

Lost in the Supply Chain: Bridging Human Rights in the Energy Transition

By Hannah Mills, Marielle Rowan and Tom Streather

All three authors are members of Mott MacDonald's social performance team, based in the energy unit. The authors routinely undertake social impact assessments and human rights impact assessments, social due diligence reviews and supply chain due diligence reviews, and construction monitoring of international infrastructure projects. Their contacts are Hannah.mills@mottmac.com, Marielle.rowan@mottmac.com, and Tom.streather@mottmac.com

May 2026. Article written for the conference proceedings of and presentation at IAIA2026.

1. Introduction

An awakening to the human and labour rights risks buried deep in energy sector supply chains is underway. Especially in the last five or so years, scrutiny of supply chains has increased, with lenders, governments and consumers interested in the working and living conditions, land and indigenous peoples' rights of those affected by the extraction and production of essential raw materials for the energy transition.

Yet the precise scope of supply chain review required by lenders and international laws remains open to interpretation and change. Indeed, the 2024 implemented laws requiring human rights and environmental due diligence in the European Union have already been revised¹. Some lenders, for example the European Bank for Reconstruction and Development (EBRD), have spotted the inconsistencies and issued new guidance for increased diligence. And in general, a risk-based approach is favoured by main frameworks such as the United Nations Guiding Principles on Business and Human Rights (UNGPs), and Organisation for Economic Co-operation and Development (OECD) which justifies inclusion of supply chain workers and communities as recipients of the most salient risks to human rights.

To add clarity and accountability, this paper proposes a typology of workers and inclusion of supply chain risks to communities to aid understanding and mitigation of the key risks and improve the lives of those affected in deeper tiers of the supply chain. It concludes with practical recommendations for integrating supply chain and human rights due diligence into impact assessment processes to strengthen social risk management, transparency and outcomes for rights-holders.

2. Definitions and gaps between standards and practice

Alongside the lack of clarity around depth and scope of supply chain due diligence processes, definitions of workers vary across lender standards, creating inconsistent practice. The UNGPs require human rights due diligence on business relationships including consideration of impacts caused or

¹ The EU's Corporate Sustainability Due Diligence Directive (CSDDD) which came into force in July 2024 will be amended by the Omnibus, leading to a reduction in scope.

contributed to throughout the value chain, implying a broad, multi-tier approach to human rights impact assessment on supply chains². Assessment should be risk-based and proportionate.

The International Finance Corporation's Performance Standard 2 (IFC PS2) on labour and working conditions provides the following definitions which are echoed in many lenders' standards:

- direct workers – engaged by the company receiving the financing
- contracted workers – workers engaged through third parties like contractors, subcontractors and service providers who perform work related to the core business processes³ of the project for a substantial duration

Migrant workers are not separately defined within these categories, but typically they are mainly engaged through contractors or labour intermediaries in both on-site and off-site contracted and supply chain roles. While skilled migrant workers may be well protected, lower-skilled migrant workers may face risks related to recruitment practices, unfair and unsafe working conditions, and poor access to remedy.

Lenders' standards also reference 'supply chain workers', but with insufficient definition. The IFC PS2 Guidance Note (GN) states that 'supply chain' refers to materials, components, goods or products for use in ongoing operations. A supply chain of goods may include suppliers of raw materials or of components for assembly and production. The GN acknowledges that the supply chain of multinational corporations can be extensive and global in nature, whereas the supply chain of national or smaller enterprises will be smaller in scale and may be local. Our rights-holder typology in section 5 highlights key distinctions between types of workers and flags common gaps to improve managing impacts on rights-holders.

In a confusing statement, the GN indicates that the supply chain requirements of PS2 do not apply to material or components used in the construction phase of projects. The latter is a challenging because how does one differentiate a wind turbine that is being installed as being part of construction or operation. Also, the statement is not consistent with how supply chain risks are interpreted in practice and does not fit with a risk-based approach (i.e. UNGPs). PS2's GN also clearly mandates due diligence deeper in the client's supply chain to avoid benefit or financial gain from child labour and forced labour. We have direct experience of working with lenders requesting full traceability on solar photovoltaic (PV) panels (used in the construction phase) supply chains right down to the raw materials due to well publicised issues related to the Xinjiang region of China⁴.

