

# Addressing the gap in the UN's SDG indicators

## Towards a socially equitable and environmentally responsible energy transition in the Argentine Altiplano

SEI brief  
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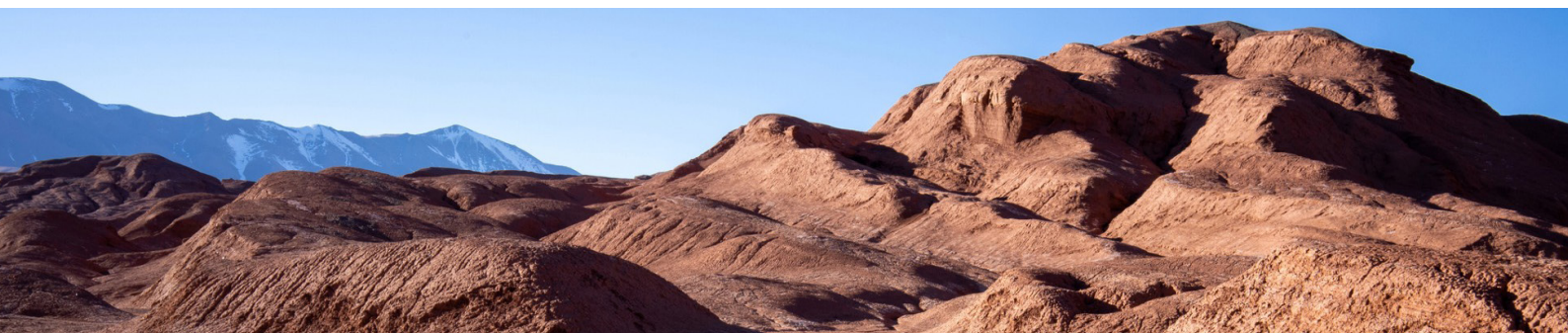
### Key messages

- The global shift to lithium-based energy systems highlights the need to address practices that could impact Indigenous Peoples and local communities and foster a more socially just and environmentally responsible energy transition process.
- Perspectives from Indigenous Peoples and local communities in the Argentine Altiplano regarding lithium mining – a key resource for the energy transition – reveal often-overlooked consequences of global policies that fail to include the voices of local actors.
- Indicators that measure progress toward the UN's Sustainable Development Goals (SDGs) can better ensure benefits for local residents and a just energy transition if they include the perspectives of Indigenous Peoples and local communities.
- National and local policy decisions in Argentina should include Indigenous Peoples and local communities through free, prior and informed consent to strengthen benefit-sharing and employ education, partnerships, and equitable resource management to support local development and preserve cultural heritage.

## Introduction

Amid global initiatives to address the environmental and socioeconomic challenges posed by climate change, governments, corporations and communities require clear, actionable goals to guide their efforts. The UN developed the [17 Sustainable Development Goals \(SDGs\)](#) that make up the 2030 Agenda in 2015, which cover topics ranging from conservation agriculture and eradicating hunger to creating justice within institutions and improving city safety. Since then, the SDGs have dominated the international aid and environmental restoration spheres, yet the broad and interconnected nature of the goals often makes them challenging to implement. Additionally, SDGs often overlook leadership from Indigenous Peoples and local communities.

Image: Jose Luis Raota/Getty



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When establishing the SDGs, the UN also created quantitative and qualitative indicators corresponding to each goal. In this context, an indicator is a measurement of progress. Indicators range from quantitatively specific, such as, “Malaria incidence per 1000 population”, or qualitatively vague, like, “Progress towards sustainable forest management”.

Indicators provide direction for the far-reaching SDGs but they overlook local knowledge of communities most affected by development and climate change, who are also key actors in shaping sustainable solutions. While indicators are necessary to measure progress, they would have greater impact if Indigenous Peoples and local communities could evaluate and advise on their usefulness. These communities possess invaluable knowledge of their cultural and geographic environment, making their insights critical for shaping approaches responsive to their unique interests and needs. This brief addresses this gap through a case study on lithium extraction in the salt flats of the Argentine Altiplano, illustrating the critical role of local and Indigenous perspectives in shaping indicators that advance both local interests and global sustainable development goals.

## **The case: lithium mining in Argentina**

A global response to the impacts of human-caused greenhouse gas emissions is the shift toward lithium-based energy systems. Since the mid-1990s, Argentina has mined lithium, with significant developments in the last decade in the extensive Andean salt flats (Salazar-Xirinachs, 2023). This region is known for its plentiful lithium reserves and is one of the backbones for today’s energy transition (Herrington, 2021; Wanger, 2011).

