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REALIST REVIEW ON JUST TRANSITION

Approach paper

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ABBREVIATIONS

CMO	Context – mechanism – outcome
GCF	Green Climate Fund
GHG	Greenhouse gas
ICT	Information and communication technology
IEU	Independent Evaluation Unit of the Green Climate Fund
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
PICO	Population, Intervention, Comparison and Outcome
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States dollar
USP	Updated Strategic Plan of the Green Climate Fund

A. BACKGROUND

1. INTRODUCTION

The concept of “just transition” originated from the labour movement in the early 1990s.¹ Since then, it has acquired a broader scope and support base among different constituencies and stakeholders globally. It has also come of age as a key element in the global response to climate change. The preamble to the Paris Agreement explicitly recognizes the need to take into account “the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities” (see United Nations Framework Convention on Climate Change, 2016; 2020). According to the conclusions of the 2023 International Labour Conference, a just transition “promotes environmentally sustainable economies in a way that is inclusive, by creating decent work opportunities, reducing inequality and by leaving no one behind” (International Labour Organization, 2023). Social dialogue is an integral part of this process, helping to drive consensus building and social acceptance of the goal and pathways to sustainability (International Labour Organization, 2015).

Transitioning to a low carbon economy can generate significant employment and social gains. For example, the International Labour Organization (ILO) estimates that energy related measures will create approximately 24 million new jobs throughout the global economy by 2030 (International Labour Organization, 2018). Yet some six million jobs will also be displaced, mainly in fossil fuel related sectors (International Labour Organization, 2018). Changes in economies and societies will be far-reaching. There will be implications concerning requirements, issues of equity and impacts on those living in poverty or vulnerable situations and impacts regarding economic and labour-market structures. Equitable social outcomes are possible but do not happen by default. The question is how to achieve employment and other benefits to secure the futures and livelihoods of workers and their communities across various sectors and at different scales.

To date, most research on just transition has come from Annex I countries,² including, for example, transitioning from heavy manufacturing in northern England, from coal mining in former east Germany and from coal and oil and gas production in Alberta, Canada (Stone and Cameron, 2018; Environment and Climate Change Canada, 2018). Critical components of a just transition in Annex I countries include the creation of new value chains, transferring skills, maintaining or enhancing social protection (or compensation), and driving inclusive stakeholder participation and dialogue (Stone and Cameron, 2018). However, just transition needs to be a global process, and achieving a just transition will look different across countries, raising different challenges, questions and opportunities.

Recognizing there are a limited number of targeted just transition interventions taking place in developing countries, the Independent Evaluation Unit (IEU) of the Green Climate Fund (GCF) and

¹ The concept of just transition originated from the US labour movement in the early 1990s. It was first mentioned by US trade union leader and environmental activist, Tony Mazzochi, in 1993, who called for a “superfund for workers” to provide support and compensation for workers displaced by environmental protection policies (Olsen and La Hovary, 2021).

² **Annex I Parties** include the industrialized countries that were members of the OECD (Organisation for Economic Co-operation and Development) in 1992, plus countries with economies in transition (the EIT Parties). **Annex II Parties** consist of the OECD members of Annex I, but not the EIT Parties. **Non-Annex I Parties** are mostly developing countries. Some of these countries may be especially vulnerable to the adverse effects of climate change, and others (such as countries that rely heavily on income from fossil fuel production and commerce) feel more vulnerable to the potential economic impacts of climate change response measures. (United Nations Framework Convention on Climate Change, n.d.)

the ILO are jointly undertaking a rigorous and precise global evidence review of interventions³ that could be regarded as aiming at outcomes consistent with a just transition in non-Annex I countries, specifically in the energy, agriculture, and infrastructure sectors and in ecosystem services.⁴ The review team will adopt a realist synthesis approach to explore the enabling preconditions, barriers, mechanisms, contexts and enablers to foster successful just transitions (as described in full in section C). The review will draw on published academic and grey literature focusing on non-Annex I countries to produce a synthesis report to improve access to up-to-date and contextually relevant evidence for decision makers and project implementers in non-Annex I countries.

This approach paper describes this research in detail and sets out the synthesis's realist approach to reviewing just transition. It identifies the need for a just transition, the paucity of evidence in non-Annex I countries and hence the case for this GCF-IEU / ILO evidence review. It also introduces the four systems to examine: energy, agriculture/food, infrastructure and ecosystem services. It also details the review's scope and objectives and explains the methods to be applied, including the search strategy, data screening, data extraction and management, data synthesis, and learning and uptake of findings. The Appendices contain further information, including an overarching draft theory of change for just transition, the initial search terms identified to guide the literature review and the results from pilot testing a selection of these.

2. DESCRIPTION OF THE PROBLEM: THE NEED FOR A JUST TRANSITION

According to the most recent report from the Intergovernmental Panel on Climate Change (IPCC), human activities have unequivocally caused global warming, resulting in a 1.1°C rise in global surface temperature since the pre-industrial era (Intergovernmental Panel on Climate Change, 2023b). This rise in temperature has caused widespread and rapid changes in all regions of the world, disproportionately adversely impacting the lives of the world's most vulnerable people. The IPCC estimates that average temperatures will increase by 2.6 to 4.8 degrees Celsius if greenhouse gas (GHG) emissions maintain their rise at the current rate (business as usual). Thus, there is a great urgency to transform our economies and societies to fulfil the aspirations of the Paris Agreement and keep global warming below 2°C while trying to limit the temperature increase to 1.5°C above pre-industrial levels (United Nations Framework Convention on Climate Change, 2015).

Achieving a just transition at pace and scale sustained over time is essential to the global effort to mitigate and adapt to climate change. Increasingly, countries are placing greater value on just transition principles, with at least 38 per cent of nationally determined contributions incorporating these principles, as well as 56 per cent of Long-Term Strategies (Lee and Baumgartner 2022).

According to the conclusions of the 2023 International Labour Conference, which gathers ILO's 187 member states, a just transition involves "maximizing the social and economic opportunities of climate action," including an enabling environment for sustainable enterprises, "while minimizing and carefully managing any challenges" based on social dialogue, and respect for fundamental principles and rights of work and includes stakeholder engagement (International Labour Organization, n.d.).

Just transition supports the transformation towards greener, more inclusive and more resilient societies. It contributes towards keeping global warming below 2°C and ideally below 1.5°C above pre-industrial levels. A gender responsive and inclusive just transition is important for all countries at all levels of development.

³ See, for example, the following four papers that discuss interventions in agriculture, energy, infrastructure and ecosystem services: Maluf and others (2022); Vega-Araújo and Heffron (2022); Hu and others (2023); Sowman and Sunde (2021).

⁴ The scope of the GCF's Updated Strategic Plan for 2024-2027 provides sufficient room for close alignment with contributions towards just transitions.

Without a just transition, achieving a low carbon, environmentally sustainable, socially just world essential for the well-being of future generations will be extremely challenging. If not carefully managed through just transition policies and processes, there is a risk economic changes could result in increased social inequality, work disillusionment, strikes and civil unrest and reduced productivity, as well as less competitive businesses, sectors and markets. Thus, we must capture the best practices regarding interventions contributing to a just transition towards low emission and climate resilient development pathways, recognizing there is no one-size-fits-all approach to a just transition, given that it depends on national contexts, circumstances and development priorities.

