective

Open pit mining has a considerable impact on ecosystems and nearby human settlements due to the removal of soils rich in minerals, including those that have toxic effects on human health such as vanadium, zinc, cadmium, mercury, lead, arsenic, chrome, aluminum, and nickel, as well as rare-earth elements and radioactive materials. As if that weren't enough, modern mining uses vast quantities of dangerous substances like cyanide and acid solutions that facilitate the extraction of metallic compounds; such was the case of the acidified copper sulfate solution involved in the spill. As a result, mining is a source of toxic waste such as tailings, leachates, and powders which constitute health hazards due to exposure when prevention and management are inadequate.

Laws and regulations state that companies that engage in hazardous activities like mining are obliged to protect and minimize their environmental impact through instruments like the Environmental Impact Statement before starting extractive activities. In production processes, there are mechanisms for control and prevention of accidents, including financial instruments to cover damage to third parties and in closing activities, plans of action are required to contain waste and prevent exposure to toxic substances. In this sense, the Programs and Plans for Prevention and Control and the Comprehensive Waste Management Program are key instruments for companies to operate with the certainty of avoiding accidents and environmental impact. Also, the state and federal governments should maintain permanent systems of vigilance and inspection to ensure that those regulatory instruments are updated and improved so that the private benefit of the activity does not represent environmental, economic, and social costs for third parties.

The spill that occurred eight years ago starkly revealed the consequences of noncompliance with preventive measures and the state's inability to respond to environmental emergencies involving dispersion of chemical pollutants. From its early hours, the situation placed persons and commercially valuable animals at risk due to the lack of an immediate response by health and containment services. The solution with corrosive material and a complex mixture of toxic substances was dispersed in the Sonora and Bacanuchi Rivers, reaching the El Molinito Dam; the coloration caused by the acidified copper sulfate was visually impactful and triggered an emergency response which revealed a lack of interinstitutional coordination, local technical and financial ineptitude, and the absence of competent authorities to manage environmental risk. With the passing of weeks and months, poorly coordinated actions and media coverage of the case led to stigmatization of the area, harming local economic activities, further exacerbated by clumsy actions like drilling dozens of water wells without conducting groundwater studies to rule out exposure to naturally occurring toxic minerals like arsenic, fluoride, or others. Medical attention with scant experience in chronic exposure to the toxic chemicals involved in the spill and a lack of coordination was limited to treating injuries caused by chemical burns and gastrointestinal problems, with its scope limited to the medium term.

Specialized studies to evaluate the spill's environmental impact were conducted under NDAs and the public information that was initially reported on the Semarnat website and by the Sonora River Trust created greater uncertainty among the affected persons, due to the lack of transparency. Finally, such studies were barely taken into account or ignored completely for the Ecological Restoral Plan that the company promoted and the federal authorities authorized in due course, and as a result actions were carried out only in zone I, on the company's premises. In 2017, as the administration of Enrique Peña Nieto neared its end, the Trust and actions of ecological restoration were terminated, evidencing the institutional simulation.



Studies of health and environment that have been presented during the current administration through roundtables account for the environmental and health impact open pit mining produces in the region and reveal systemic exposure to heavy metals. However, to date compensation for the damage caused to the affected populations has not been forthcoming and we are very far from assuring that such an event will not be repeated. Regulatory instruments and specific standards have not seen substantive changes to promote prevention and control of the environmental impact of mining. It bears noting that the accident involving the Grupo México mining company marked the first test of the Law on Environmental Responsibility, which embodies good intentions but is far from being an effective tool to prevent environmental risks created by extractive and industrial activities. In the present evaluation we observe that, while there is new evidence, monitoring, and intention to help the victims of environmental disasters, there are no substantial changes in environmental policy in this area, with further budget cuts in protection, oversight, and environmental law enforcement which produce an increase in environmental impacts and costs, as well as the impunity of Mexico's biggest polluters.

*\* Text by Dr. Omar Arellano-Aguilar, specialist in Ecological Risk and Ecotoxicology.*

# Conclusions

Eight years after the spill caused by the Buenavista del Cobre mine, owned by Grupo México, every minute counts in the pursuit of justice, compensation, and assurances that the disaster will not be repeated. The damages caused to human health, the ecosystem, and the state economy are amply documented, as are the costs of repairing them. Meanwhile, the debt in terms of justice and accountability for the parties responsible continues to grow.

This also leads us to search for answers to the questions: Why does Mexican society, and in particular the people of Sonora, have to pay for the damage caused by a private corporate actor? Why, despite such evidence, is the Sonora River Trust not reopened and why have the provisional measures requested by the victims not been granted or a public health alert or state of emergency not been established in the region? Why was a clinic, intended to strengthen access to healthcare, left unfinished? Why do the persons responsible for the spill continue to evade the action of justice? What has to happen for the persons responsible for the environmental disaster to finally face justice?

A long time has been allowed to pass to start actions for compensation and fact-finding, extremely valuable time considering the potential long-term effects of exposure to heavy metals in persons with the advance of bioaccumulation, a phenomenon that is especially important to address in more vulnerable populations like children and the elderly or persons with comorbidities. It is essential that remedial actions and plans be established as part of a long-term plan and/or program given that the effects of the spill of toxic substances in the river and exposure to heavy metals in the population will have a long-term impact.

At the same time, it is crucial to advance on meeting the most urgent demands of the persons affected by the spill and modify the conditions and structures that have allowed extractive industries to operate with impunity, and especially in this case, causing severe damage to human rights and the environment. These structures emanate from a national Mining Law that further perpetuates a model that benefits only a small corporate elite in Mexico, whose financial power gives it the leverage to interfere inappropriately in decisions of public interest, in a phenomenon known as corporate capture of the state.



**Sonora River Basin Committees (CCRS)** is a social movement formed by persons affected by the spill of acidified copper solution from the mine operated by Buenavista del Cobre, S.A. de C.V., in the year 2014. Members include residents of eight municipalities: Arizpe, Banámichi, Huepac, San Felipe de Jesús, Aconchi, Baviácora, Hermosillo Rural, and Ures.



**The Project on Organizing, Development, Education, and Research (PODER)** is a regional non-profit civil society organization. Its mission is to promote corporate transparency and accountability in Latin America, from a human rights perspective, and strengthen civil society actors affected by corporate practices so they can act as guarantors of long-term accountability.



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