While lithium is abundant, the most economically profitable source is lithium in brine from the salt flats due to its lower extraction costs compared to hard rock mining (Hou et al., 2021). These highly intensive lithium extraction procedures occur in regions inhabited by Indigenous Peoples and local communities, who have historically relied on nature-based livelihoods. However, the regulation and oversight process of projects fails to integrate local inhabitants’ perspectives, positive or negative, into impact assessment and decision-making, reinforcing the historical inequalities faced by Andean Indigenous Peoples and local communities (Göbel, 2013; Jerez et al., 2021).

To better understand the impacts of lithium extraction on Indigenous Peoples and local communities, our team conducted a two-pronged study with the following research questions:

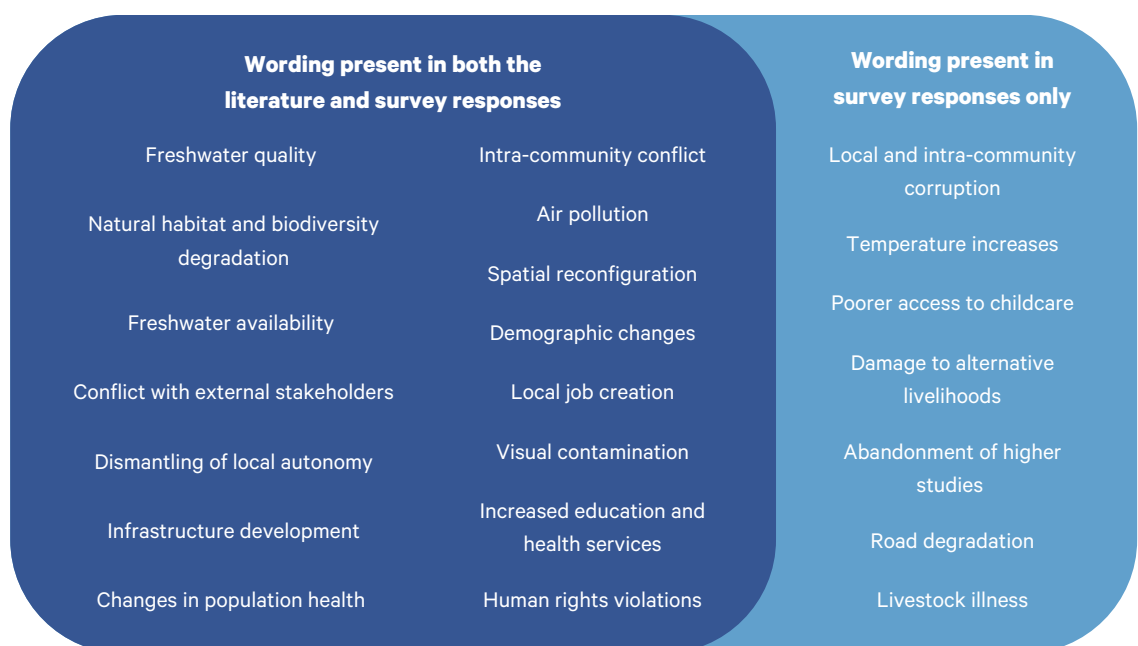
1. What are the local socio-environmental impacts of lithium mining in the High Andean region according to scientific literature?
2. What are these impacts according to local and Indigenous community members?
3. What are potential indicators stemming from these reported impacts that can be aligned with SDGs to inform policy decisions?

We conducted a literature review that identified potential impacts of lithium mining in the Argentine salt flats, which informed the development of surveys for communities in our study area. Then, we travelled to three provinces in Argentina’s lithium region

(Catamarca, Salta and Jujuy) and surveyed four communities (two from Jujuy). Participants indicated whether they had observed the identified impacts and to provide any unlisted impacts they had experienced. Additional details of the study methods are available in Izquierdo et al. (2025) with a summary of key findings below.

While the surveys and literature review yielded overlapping findings, Figure 1 demonstrates there were also some differences. Survey participants identified many impacts not covered in literature review, such as poorer access to childcare and negative effects to education. This disconnect could be the result of more detailed descriptions of impacts by survey participants than found in the literature or in our impact classification scheme.

Figure 1. Impacts as reported in the literature and from survey respondents.



Source: SEI

## Policy relevance

The 17 SDGs reflect UN member states' effort to undertake a globally coordinated, integrated response to the climate and sustainable development crises. A key aspect of the goals are the indicators and targets that seek to measure the implementation and impact of projects intended to fulfil these goals. Soliciting local and Indigenous community input reveals a critical gap: SDGs as a general framework overlook Indigenous leadership and livelihoods as distinct, prioritized and essential areas for support and focus.