3. THE GREEN CLIMATE FUND'S INDEPENDENT EVALUATION UNIT AND THE INTERNATIONAL LABOUR ORGANIZATION RECOGNIZE THE NEED FOR EVIDENCE ON JUST TRANSITION IN NON-ANNEX I COUNTRIES

The range of ways just transition is being approached and the number of sectors and countries where it is considered or adopted highlights the need for a rigorous and precise global evidence review. However, most peer reviewed and grey literature on just transitions from 2009 to 2022 focuses on developed nations, hence the need, as recognized by the GCF-IEU and the ILO, to explore the evidence in non-Annex I countries.

a. **The ILO: the only tripartite United Nations agency, giving equal voice to governments, employers and workers across 187 member states**

This evidence review acknowledges the key principles and foundations of a just transition as outlined in the 2015 ILO guidelines for a just transition towards environmentally sustainable economies and societies for all while recognizing that one size does not fit all. In June 2023, the 111th ILO Conference was held with over 5,000 representatives from governments and employer and worker organizations. The concept of just transition was discussed at the Conference's General Discussion Committee on a Just Transition, with an emphasis on the importance of promoting environmentally sustainable economies through an inclusive approach, by creating decent work opportunities, reducing inequality, and ensuring no one is left behind (International Labour Organization, 2023).

Key outcomes of the ILO Resolution and Conclusions on Just Transition include:

- The imperative to advance just transition to achieve social justice, decent work and poverty eradication.
- Endorsement of the ILO guidelines for a just transition towards environmentally sustainable economies and societies for all the central references for policymaking (International Labour Organization, 2015).
- The fostering of a shared understanding of what just transition involves.
- The recognition of the importance of just transition for all countries and the need to align with national development priorities.
- New emphasis on financing, gender responsive policies, links to human rights, migration, indigenous and tribal peoples.
- Reaffirmation of the guideline's nine policy areas, consisting of macroeconomic and growth policies, industrial and sectoral policies, enterprise policies, skills development, occupational safety and health, social protection, active labour-market policies, rights, social dialogue and tripartism (International Labour Organization, 2015; 2023).

b. The GCF: the world's largest multilateral climate fund deploying flexible financing solutions and dedicated climate expertise to accelerate transformative climate action

The GCF has recently adopted its Updated Strategic Plan for 2024-2027 (USP-2), reflecting the immediacy of the climate crisis and the organization's growth and maturation in becoming more transformative. USP-2 (July 2023) states that the GCF will advance just transitions and "will incorporate evolving understanding of just and equitable pathways in line with developments of such discussions within the UNFCCC and Paris Agreement" (Green Climate Fund, 2023).

Going forward, the GCF will "provide support and leverage opportunities for funding and designing investments for paradigm shift across sectors, with focus on just transitions in the energy, building, industry and transport systems, as well as harnessing the potential of nature-based solutions or ecosystem-based approaches towards low GHG and climate resilient development"(Green Climate Fund, 2023). The GCF will also support paradigm shifts across sectors by drawing on its extensive partnership networks to build collaborations and support programmes that help to advance just transitions.

The rationale for GCF's focus on these specific systems is confirmed through the modalities, actions and partnerships to deliver programming for the second of the four strategic programming priorities set out in USP-2, namely maintaining the aim of a 50:50 balance between mitigation and adaptation over time (see Governing Instrument, para. 50; GCF Decision 06/06). Here, the first modality for the GCF Secretariat is to promote a paradigm shift and just transitions in the aforementioned systems. The GCF will apply its sectoral guides to incorporate an evolving understanding of just and equitable transition pathways following developments within the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement (Green Climate Fund, 2022b).

c. Two key organizations working together

Against this backdrop of the latest updates on just transition in both organizations, the GCF–IEU and ILO are jointly funding this joint evidence review to produce a realist synthesis based on a critical appraisal of the available literature. The GCF is a learning institution that is scalable and flexible, guided by monitoring and evaluation processes. Evidence reviews generated by the GCF–IEU assemble global evidence on topics relevant to policy and practice. The ILO was one of the earliest agencies to recognize the imperative to advance just transition and implemented the original guidelines for a just transition in 2015. It continues to play an international leadership role in the multilateral system and as a standard-setting agency. Therefore, it is vital for both agencies to co-generate a synthesis of the latest knowledge on just transition.

This review is a first step towards synthesizing the available evidence from non-Annex I countries, given the paucity of systemic evidence on just transition in non-Annex I countries to date. The review will therefore search for evidence regarding interventions that could be interpreted as aiming at outcomes consistent with a just transition towards low emission and climate resilient development pathways in non-Annex I countries.

4. THE SYSTEMS TO BE EXAMINED

Just transition is emerging and accelerating across several sectors and at various scales. This realist review will explore evidence regarding interventions contributing towards a just transition in energy, agriculture, infrastructure systems, as well as ecosystems.⁵

a. Agriculture/food systems

Emissions from agricultural activities, including crops and livestock, comprise a significant percentage of greenhouse gases. The Food and Agriculture Organization found that in 2018, agriculture and related land-use emissions made up 17 per cent of global GHG emissions across all sectors (Food and Agriculture Organization of the United Nations, 2020). This sector also employs a significant proportion of the world's population—1 billion people, according to the UNFCCC (Gass and others, 2021). There are many pressures on the agricultural sector: the world's population is increasing, leading to a greater demand on food systems, and changing weather patterns and extreme climate events place additional strain on food systems (Carlin, Arshad and Baker, 2023). In the transition away from high-polluting agricultural practices, the goal is to reduce the emission of greenhouse gases (primarily methane, nitrous oxide, and carbon dioxide) while creating resilient food systems that can support a growing population, adapt to the changing climate, and reduce biodiversity loss (Green Climate Fund, 2021a).

As agricultural and food systems adjust to these changing conditions and as governments, organizations and corporations implement interventions that will lead to more resilient systems, the livelihoods of farmers and farmworkers are impacted significantly (Viglione, 2021). Small-scale farmers are at the forefront of this sector—family farms produce roughly 80 per cent of the world's food in value terms, and farms smaller than two hectares produce approximately 35 per cent of the world's food (Lowder, Sánchez and Bertini, 2021). These communities face the greatest economic, social and environmental challenges but offer the greatest platform for agricultural transformation. There is a significant gender dimension in this sector; dependence on agrarian livelihoods is even higher among women from non-Annex I countries (Atteridge, 2023). Another challenge lies in financing within the sector. Despite global food security challenges, some governments still underfund this sector. For example, a recent report found that three-quarters of African governments reduced their agricultural budgets during the past year (Oxfam International, 2023). Indeed, many challenges are associated with the types of interventions that would enable a just transition in the agricultural sector, including balancing farmer livelihoods and food security, inadequate agricultural finance measures, and protecting the rights of people and the welfare of animals and the land.

b. Energy systems

The energy sector is at the centre of the just transition conversation given that in 2019 34 per cent of net global GHG emissions came from the energy sector (Intergovernmental Panel on Climate Change, 2023a) and 82 per cent of the world's energy is supplied by fossil fuels (Energy Institute, 2023). The energy sector has immense potential for transformation, primarily due to the emergence of more affordable low emission energy technologies. The IPCC AR6 notes that

⁵ The selection of our three sectors and one approach is based on current discussions within the UNFCCC. The GCF's programming priorities for 2024-2027 are designed to incorporate evolving understandings of just and equitable pathways in line with how these discussions develop and come to fruition. The GCF is aiming to promote a paradigm shift and just transition within energy, infrastructure (including buildings and industry) alongside nature-based solutions and ecosystem-based approaches. In addition, our evidence review will focus on the agricultural sector due to the importance of smallholder production for sustainable development, poverty reduction and adaptation.