As well, some lenders⁵ use 'direct' and 'indirect' workers, combining contracted and supply chain workers into the definition of 'indirect' workers. We think there are important differences between contracted workers and supply chain workers that makes differentiation essential.

² UN Office of the High Commissioner for Human Rights, *Guiding Principles on Business and Human Rights* (2011), Principles 13 and 17–18 (business relationships and human rights due diligence); Equator Principles Association, *Guidance on Implementation of Human Rights Assessments under the Equator Principles (EP4)* (2020), Section 3.

³ Core business processes constitute production and/or service processes essential for a specific business activity without which the business activity could not continue.

⁴ Murphy, L. and Elimä, N. (2021). "In Broad Daylight: Uyghur Forced Labour and Global Solar Supply Chains." Sheffield, UK: Sheffield Hallam University Helena Kennedy Centre for International Justice.

⁵ For example, CAF –Development Bank of Latin America and the Caribbean

In its human rights assessment guidance note, the Equator Principles defines supply chain workers as those ‘engaged directly or indirectly by the client to work at the project site, including full-time and parttime workers, contractors, sub-contractors and temporary workers’. It is not clear where the ‘chain’ comes into this definition. Rather this definition is more aligned with lenders’ use of ‘project workers’ (i.e. consisting of directly employed and contracted workers) but is at odds with PS2’s definition of ‘supply chain workers’. Commonly, human rights impact assessments (HRIA) include consideration of workers at off-site locations such as mines providing raw materials as ‘supply chain workers’ as HRIsAs are concerned with highlighting the most salient risks. Equator Principles human rights assessments should also align with the risk-based approach of the UNGPs, which seems contrary to such a narrow definition of supply chain workers.

While IFC PS2 references and tries to focus on ‘primary suppliers’, some frameworks⁶ refer to ‘Tier 1 suppliers’. The latter term is frequently used for products, materials or supplies that are purchased directly. Tier 2 then refers to a company that supplies goods or services to Tier 1 suppliers. The next tiers go on, so that the relationship devolves from direct, to indirect, to no contractual relationship. Getting down to the supplier of raw materials for renewable energy equipment can involve several tiers. Involvement with primary or Tier 1 suppliers is direct and easiest, which is why developers choose to focus on them.

EBRD’s recent briefing note ‘Managing Supply Chain Risk’ (March 2026) introduces a much broader definition of supply chain and applicability of requirements to projects. It applies to all ‘core’ supply chains, defined as those suppliers and sub-suppliers who provide goods, equipment or materials that are essential to the project. It includes procurement by contractors and explicitly states that the requirements apply to all tiers of the supply chain. EBRD requirements no longer relate only to ‘ongoing’ supply of goods, equipment and materials but also to one-off purchases. This and other more recent approaches⁶ are much more aligned with the UNGPs and the recently common practice of focusing on highlighting salient risks.

3 Blurred lines of responsibility

In response to civil society allegations about systemic supply chain human rights breaches and the general increase in scrutiny of human rights within environmental, social and governance (ESG) practice, lenders are expecting more due diligence. For many renewable energy developers, there can be a lack of understanding about what is needed, and there can be a tendency to involve contractors and key suppliers.

IFC PS2 and other lender standards tend to focus more on child labour and forced labour risks being identified during the ESIA/preparatory phases. However, the reality is that often that timing is too early for either the project company or the main contractor to know their main supplier/s. Some projects will hand over responsibilities for procuring key components such as wind turbines or solar panels, for instance via engineering, procurement and construction (EPC) contracts. In such cases, passing contractual requirements for the supply chain due diligence process is also necessary.

Renewable energy contractors, like developers, may have limited knowledge of lenders’ supply chain requirements to undertake human rights impact assessment or supply chain due diligence reviews. Certainly major suppliers, especially in key sectors such as renewable energy (especially for solar and wind), textiles, and agriculture are aware of obligations because they are the focus of civil society organisations taking close looks at decent work conditions, health and safety obligations, and the

⁶ For example, UK Government’s Transparency in Supply Chains (TISC): statutory guidance (2025) and British International Investment Toolkit (2021)

upholding of land rights. While the developers/owners/borrowers may prefer to dilute their responsibility, ultimately they are accountable for the products and services procured throughout the supply chain on their projects.