Building from the insights of the case study, the findings: i) explore the scientific understanding of lithium mining's local impacts, identifying a gap between locally perceived impacts and those explored in the wider literature; ii) identify local and

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Indigenous perceptions and concerns regarding the social, environmental, and economic impacts of lithium mining, as well as potential indicators to address and monitor these issues; iii) underscore the importance of a more inclusive framing of global development goals that connects procedural and environmental rights to development agendas for natural resource use, and iv) suggest Indigenous Peoples and local communities should participate in creating of SDG indicators.

Based on these findings and the local policy context, we recommend the following actions:

**1. Meaningful community involvement:** We encourage organizations and companies to engage with Indigenous Peoples and local communities and mandate meaningful consultation processes before initiating any project. To accomplish this, project officials, Indigenous Peoples and local communities should co-create inclusive guidelines for consultations that respect traditional governance structures and decision-making processes. Several community involvement approaches have already been enacted in Argentina that can inspire policy on lithium mining. We recommend:

**a) Free, prior and informed consent (FPIC)** – Ensure implementation of existing legal frameworks that require FPIC from Indigenous Peoples and local communities before activities such as resource extraction can begin. Indigenous Peoples have endured a long history of being removed from their resources and exploited to harvest them, and this must not continue. Projects collecting data from Indigenous lands should consult with Indigenous Peoples and local communities and promote their ownership of the data. Through implementation, communities can advocate for their own interests, leading to more equitable and respectful partnerships with industries and governmental entities.

**Current policy in Argentina:** The Kachi Yupi protocol, a federally binding treaty established by Indigenous communities in Argentina in 2015, serves as a precedent and model for integrating FPIC into national policy. Inspired by the Kachi Yupi principles, FPIC frameworks should require that projects not only seek informed consent but also share data collected from Indigenous lands with the communities involved, making them owners of this information.

**b) Benefit-sharing agreements** – Implement mandatory benefit-sharing agreements between companies and Indigenous Peoples and local communities. These agreements should ensure that Indigenous Peoples and local communities receive a fair share of profits from resource extraction. Companies and communities can collaborate to ensure these revenues guarantee the consideration of local interest and necessities.

**Current policy in Argentina:** Argentina's National Constitution (Chapter 4, Article 75) recognizes Indigenous Peoples as the original peoples of the land who are entitled to decide how land should be used and how resources should be shared. Similarly, Law No. 24.071, enacted in 1992, notes that the Argentinian government is responsible for advocating for and upholding Indigenous rights and autonomy. Specifically, the government must ensure

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consultation through procedures appropriate to their cultures with the aim of obtaining consent from Indigenous Peoples.

- c) **Social and environmental impact assessment (EIA)** – Require comprehensive social and environmental assessments that incorporate Indigenous knowledge and perspectives into project design and development. Involving Indigenous Peoples and local communities in jointly building and conducting assessments and monitoring environmental impacts throughout the project’s lifecycle can ensure that Indigenous and local voices are being heard and reflected in project operations.

**Current policy in Argentina:** The Escazú Agreement, ratified by Argentina in 2021, ensures that information and resources regarding environmental decision-making are available to the public and equips people with tools to protect their land. Similarly, the Environmental General Protection Act (Law No. 25.675) and the Environmental Protection for Mining Activities (Law No. 24.585) already require mining companies to submit EIAs to provincial authorities before mining activities begin and to update them biannually to maintain operational permits.

- d) **Transparent reporting and accountability** – Require companies to publicly report on their social and environmental impacts, as well as community engagement efforts. This can be done by establishing monitoring bodies within companies and communities, which include Indigenous Peoples and local community representatives to oversee compliance and accountability. Transparency reports should be verified by local communities and Indigenous Peoples to ensure accuracy.

**Current policy in Argentina:** While the provinces of Catamarca and Salta are committed to the Extractive Industries Transparency Initiative (EITI), wherein participating governments must provide reports detailing the activities of extractive industries within their borders, the EITI is voluntary with no enforcement power. Argentina’s low 2022 EITI scores – particularly on effectiveness, company engagement, and transparency – highlight the limitations of relying on this voluntary framework to ensure meaningful oversight or community protections. Countries are responsible for engaging companies and civil society, which may result in the reporting excluding entities that operate outside of EITI standards. In addition to EITI, we recommend that the government pass legislation or create a transparency division that ensures enforceability of EITI.