From 2010-2019, there have been sustained decreases in the unit costs of solar energy (85 per cent), wind energy (55 per cent), and lithium-ion batteries (85 per cent), and large increases in their deployment, e.g., >10x for solar and >100x for electric vehicles (EVs), varying widely across regions” (Intergovernmental Panel on Climate Change, 2023b).

However, there is still a long way to go. If the world is to limit warming to below 2°C, and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, almost all electricity must be supplied by zero or low carbon sources by 2050 (Intergovernmental Panel on Climate Change, 2023a).

Within the energy sector transformation, there is a difficult balance to strike between producing sufficient energy for a growing population (especially in developing economies), developing low carbon energy infrastructure, and maintaining the livelihoods of people who work in the energy sector, including those who extract fossil fuels and generate electricity. In 2019, global government support for fossil fuel production and consumption reached USD 802 billion (Sánchez and others, 2021). Transitioning to a fossil fuel free future will involve reallocating a significant portion of this budget to clean energy and the creation of clean electricity incentives. There are many risks and challenges associated with this transition, including major economic and social disruptions to industries, workers and communities (Sánchez and others, 2021). Thus, it is integral that processes contributing towards a just transition incorporate social dialogue, protections for affected communities, and upholding worker and human rights.

c. Infrastructure systems

Infrastructure, including buildings, cities, industries and appliances, contributes significantly to GHG emissions. Infrastructure-related emissions are concentrated in urban areas, with cities representing 58 per cent of global GHG emissions (Green Climate Fund, 2021b). Moreover, some of the world’s infrastructure is suffering the effects of climate change. Extreme events such as heat waves and floods have limited the functioning of key infrastructure (Intergovernmental Panel on Climate Change, 2023a). When these systems suffer from climate impacts, it harms social and economic well-being.

The turn away from a high-emitting infrastructure sector involves decarbonizing energy systems (especially in urban areas), improving the energy efficiency of buildings, resilient urban planning and design and circular material flows. The challenges in this sector are institutional, technical and financial. There are also social factors to consider as countries want to transition away from high-emitting infrastructure while ensuring access to housing and decent jobs in this evolving sector. As in other sectors, financing is a significant obstacle. According to the OECD, USD 6.9 trillion per annum of infrastructure investment (concentrated predominantly in developing countries) is required to keep global warming below 2°C (Green Climate Fund, 2021b).

d. Ecosystems

According to the Millennium Ecosystem Assessment (2005), “Ecosystem services are the benefits people obtain from ecosystems,” including (i) provisioning services – food, water, timber, (ii) regulating services – floods, disease, waste, (iii) cultural services – recreation, spiritual benefits, and (iv) supporting services – soil formation, photosynthesis and nutrient cycling. This broad category of services is very useful in understanding people’s relationship with nature. There is an urgent need to transition away from exploitative, harmful and extractive interactions with nature that have caused biodiversity loss and ecosystem degradation. Ecosystems are key in our approaches to climate mitigation and adaptation in the context of a just transition (Green Climate Fund, 2022a).

Recent progressive policies and laws - including the United Nations resolution for the human right to a clean, healthy, and sustainable environment and the implementation of the Rights of Nature in some localities - highlight a public push for different and more reciprocal relationships between people and nature (United Nations Environment Programme, 2022). Specific mechanisms for transition include implementing nature-based solutions, improving forest management (reforestation and restoration), watershed management and wetland restoration, and instituting sustainable fishing practices. It is important to incorporate the knowledge and perspectives of Indigenous Peoples, who continue to play an important role in safeguarding ecosystems. Indigenous Peoples comprise 5 per cent of the world's population but protect around 80 per cent of the world's remaining biodiversity (Muller and Robins, 2022). Ecosystems services straddle the three systems outlined above, intersecting with numerous just transition challenges and opportunities.

B. SCOPE AND OBJECTIVES OF THE REVIEW

This realist review will identify and synthesize available evidence on processes and interventions contributing towards a just transition in non-Annex I countries in four systems. It recognizes that what constitutes a just transition may vary across geographies and may highlight differences in just transition examples already available. The systems for inclusion in this study were selected to align with the GCF USP-2 for 2024-2027 and with GCF sectoral guides. They include (i) energy – energy access and power generation or energy efficiency, (ii) infrastructure – cities, buildings, and urban systems, (iii) agriculture and food security, and (iv) ecosystem services their services. The review's findings will help strengthen and improve access to evidence for decision makers and project implementers.

An overarching draft theory of change for just transitions is shown in Appendix 1. Four system-level theories of change (ToCs) for a just transition, covering energy, agriculture/food, infrastructure and ecosystem services, will be developed iteratively through the review process. The overarching draft theory of change will also be further refined during the review.

The realist review will answer the following questions, as developed by the GCF–IEU and ILO:

- 1) What evidence exists regarding interventions contributing to a just transition towards low emission and climate resilient development pathways in non-Annex I countries in the energy, agriculture/food, and infrastructure systems, as well as ecosystems?
- 2) How can interventions that contribute to a just transition and outcomes from a just transition be adequately defined from a methodological point of view within the context of non-Annex I countries, especially at the level of workers, households and firms?
- 3) What is the landscape of studies related to a just transition in non-Annex I countries? How can these studies be clustered to aid learning?
- 4) How effective have approaches to a just transition been within key economic sectors, including the energy, agriculture/food, and infrastructure systems, as well as ecosystems?
- 5) How does examining the underlying programme theories illuminate the effectiveness and efficiency of interventions contributing to a just transition and the mechanisms and conditions that influence their approach and impact?
- 6) How can the evidence base be best synthesized to support programming by global climate funds and any co-funding agency?

The review recognizes that just transition can occur and/or impact at various scales, including at the household, community, region, district and country levels. It can be implemented by multiple agencies, including firms, workers, communities and governments. Based on an examination of the

underlying programme theories, the realist review will identify cases that illuminate the effectiveness and efficiency of interventions contributing to a just transition, as well as the mechanisms and conditions that influence their approach and impact. The review will also seek to identify unintended impacts resulting from processes and interventions contributing to a just transition, including actual or potential unmitigated harm.

The realist review will also consider evolving concepts linked to just transition, including the three mechanisms of distributive, procedural and transformative justice.