4 Good practice and common pitfalls

In two of many recent related examples in different parts of Europe, Mott MacDonald has conducted supply chain mapping and desk-based due diligence to understand supply chain risks. In one of these examples, for a large-scale solar project, analysis was carried out on potential solar PV panel suppliers and contractors prior to selection, when the most influence and impact can be made on the project's risk profile. The second example, an offshore wind project, involved analysis of the selected wind turbine supplier's supply chain to identify corrective actions to improve compliance and, hopefully in the medium to longer term, the affected rights-holders lives and working conditions.

Common pitfalls of supply chain human rights assessments and due diligence include:

- simply paying lip-service to human rights assessments or seeing them as a tick-box exercise;
- lack of use of specialist practitioners to carry out due diligence;
- insufficient focus on community impacts which may link to environmental mismanagement, land grabbing or lack of consultation; and
- unwillingness to act on the findings of due diligence.

Gouws and Kim (2021) identified that renewable energy developers and contractors often considered that working conditions in the supply chain were outside of project responsibility, that compliance with local labour laws was all that was required, and that supply chain due diligence is too onerous.

Developers of smaller projects often ask what their role is in effecting changes in global supply chains and may be reluctant to deviate from the status quo in terms of supplier selection. Reasons may relate to cost, which of course links to supply chain human rights issues. When workers are paid fairly and rights-compatible environmental and social practices are implemented, costs to the end purchasers sometimes increase.

Supply of some products required for the decarbonisation of the global energy sector – i.e. batteries for storing energy generated by intermittent renewable sources – is extremely challenging when it comes to trying to reduce or remove human and labour rights risk. The recent 'Blood Batteries'⁷ report highlights forced labour, child labour and a long list of illnesses arising from pollution and poor environmental management amongst the human rights issues in the Democratic Republic of the Congo (DRC) cobalt supply chain, which provides 70%⁸ of the world's cobalt used in lithium-ion batteries.

Possible solutions include trying to source batteries with supply chains not involving DRC, however disengagement from existing suppliers should be handled responsibly as it has the potential for unintended consequences, affecting or even eliminating livelihoods of mine workers. There are certain circumstances where disengagement is the only workable solution, such as when suppliers are implicated in state-imposed forced labour systems in the Xinjiang region of China, from which it is impossible for suppliers to detangle. Other than supplier switching, working with existing suppliers to

⁷ Kara, S. (2025) "Blood Batteries: The human rights and environmental impacts of cobalt mining in the Democratic Republic of the Congo" University of Nottingham Rights Lab

⁸ USGS Mineral Commodity Summaries – Cobalt, cited by Faraday 'Building a Responsible Cobalt Supply Chain' (2023)

understand issues and find solutions is an important way to improve compliance and the lives of rights-holders.

5 Supply chain worker and community rights-holder typology

Supply chain workers and affected communities are widely referenced in standards and guidance, but are inconsistently identified, scoped, and addressed in impact assessments.⁹ In practice, impact assessment and monitoring for energy projects rarely extend beyond on-site labour and immediate contractors. Drawing on recent renewable energy supply chain reviews, this section presents a simple typology to clarify which rights-holders should be considered for inclusion.

Supply chain impacts for energy projects are rarely differentiated by distinct rights-holder groups. Workers beyond the project site and upstream communities are typically captured in principle, but are treated collectively as a generic supply chain risk rather than as clearly defined categories with different exposure pathways and oversight gaps. This most commonly affects off-site manufacturing workers, transport and logistics workers, and upstream resource communities. If these impacts are assessed or monitored, it is often only through high-level desk-based risk assessments or audits. Despite clear expectations under the UNGPs, OECD Due Diligence Guidance and Equator Principles human rights guidance to assess risks linked through business relationships, these rights-holder categories are rarely reflected explicitly in assessment or monitoring frameworks. Our typology provides a practical tool to support proportionate inclusion of workers and communities within SIAs, HRIAs and monitoring programmes, consistent with good international practice.

Table 1: Supply chain rights-holder typology

Rights-holder category	Typical examples	How impacts are typically assessed and managed in practice
Project company staff	Developer	Covered through ESIA and HRIA labour management measures
Contracted and sub-contracted workers	Contractor and subcontractor workers, service providers, security guards, cleaning and catering staff	Coverage varies by contract arrangements with sub-contractor workers often not identified in workforce summaries or monitored for labour rights
Manufacturing workers	Factory or agency labour	Reliance on desk-based risk assessments or external supplier audits with limited worker engagement
Transport and logistics workers	Drivers, ports and freight handlers	Often scoped out as assumed to be indirectly and insignificantly affected
Upstream resource communities	Mining, forestry, processing area workers and nearby communities	Considered contextually rather than assessed as project affected people Environmental, land, consultation and indigenous peoples' impacts often overlooked

⁹ IFC, *Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts* (2012), paras. 5–8 (identification of risks and affected parties), paras. 28–32 (area of influence and associated facilities).