2. **Capacity development and education:** To maximize community wealth and health, residents develop skills that allow them to engage meaningfully with mining companies and governments. Programs should be available that focus on educating Indigenous Peoples and local communities about resource rights, governance and negotiation. To do this, we recommend partnerships with non-governmental organizations (NGOs) and educational institutions such as universities to provide training on legal rights and environmental stewardship.

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- a) **Collaboration with local NGOs and CSOs:** Local NGOs and civil society organizations (CSOs) can help establish relationships between local communities, Indigenous Peoples and companies seeking to work in those communities. We recommend partnerships between mining companies, local governments and Indigenous organizations to jointly develop resource management plans. For example, companies could allocate a percentage of their revenue to NGOs focusing on local and Indigenous empowerment. While NGOs should practice transparency regarding the use of funds, they should also move towards a more inclusive approach by integrating local and Indigenous personnel into their staff and co-designing frameworks with these communities.

**Current policy in Argentina:** NGOs and CSOs such as the Fundación Ambiente y Recursos Naturales, UN Permanent Forum on Indigenous Issues and the Red PUCARÁ already advocate for local and Indigenous involvement in Argentinian mining issues and can inspire additional collaborations. UNPFII members have declared that the governments of Catamarca, Salta and Jujuy have failed to uphold their duties outlined in national Law 24.071 by not adhering to FPIC requirements. Instead, NGOs and CSOs have filled in where local governments have failed.

- b) **Collaboration with scientific and academic experts:** Argentina has made significant advancements in scientific knowledge across many disciplines, contributing relevant insights on social and environmental issues. University partners continue to spearhead connecting Indigenous Peoples and local communities with the evidence they need to engage with mining companies and local governments regarding activities that could potentially harm them. Academic and governmental institutions should support and fund research projects that practice community-oriented methods and serve diverse partners' interests.

**Current policy in Argentina:** National universities throughout the country are engaged in various research areas related to lithium extraction. For example, the Foro Interuniversitario de Especialistas en Litio convenes university representatives from diverse disciplines committed to sustainable development and has issued evidence-based statements to inform decision-making on the lithium industry. The National Scientific and Technical Research Council (CONCINET) supports top-level researchers who generate valuable information, engage with communities and assist the state in decision-making processes.

3. **Representative global frameworks:** We recommend that the UN and large multilateral organizations collaborate with Indigenous Peoples to create global development frameworks that reflect the priorities and perspectives of Indigenous Peoples. These global frameworks must include Indigenous Peoples and local communities from the earliest stages that leverage bottom-up approaches in addition to top-down policymaking. To directly address the lack of SDG indicators focused on Indigenous Peoples and their sovereignty, we suggest that the UN and large multilateral organizations partner with Indigenous Peoples in developing specific indicators that reflect their priorities and perspectives.

- a) **Update of SDGs relevant to mining in Indigenous and local communities with targeted consultation:** The UN should update or add SDG indicators specific to the lived experiences and knowledge of Indigenous Peoples and local communities. An example could be an indicator that measures the impacts of lithium mining on Indigenous Peoples. Indigenous Peoples should be the primary creators of such indicators. They can also offer greater insights on the most adequate methods of monitoring and evaluation. Communities will need increased representation at all levels of government and policy education to contribute meaningfully to global decision-making spaces.

Table 1. Policy recommendations with current policies, relevant SDGs and indicators