C. METHODS: DELIVERING A REALIST SYNTHESIS APPROACH

The review will take a realist synthesis approach, going beyond a systematic literature review to explore the causal mechanisms, contextual barriers and enablers to a successful just transition. Pawson and others (2005) describe realist synthesis as “a method for studying complex interventions in response to the perceived limitations of conventional systematic review methodology”. A realist approach has the advantage of providing explanatory analysis that seeks to identify if a programme or intervention is effective and illuminates what works, how, in what context and for whom. The aim is to provide decision makers with a detailed and practical understanding of complex social interventions to inform programme design and delivery.

1. STAGE 1 – IDENTIFY THE REVIEW QUESTIONS

The GCF–IEU / ILO team will map out the review questions and landscape of available academic literature and grey material through an iterative search process designed to systematically identify, select and evaluate the literature using bibliometric methods with pre-determined and transparent selection criteria for relevance and quality. This study defines grey literature as reports and documents from agencies and institutions that are not published in journals or similar outlets but are sourced from websites and libraries.

Key to the success of the realist review will be establishing robust and sophisticated research protocols with the correct selection and range of search terms to ensure inclusivity and avoid selection bias. The overarching research protocol and sampling strategy are provided below. This protocol is informed by the Population, Intervention, Comparison and Outcome (PICO) model to ensure the design enables a realist synthesis, focusing on how, for whom and under what circumstances interventions function in complex environments. This research protocol will be applied to all academic and peer reviewed literature accessed through the Scopus and Taylor & Francis databases, grey literature accessed through the Google Scholar and JSTOR databases, and the preliminary long list of websites in Table 1. The Google Scholar and JSTOR databases are included, given they straddle academic and grey literature. Any duplication of academic literature will be screened out.

A non-random sampling approach will be used for this review. This approach will select studies based on specific criteria, judgment or convenience rather than random selection. The approach will be three-pronged, consisting of convenience sampling, purposeful sampling and snowball sampling. Convenience sampling refers to a process of choosing studies that are readily available or easily accessible, such as studies found in the researcher’s institution or from readily available databases. Purposeful sampling refers to the process of selecting studies based on their specific characteristics or relevance to the research question, ensuring they provide valuable insights or unique perspectives. Lastly, snowball sampling refers to the process of identifying additional studies by examining the references cited in the initially included studies or through recommendations from experts in the field.

The sampling approach in this study considers data availability in each subject population. The study's foundation lies in the sampling approach because Annex I and II Parties, while fewer in number than non-Annex I Parties, contribute a significant volume of literature on just transition. As a result, conducting a random sample of literature would introduce bias in favour of Annex I and Annex II Parties and require a more nuanced approach.

The team will identify and review the academic and grey literature on just transition approaches, learning and interventions across non-Annex I countries, as well as relevant publications and reporting from multilateral and other agencies, to demonstrate when, why and how a just transition might succeed in different contexts (De Weger and others, 2020). The team will also seek to identify and explore any actual or potential negative impacts of the transition in the literature. As many transition interventions in developing countries might be in the initial stages of implementation, this approach will provide the best available evidence on the elements and approaches that can inform a just transition in non-Annex I countries, thus improving our understanding of just transition globally and helping policymakers and programme implementers to mitigate against known risks and challenges associated with interventions contributing towards a just transition.

The approach will be delivered across three key phases of work (inception, delivery, and reporting) and will follow the six key stages of realist synthesis as codified in Pawson (2006). These steps are set out in Box 1.

Box 1. The six key stages of the realist synthesis approach

Stage 1: Identify the review questions for the realist synthesis to understand when, why and how a just transition might succeed. The aim is to prioritize sectoral programme theories for investigation and to formalize the subsets of hypotheses/conjectures to be tested that state configurations and combinations of interventions/contexts/mechanisms/outcomes. A realist view of the relationship between interventions and outcomes is that these are mediated by contexts and mechanisms (with this later term understood as channels that increase the likelihood of a just transition succeeding).

Stage 2: Complete the search strategy, including evaluations, project documents and policy documents, and apply the tool of Population, Intervention, Comparison and Outcomes (PICO) for review. The search aims to collate sources of programme theories, with the outputs from the search illustrated in a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) diagram for all stages of the search and quality appraisal.

Stage 3: Assess cases from which (parts of) a programme theory can be derived to ensure relevance and inform subsequent comparative work that will contribute to model building. This quality appraisal stage is an assessment of relevance and rigour. Key questions to ask at this stage are: is this case good enough to provide some level of evidence for the synthesis? Is this case relevant to answering specific hypotheses/conjectures? Is this case rigorous in its own terms?

Stage 4: Extract the data, including note taking using extraction tools and coding “mediator and moderator” variables (including for contextual conditions) and thematic coding of cases. This stage includes carefully reporting the evidence for each case study to ensure cautious inferences are made from cases and the careful adjudication of which evidence extracts must be included in the synthesis (such as mediator and moderator variables). All choices regarding cases must be tracked. This stage is an iterative process moving between cases and the model.

Stage 5: Refine the sectoral and overarching ToCs for a just transition through four types of comparative assessments:

- To question programme theory integrity – to assess the weakest links
- To adjudicate between programme theories – to compare rival explanations

- To apply programme theories in other settings – to get a general understanding of the conditions that support or hinder the programme theory
- To compare official expectations with actual practice – to check departures from expectations

The annotations/notes/themes derived from stage four are clustered and applied first to the emergent model of interventions/outcomes/contexts/mechanisms for each sectoral theory of change and aggregated again to refine the overarching theory of change for just transitions.

Stage 6: Conclude the evidence review and offer policy suggestions, highlighting which findings GCF and ILO programming should be mindful of. This will include findings on how interventions can lead to diverse sets of outcomes, that specific actors may understand terms and models in very different ways, and further areas to consider. This stage will also highlight evidence gaps and identify where more evidence is required.

The following sections set out in more detail the search strategy, including the inclusion and exclusion criteria and the adapted strategy for grey literature in stage 2, the quality appraisal approach in stage 3, the data extraction and management in stage 4, the synthesis in stage 5, and dissemination and learning in stage 6.

2. STAGE 2A – INCLUSION AND EXCLUSION CRITERIA

a. Population

The population is all non-Annex I countries, as categorized by the UNFCCC, that can demonstrate documented evidence of interventions that could be interpreted as aiming at outcomes consistent with a just transition. Annex I and II Parties will be excluded from the study.

b. Intervention

The study includes interventions that could be interpreted as aiming at outcomes consistent with a just transition in three key systems (energy, agriculture/food and infrastructure) and in ecosystems. The types of intervention to be identified will draw on sector priorities and approaches described in the background section and the overarching draft theory of change in Appendix 1.