6 Recommendations for addressing supply chains in impact assessment practice

Opening our eyes to the risks is the first step in improving human rights in supply chains. Recent changes to requirements of key lenders such as EBRD may be echoed in the forthcoming updates to the widely used IFC PSs to improve clarity and expectations for supply chain due diligence such as those proposed in section 5. Getting in prior to supplier selection, whether it be undertaken by the developer or contractor, is one of the most critical ways to influence outcomes, although as noted above supplier disengagement needs care and consideration to avoid unintended consequences. This highlights the importance of aligning supply chain human rights due diligence with key commercial decision points, rather than treating it as a parallel or retrospective assessment exercise.

Mott MacDonald has some key due diligence questions it asks projects that are aligned with the UNGPs, Equator Principles, EU CSDDD, and other international best practice guidelines for managing human rights risks in supply chains - see Box 1.

Box 1: Ten key supply chain due diligence questions

1. **Human rights policies:** Does the company have a publicly available human rights policy, supplier code of conduct, and/or responsible procurement policy endorsed by the board?
2. **Supply chain mapping:** Does the company have a mechanism of traceability along its entire supply chain?
3. **Risk assessment:** Does the company use risk assessment procedures to identify potential human rights risks at each stage of the supply chain?
4. **Operational integration:** Does the company integrate the findings from the risk assessments into the company's procurement policies, operational procedures and management plans?
5. **Monitoring:** Does the company regularly monitor the effectiveness of its risk mitigation measures?
6. **Contractual leverage:** Does the company use specific clauses requiring suppliers' compliance with human rights and environmental standards?
7. **Access to remedy:** Does the company have accessible and effective grievance mechanisms for workers and community members?
8. **Supplier capacity building:** Does the company have in place resources for ongoing supplier engagement and capacity building?
9. **Incentives:** Does the company offer any incentives for suppliers who exceed performance?
10. **Collaboration:** Does the company have any long-term partnerships with key suppliers?

Where projects have large or complex supply chains, supply chain management systems (SCMS) may be appropriate, commensurate with the severity of risks and impacts to human and labour rights. An SCMS should set out policies and supplier codes of conduct, risk assessment and due diligence methods, management and mitigation measures, supplier onboarding and contracting, resourcing, training, ongoing monitoring and auditing, grievance procedures and adaptive management practices for when non-compliances are raised.

References

Kara, S. (2025) “Blood Batteries: The human rights and environmental impacts of cobalt mining in the Democratic Republic of the Congo” University of Nottingham Rights Lab
Murphy, L. and Elimä, N. (2021). “In Broad Daylight: Uyghur Forced Labour and Global Solar Supply Chains.” Sheffield, UK: Sheffield Hallam University Helena Kennedy Centre for International Justice.

The Faraday Institution. (2023) “Building a Responsible Cobalt Supply Chain” , available at: [Building a Responsible Cobalt Supply Chain](#)

Equator Principles (2020). “Guidance Note on Implementation of Human Rights Assessments under the Equator Principles” available at: [Guidance Note: On Implementation of Human Rights Assessments under the Equator Principles](#)”

Pierre Gouws and Isabelle Kim, 2021. Supply Chain (Mis)management – Key Challenges and Constraints A Critical Analysis. Available at: [819_GOUWS_Supply chain mismanagement.pdf](#)

Websites:

British International Investment (BII) Toolkit by Ergon [Supply chains - ESG Topics - BII Toolkit](#)

International Finance Corporation Performance Standard 2 on Labour and Working Conditions and its Guidance Note (2012): [Performance Standard 2: Labor and Working Conditions | International Finance Corporation \(IFC\)](#)

International Labour Organisation website page on labour standards: [International Labour Standards | International Labour Organization](#)

United Kingdom guidance about transparency in Supply Chains (2025)
<https://www.gov.uk/government/publications/transparency-in-supply-chains-a-practical-guide>