| Recommendation                                 | Current policies or organizations  | Relevant SDGs  | Relevant SDG indicators  |
|--|--|--|--|
| 1. Inclusive stakeholder engagement            |  |  |  |
| 1A. Free, prior and informed consent           | Kachi Yupi treaty (2015)   | 9.2 – Inclusive industrialization<br>10.3 – Equal opportunity and no discriminatory laws<br>10.6 – Ensure representation of all voices   | 9.2.1 – Value added as proportion of GDP<br>9.2.2 – Employment as proportion of GDP<br>10.3.1 – Proportion of population reporting discrimination<br>10.6.1 – Proportion of members and voting rights  |
| 1B. Benefit-sharing agreements                 | Argentina Constitution: Chapter 4 Article 75<br>Law No. 24.071: Ratification of ILO Convention"                      | 8.3 – Promote policies that support local economic growth<br>9.2 – Inclusive industrialization<br>15.6 – Promotion of fair and equitable benefit-sharing   | 8.3.1 – Proportion of informal employment<br>9.2.1 – Value added as proportion of GDP<br>9.2.2 – Employment as proportion of GDP<br>15.6.1 – Number of countries with policy to support benefit-sharing  |
| 1C. Social and environmental impact assessment | Escazú Agreement (ratified by Argentina in 2021)<br>Environmental General Protection Act (Law No. 25.675 and 24.585) | 3.9 – Safe water<br>6.1 – Universal and equitable access to drinking water<br>6.3 – Improve water quality by reducing pollution, hazardous chemicals, etc.<br>6.b – Support locals in improving water safety<br>10.5 – Monitor and regulate global markets and institutions<br>11.4 – Efforts to protect world's cultural and natural heritage<br>12.2 – Sustainable management of natural resources<br>13.2 – Integrate climate change measures into policy | 3.9.2 – Mortality rate associate to poor water quality<br>6.1.1 – Proportion of population using safe water services<br>6.3.1 – Safe domestic and industrial water systems<br>6.3.2 – Proportion of safe water bodies<br>6.b.1 – Proportion of local administrative units with operational policies for local water management participation<br>10.5.1 – Financial soundness indicators<br>11.4.1 – Total per capita spent on protection and conservation<br>12.2.1 – Material footprint<br>12.2.2 – Material consumption<br>13.2.1 – Number of countries with contributions and long-term solutions to climate change |
| 1D. Transparency reporting and accountability  | Extractive Industries Transparency Initiative (EITI)   | 10.5 – Monitor and regulate global markets and institutions<br>12.6 – Companies improve sustainable practices and reporting<br>16.6 – Effective transparent institutions   | 10.5.1 – Financial soundness indicators<br>12.6.1 – Number of companies publishing sustainability reports<br>16.6.1 – Primary government expenditures as a proportion of original budget<br>16.6.2 – Proportion of public satisfied with experience of public services   |

| Recommendation   | Current policies or organizations   | Relevant SDGs   | Relevant SDG indicators   |
|--|---|---|---|
| 2. Capacity building and education                                     |   |   |   |
| 2A. Collaboration with local NGOs and scientific academic stakeholders | Fundación Ambiente y Recursos Naturales (FARN)<br>Fundación Humedales, Red de Pueblos Catamarqueños en Resistencia & Autodeterminación (PUCARÁ)<br>Consejo Nacional de Investigaciones Científicas y Técnicas & national universities<br>UN Permanent Forum on Indigenous Issues (UNPFII) | 6.b – Support locals in improving water safety<br>15.9 – Integrate ecosystem values into local and national planning<br>17.9 – Enhance international support for capacity building<br>17.17 – Encourage and promote effective public and private partnerships   | 6.b.1 – Proportion of local admin. units with operational policies for local participation<br>15.9.1 – Number of countries with national targets towards biodiversity<br>17.9.1 – Dollar value of financial and technical assistance<br>17.17.1 – Amount of USD committed to public-private partnerships  |
| 3. Representative global frameworks                                    |   |   |   |
| 3A. Update of SDGs with targeted consultation                          | UN Permanent Forum on Indigenous Issues (UNPFII)  | 4.7 – Ensure education on sustainable and informed development<br>10.3 – Equal opportunity and no discriminatory laws<br>12.4 – Environmentally sound management of chemicals and waste<br>15.1 through 15.6 – protecting ecosystems and halting exploitation<br>13.3 – Improve education regarding climate change mitigation<br>16.5 – End corruption and bribery in all forms<br>17.1 – Strengthen domestic resource mobilization | 4.7.1 – How global citizenship education is mainstreamed, national education policies, curricula, teachers and student evaluation<br>10.3.1 – Proportion of population reporting discrimination<br>12.4.1 – Number of parties meeting commitments<br>12.4.2 – Hazardous waste generated per capita<br>15.1.1 – 15.6.1 - progress towards sustainable land use, proportion of healthy ecosystems<br>13.3.1 – How prevalently climate change is taught, national education policies, teacher training and student evaluation<br>16.5.1 – Proportion of persons involved with bribery<br>16.5.2 – Proportion of business involved with bribery<br>17.1.1 – Total government revenue as a proportion of GDP<br>17.1.2 – Proportion of domestic budget funded by taxes |

Case studies such as lithium mining in Argentinian Indigenous regions highlight the challenges that exploitative environmental practices impose on vulnerable peoples. These policy recommendations address the gaps that perpetuate unsustainable and unsafe resource extraction. By adopting these recommendations, governments and mining companies can ensure that Indigenous Peoples and local communities are not only heard, but actively involved in decision-making processes regarding resource extraction, ultimately fostering more sustainable and equitable outcomes.

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