While interventions to be included may occur and/or impact at various scales, including household, community, district, region and country, they must be sufficiently advanced to demonstrate a causal effect. The review will include interventions that straddle multiple sectors and scales, including multi sectoral and cross-sectoral interventions.

c. Comparison

The review will include quantitative and qualitative studies that aim to demonstrate the causal effect of interventions on relevant outcomes, including both experimental and quasi-experimental studies. Outcomes will be collected, situated, consolidated and compared within and across the resulting data sets using the CMO approach (context – mechanism – outcome) to explain generative causation.

d. Outcome

The major outcome of this study, just transition, is at an early implementation stage in non-Annex I countries. The review will therefore look at a range of intermediate outcomes; for example, outcomes related to building more resilient communities and sustainable environments, enhancing health and well-being, and identifying and measuring changes that could reflect progress towards just transition. The team will take an intentional inclusivity approach to include interventions that contribute to the three primary branches of sustainability (economic viability, social equity, and

environmental protection) and the three key pillars of transitional justice (distributive, procedural and transformative). Metrics to measure potential harm will also be considered, including unintended effects of interventions, such as increased inequality and adverse reactions by industry, consumers and vested interests.

e. Exclusion criteria

Due to budget and resource limitations, only literature written and published in English will be considered. Literature written and published in other languages will be excluded from this study. The team acknowledges this approach will limit the completeness of the study and could result in potential bias. Further research could supplement the study by exploring literature published in other languages. Studies conducted outside the time frame 2015-2023 will also be excluded to prioritize the latest information and in alignment with formalization of the term “Just Transition” through the Paris Agreement and subsequent UNFCCC ratifications.

The team will exclude studies that do not attempt to demonstrate the causal effects of the intervention on intermediate outcomes towards a just transition.

3. STAGE 2B – ADAPTED SEARCH STRATEGY FOR ADDITIONAL GREY LITERATURE

An adapted research protocol will be applied for accessing and including the final layer of grey material to inform this evidence review, including but not limited to policy and programme documents, fact sheets, speeches and statements, conference proceedings, news articles and blogs available on the websites of selected institutions. This type of grey material can be especially useful for obtaining information on “live” policies and programmes and avoiding any positivity bias from relying solely on peer reviewed literature (DeVito and Goldacre, 2018). This part of the evidence review will involve a hand search of the websites of selected organizations and institutions known to be actively engaged in delivering a just transition. It will run complementary to the core research protocol to help prevent the omission of relevant sources.

An initial set of multilateral organizations, philanthropic foundations and international non-governmental organizations (NGOs) have been identified as likely sources of evidence and information on just transition interventions in non-Annex I countries. This is based on existing knowledge of stakeholders active in just transition, combined with a Google search to identify relevant parties publishing grey literature related to just transition. This initial set of organizations and institutions is set out in Table 1 below. This list will be refined as the research progresses, including an initial prioritization by GCF–IEU and ILO. This element of the research will be capped at 30 websites.

Table 1. Selected organizations and institutions for review

MULTILATERAL ORGANIZATIONS	PHILANTHROPIC FOUNDATIONS AND INTERNATIONAL NGOS*	OTHER STAKEHOLDERS
World Bank (including the Climate Investment Funds)	Children’s Investment Fund Foundation	International Trade Union Confederation
United Nations Development Programme	Bill and Melinda Gates Foundation	International Organization of Employers
International Labour Organization	IKEA Foundation	Collaboration for Environmental Evidence Database of Evidence Reviews
European Bank for Reconstruction and Development	World Wildlife Fund	Conservation Evidence
African Development Bank	World Resources Institute	

MULTILATERAL ORGANIZATIONS	PHILANTHROPIC FOUNDATIONS AND INTERNATIONAL NGOS*	OTHER STAKEHOLDERS
Asian Development Bank Inter-American Development Bank Global Environmental Facility International Fund for Agricultural Development United Nations Framework Convention on Climate Change United Nations Food and Agriculture Organization International Fund for Agricultural Development Intergovernmental Panel on Climate Change United Nations Research Institute for Social Development Green Climate Fund		Ecologic Institute Earth–Eval Environmental Evidence Library Green Finance Platform United States Agency for International Development Evaluations Clearinghouse International Institute for Environment and Development International Institute for Sustainable Development Wuppertal Institute for Climate, Energy and Environment

Note: * NGO stands for non-governmental organization

The websites of these organizations and institutions will be hand searched for relevant literature and information on just transition in non-Annex I countries across the four systems. The name of the organization/institution, the URL link, the date the website was accessed and bibliometric data for any material accessed will be logged in an Excel spreadsheet. Any relevant material identified and extracted will be logged under this initial entry.

4. STAGE 3 – QUALITY APPRAISAL: SCREENING THE STUDIES

Following the application of the search strategy, the team will review the abstracts of selected literature to assess the relevance and rigour of each case identified for testing the theory and answering the research questions. The team will ask (i) if the case is good enough to provide some evidence to contribute to the synthesis, (ii) whether it is relevant to answering hypotheses, and (iii) whether it is rigorous in its own terms. Rigour will continue to be tested as each study moves to data extraction and synthesis.

When screening grey literature, we note that this type of literature is less likely to include abstracts. The screening will therefore focus on the following elements, where available: an executive summary, introduction and contents page.

The synthesis report will include data on the number of studies identified and screened, including those excluded from the final study.

5. STAGE 4 – DATA EXTRACTION AND MANAGEMENT

The team will use MAXQDA and Vos Viewer plus R software to code, manage, organize and synthesize findings from the literature. An iterative process of thematic coding will allow the team to identify and group key themes emerging from the literature, including “mediator and moderator” variables (contextual conditions). During this stage, all relevant data and evidence will be extracted and collated ahead of the synthesis stage. The team will document the search and critical appraisal processes set out in the research protocol, allowing this to be shared as part of the final suite of products. Any studies or reporting excluded at this stage will be noted for transparency.

The team will use Vos Viewer to extract and manage data from Scopus and Taylor & Francis. It will use MAXQDA to extract and manage data from JSTOR, Google Scholar and any relevant material identified and screened for further review through the hand search of selected websites. Text search tools will be applied to search for keywords to code. Data can be exported into Excel for further analysis based on the agreed coded structure. Both software packages also provide a range of visual tools, such as code clouds (word frequencies) and concept maps (mind maps) which the team can apply when there is a need to present data visually.

Manual review and coding will be applied for additional grey literature that does not meet the standards required for a software application, with data extracted into an Excel spreadsheet. Although relevant data will be identified and extracted manually, this process will mirror the coding structure applied in MAXQDA.

6. STAGE 5 – DATA SYNTHESIS

At this stage, all collated evidence will be analysed and synthesized to help refine the theory of a just transition in non-Annex I countries. Our team will review coded and grouped material from academic and grey literature to look for evidence and plausible theories on when, how and why a just transition might succeed. The academic and grey literature will be reviewed separately and collectively as part of a two-step synthesis process that allows (i) each subset of the literature to be reviewed independently to identify patterns, trends and theories and (ii) patterns and trends across the complete data set to be identified and highlighted.

During the synthesis stage, the team will explore the theory of just transition programmes and interventions, looking to identify strengths and weaknesses, explain rival ToCs and compare expectations with actual practice and lived experience. This will include thoroughly reviewing the conditions that enable or hinder programme theories.

The data synthesis stage will include a critical appraisal of available studies and appropriate statistical approaches, including refining aggregate effect size estimates, if applicable and assessing publication bias. Following comments and feedback on the first draft of the research, the team will address consolidated comments made by the GCF–IEU, the ILO and the advisory group to produce a second working draft of the review. The team will be transparent in addressing each comment so stakeholders can follow the process and identify how and where changes and updates have been made. The team will review and integrate any final consolidated comments from the GCF–IEU, ILO and Engagement Committee before submitting the final research report.

7. STAGE 6 – LEARNING, UPTAKE AND USE OF EVIDENCE REVIEW FINDINGS

Our approach to this realist review will be utilization- and learning focused. The team will work closely with the GCF–IEU and ILO during inception and throughout the research process to understand in detail the objectives of the research and the management decisions and processes informed by its findings. The final synthesis report will present findings from the realist review on just transition in a concise, informative and engaging way. It will highlight causal factors in successful or unsuccessful just transition interventions, including theoretical and contextual considerations, and will set out any remaining evidence and knowledge gaps.

Given the current evidence gap on just transition in non-Annex I countries and the importance of this research, the team suggests developing additional products from the main review to maximize dissemination and uptake of key findings across all intended audiences. This will be discussed with the GCF–IEU, ILO and Engagement Committee during the delivery phase and might include, for example, a PowerPoint presentation of key findings for use during presentations and events (e.g. forthcoming UNFCCC conferences in May 2024 and the 112th ILO Conference in December 2024),

a concise summary note for policymakers and practitioners, and a series of blogs co-written and cross-posted by Agulhas, Council of Scientific & Industrial Research, the GCF–IEU and the ILO. The team is committed to the timely delivery of high-quality dissemination products that allow readers to engage meaningfully with results.

D. QUALITY ASSURANCE

This realist review will be delivered to a high technical standard. Internal quality assurance is built into the core team, while the Grantham Research Institute at the London School of Economics will provide the external peer review. The institute is a world leading multidisciplinary centre for policy relevant research on climate change and the environment, focused on removing barriers and accelerating the transition to a sustainable, inclusive and resilient world. An GCF–IEU-managed advisory group will also review and provide technical guidance on the approach paper and the draft synthesis report. This comprehensive approach to peer review will enable a rigorous academic review of the methodological approach, research protocols and technical content during the design and final reporting stage.

The peer review will address the following questions:

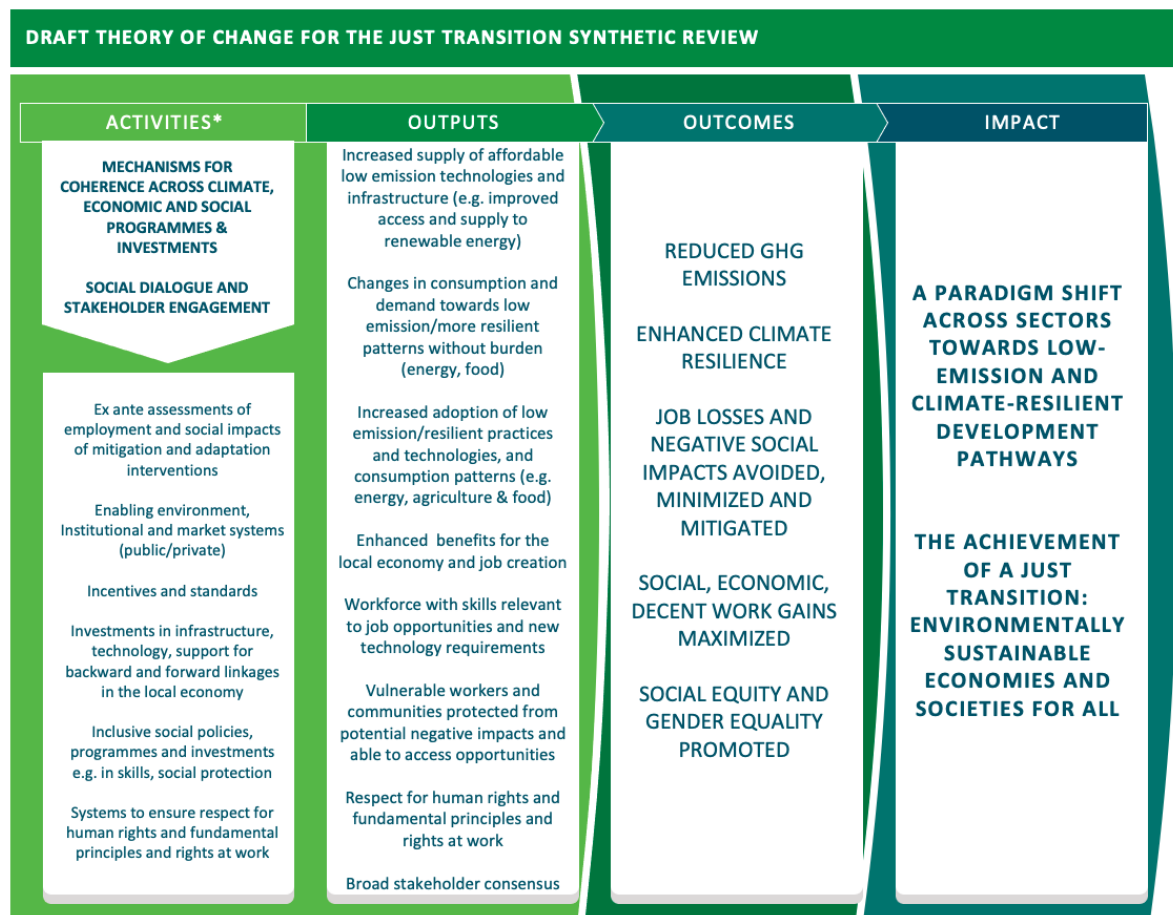
- Are the review's purpose, scope and methodology described clearly and sufficiently?
- Is the topic treated in such a way as to be convincing to knowledgeable readers and accessible to general readers?
- Are the findings sufficiently supported by evidence, and are the conclusions credible?
- Is the report drafted and referenced to accepted professional standards?
- Do you have any other comments or suggestions?

APPENDICES

Appendix 1. DRAFT THEORY OF CHANGE

An initial, high-level overarching theory of change has been developed for just transition. This working draft will be further iterated and refined during this evidence review.

Figure 1. Draft theory of change for just transition



* Activities can be integrated and/or concurrent. They need not include all these elements

Appendix 2. DRAFT SEARCH STRATEGY EXAMPLE

A pilot test was conducted to demonstrate the sampling approach to be used for the realist review on just transition in non-Annex I countries under the UNFCCC. This will be further refined as the research progresses. While the Scopus database was used to run the pilot test—see Table 2 for the results—this sampling approach will be applied to the Taylor & Francis, JSTOR and Google Scholar databases during the main delivery phase. An adapted research protocol will be applied to the hand search of relevant multilateral and other websites.

- 1) Total universe of just transition
- 2) Overlay of non-Annex I countries
- 3) Overlay of energy sector interventions for all non-Annex I countries
- 4) Overlay of agriculture/food sector interventions for all non-Annex I countries

Table 2. *General search terms through Scopus*

SEARCH	RESULTS #	SEARCH EXPRESSION
1) Just transition	2,217,035	(TITLE-ABS-KEY just AND transition)
2) Non-Annex I countries	674,683	((TITLE-ABS-KEY (Afghanistan OR Albania OR Algeria OR Angola OR Antigua OR Barbuda OR Argentina OR Armenia OR Azerbaijan OR Bahamas OR Bahrain OR Bangladesh OR Barbados OR Belize OR Benin OR Bhutan OR Bolivia OR Bosnia OR Herzegovina OR Hercegovina OR Botswana OR Brazil OR Brasil OR Brunei OR "Burkina Faso" OR "Burkina Fasso" OR "Upper Volta" OR Burundi OR Urundi OR "Cabo Verde" OR "Cape Verde" OR Cambodia OR "Khmer Republic" OR Cameroon OR "Central African Republic" OR Chad OR Chile OR China OR Colombia OR Comoros OR "Comoro Islands" OR Comores OR Mayotte OR Congo OR Zaire OR "Costa Rica" OR "Cote d'Ivoire" OR "Côte d'Ivoire" OR "Ivory Coast" OR Cuba OR Djibouti OR Dominica OR "Dominican Republic" OR "East Timor" OR "East Timur" OR "Timor Leste" OR Ecuador OR Egypt OR "El Salvador" OR "Equatorial Guinea" OR Eritrea OR "Eswatini" OR "Swaziland" OR Ethiopia OR Fiji OR Gabon OR "Gabonese Republic" OR Gambia OR Gaza OR Georgia OR "Georgia Republic" OR "Georgian Republic" OR Ghana OR Grenada OR Guatemala OR Guinea OR Guiana OR Guyana OR "Guinea-Bissau" OR Haiti OR "Holy See" OR Honduras OR India OR Indonesia OR Iran OR Iraq OR Israel OR Jamaica OR Jordan OR Kazakhstan OR Kenya OR Kiribati OR Korea OR Kuwait OR Kyrgyzstan OR Kirghizia OR "Kyrgyz Republic" OR Kirghiz OR Kirgizstan OR "Lao PDR" OR Laos OR Lebanon OR Lesotho OR Basutoland OR Liberia OR Libya OR Madagascar OR "Malagasy Republic" OR Malaysia OR Malaya OR Malay OR Sabah OR Sarawak OR Malawi OR Maldives OR Mali OR "Marshall Islands" OR Mauritania OR Mauritius OR "Agalega Islands" OR Mexico OR Micronesia OR Moldova OR Mongolia OR Montenegro OR Morocco OR Mozambique OR Myanmar OR Myanma OR Burma OR Namibia OR Nauru OR Nepal OR Nicaragua OR Niger OR Nigeria OR Niue OR "North Macedonia" OR Oman OR Pakistan OR Palau OR Palestine OR Panama OR "Papua New Guinea" OR Paraguay OR Peru OR Philippines OR Philipines OR Phillipines OR Phillippines OR Qatar OR Rwanda OR Ruanda OR "Saint Kitts" OR "St. Kitts" OR Nevis OR "Saint Lucia" OR "St Lucia" OR "St. Lucia" OR "Saint Vincent" OR "St Vincent" OR "St. Vincent" OR Grenadines OR Samoa OR "Samoan Islands" OR "Sao Tome" OR "São Tomé and Príncipe" OR "Saudi Arabia"

SEARCH	RESULTS #	SEARCH EXPRESSION
		OR Senegal OR Serbia OR Seychelles OR "Sierra Leone" OR Singapore OR "Sri Lanka" OR "Solomon Islands" OR Somalia OR Sudan OR Suriname OR Surinam OR "South Africa" OR Syria OR Syrian OR Tajikistan OR Tadjhikistan OR Tadjikistan OR Tadjhik OR Tanzania OR Thailand OR Togo OR "Togolese Republic" OR Tonga OR Tunisia OR Turkmenistan OR Tuvalu OR Uganda OR Uzbekistan OR Uzbek OR Vanuatu OR Venezuela OR Vietnam OR "Viet Nam" OR "West Bank" OR Gaza OR Yemen OR Zambia OR Zimbabwe)) AND (just AND transition)
3) Energy sector	110,947	(TITLE-ABS-KEY ("low carbon" OR "low emission" OR "low emission" OR "renewable energy" OR "renewable technology" OR "solar power" OR "hydro power" OR "hydroelectric power" OR "wind power" OR "nuclear power" OR "thermal power" OR "green electricity" OR "carbon capture storage " OR "energy efficient" OR "energy efficiency" OR "fuel AND efficient" OR "fuel efficiency" OR "carbon neutral" OR "fossil fuel" OR "bioenergy" OR "carbon capture" OR "carbon storage")) AND (just AND transition)
4) Agriculture/food sector	1,977	(TITLE-ABS-KEY ("livestock emission" OR "animal waste" OR "fertilizer" OR "GHS" OR "greenhouse gas emission" OR "agricultural practice" OR "improved livelihood" OR "food security" OR "reduced biodiversity loss" OR "resilient food system" OR "small scale farmer" OR "small-scale farmer" OR "land-use emission" OR "land use emission" OR "agricultural subsidy" OR "rural development" OR "land right" OR "land reform" OR "resilient agroecology" OR "strengthen agricultural economies" OR "energy efficient fertilizer production" OR "reliable storage facility" OR "climate information service" OR "agroforestry" OR "livestock manure management" OR "livestock management" OR "manure management" OR "aquaculture" OR "polyculture" OR "farm" OR "precision agriculture" OR "crop" OR agricultural AND subsid*)) AND (just AND transition)

Appendix 3. SEARCH RESULTS FROM ROW 1 OF THE PILOT SCREENING FOR NON-ANNEX I COUNTRIES

NON-ANNEX I COUNTRIES UNFCCC	SCOPUS COUNTRY	JUST TRANSITION LITERATURE
Afghanistan	Afghanistan	57
Albania	Albania	306
Algeria	Algeria	3,702
Andorra	NA	
Angola	NA	
Antigua and Barbuda	NA	
Argentina	Argentina	10,946
Armenia	Armenia	1,546
Azerbaijan	Azerbaijan	1,164
Bahamas	NA	
Bahrain	Bahrain	266
Bangladesh	Bangladesh	1,941
Barbados	Barbados	73
Belize	NA	
Benin	Benin	234
Bhutan	Bhutan	41
Bolivia	Bolivia	130
Bosnia and Herzegovina	Bosnia and Herzegovina	467
Botswana	Botswana	252
Brazil	Brazil	34,890
Brunei Darussalam	Brunei Darussalam	163
Burkina Faso	Burkina Faso	159
Burundi	NA	
Cabo Verde	NA	
Cambodia	Cambodia	103
Cameroon	Cameroon	762
Central African Republic	NA	
Chad	NA	
Chile	Chile	7033
China	China	340,337
Colombia	Colombia	3,967
Comoros	NA	
Congo	Congo	123
Cook Islands	NA	
Costa Rica	Costa Rica	421

NON-ANNEX I COUNTRIES UNFCCC	SCOPUS COUNTRY	JUST TRANSITION LITERATURE
Cote d'Ivoire	Cote d'Ivoire	166
Cuba	Cuba	976
Democratic People's Republic of Korea	NA	
Democratic Republic Congo	Democratic Republic Congo	59
Djibouti	NA	
Dominica	NA	
Dominican	Dominican	65
Ecuador	Ecuador	782
Egypt	Egypt	10,253
El Salvador	El Salvador	49
Equatorial Guinea	NA	
Eritrea	NA	
Eswatini	NA	
Ethiopia	Ethiopia	837
Fiji	Fiji	116
Gabon	Gabon	45
Gambia	Gambia	42
Georgia	Georgia	907
Ghana	Ghana	911
Grenada	Grenada	52
Guatemala	Guatemala	93
Guinea	NA	
Guinea-Bissau	NA	
Guyana	NA	
Haiti	NA	
Holy See	NA	
Honduras	Honduras	47
India	India	99,872
Indonesia	Indonesia	3,806
Iran	Iran	17,152
Iraq	Iraq	2,296
Israel	Israel	22,969
Jamaica	Jamaica	274
Jordan	Jordan	1,394
Kazakhstan	Kazakhstan	1,981
Kenya	Kenya	1,002
Kiribati	NA	

NON-ANNEX I COUNTRIES UNFCCC	SCOPUS COUNTRY	JUST TRANSITION LITERATURE
Kuwait	Kuwait	827
Kyrgyzstan	Kyrgyzstan	187
Laos	Laos	107
Lebanon	Lebanon	1,141
Lesotho	NA	
Liberia	NA	
Libya	Libya	42
Madagascar	Madagascar	93
Malawi	Malawi	165
Malaysia	Malaysia	7,840
Maldives	NA	
Mali	Mali	52
Marshall Islands	NA	
Mauritania	NA	
Mauritius	Mauritius	105
Mexico	Mexico	14,425
Micronesia (Federated States of)	NA	
Mongolia	Mongolia	320
Montenegro	Montenegro	160
Morocco	Morocco	3,596
Mozambique	Mozambique	131
Myanmar	Myanmar	137
Namibia	Namibia	146
Nauru	NA	
Nepal	Nepal	468
Nicaragua	NA	
Niger	Niger	65
Nigeria	Nigeria	2,399
Niue	NA	
North Macedonia	North Macedonia	486
Oman	Oman	775
Pakistan	Pakistan	6,392
Palau	NA	
Panama	Panama	281
Papua New Guinea	Papua New Guinea	74
Paraguay	NA	
Peru	Peru	800
Philippines	Philippines	1,193

NON-ANNEX I COUNTRIES UNFCCC	SCOPUS COUNTRY	JUST TRANSITION LITERATURE
Qatar	Qatar	1,245
Republic of Korea	NA	
Republic of Moldova	NA	
Rwanda	Rwanda	133
Saint Kitts and Nevis	NA	
Saint Lucia	NA	
Saint Vincent and the Grenadines	NA	
Samoa	NA	
San Marino	NA	
São Tomé and Príncipe	NA	
Saudi Arabia	Saudi Arabia	10,600
Senegal	Senegal	277
Serbia	Serbia	4,033
Seychelles	Seychelles	46
Sierra Leone	NA	
Singapore	Singapore	14,220
Solomon Islands	NA	
Somalia	NA	
South Africa	South Africa	11,134
South Sudan	NA	
Sri Lanka	Sri Lanka	535
State of Palestine	NA	
Sudan	Sudan	238
Suriname	NA	
Syrian Arab Republic	NA	
Tajikistan	Tajikistan	115
Thailand	Thailand	5,830
Timor Leste	NA	
Togo	NA	
Tonga	NA	
Trinidad and Tobago	NA	
Tunisia	NA	
Turkmenistan	NA	
Tuvalu	NA	
Uganda	Uganda	379
United Arab Emirates	NA	
United Republic of Tanzania	NA	
Uruguay	Uruguay	781

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NON-ANNEX I COUNTRIES UNFCCC	SCOPUS COUNTRY	JUST TRANSITION LITERATURE
Uzbekistan	Uzbekistan	1,164
Vanuatu	NA	
Venezuela	Venezuela	1,788
Viet Nam	Viet Nam	3,808
Yemen	Yemen	329
Zambia	Zambia	155
Zimbabwe	Zimbabwe	237
Total hits		674,683

Appendix 4. ILLUSTRATIVE SEARCH TERMS

The following illustrative search terms were developed by taking references from just transition and related materials published by the GCF (particularly the GCF Sectoral Guide Series) (2021a; 2021b; 2022a; 2022b); the ILO (such as the ILO guidelines for a just transition) (2015); the Scottish Government (2021); the World Wide Fund for Nature (2021); Thacker and others (2021); Huddleston and others (2022); Anderson (2019); and Pinker (2020).

General search terms

Primary search terms

(“just transition”)

Geographical

(Afghanistan OR Albania OR Algeria OR Angola OR Antigua OR Barbuda OR Argentina OR Armenia OR Azerbaijan OR Bahamas OR Bahrain OR Bangladesh OR Barbados OR Belize OR Benin OR Bhutan OR Bolivia OR Bosnia OR Herzegovina OR Hercegovina OR Botswana OR Brazil OR Brasil OR Brunei OR "Burkina Faso" OR "Burkina Fasso" OR "Upper Volta" OR Burundi OR Urundi OR "Cabo Verde" OR “Cape Verde” OR Cambodia OR "Khmer Republic" OR Cameroon OR "Central African Republic" OR Chad OR Chile OR China OR Colombia OR Comoros OR "Comoro Islands" OR Comores OR Mayotte OR Congo OR Zaire OR "Costa Rica" OR "Cote d'Ivoire" OR "Côte d'Ivoire" OR "Ivory Coast" OR Cuba OR Djibouti OR Dominica OR "Dominican Republic" OR "East Timor" OR "East Timur" OR "Timor Leste" OR Ecuador OR Egypt OR "El Salvador" OR "Equatorial Guinea" OR Eritrea OR "Eswatini" OR “Swaziland” OR Ethiopia OR Fiji OR Gabon OR "Gabonese Republic" OR Gambia OR Gaza OR Georgia OR "Georgia Republic" OR "Georgian Republic" OR Ghana OR Grenada OR Guatemala OR Guinea OR Guiana OR Guyana OR "Guinea-Bissau" OR Haiti OR “Holy See” OR Honduras OR India OR Indonesia OR Iran OR Iraq OR Israel OR Jamaica OR Jordan OR Kazakhstan OR Kenya OR Kiribati OR Korea OR Kuwait OR Kyrgyzstan OR Kirghizia OR "Kyrgyz Republic" OR Kirghiz OR Kirgizstan OR "Lao PDR" OR Laos OR Lebanon OR Lesotho OR Basutoland OR Liberia OR Libya OR Madagascar OR "Malagasy Republic" OR Malaysia OR Malaya OR Malay OR Sabah OR Sarawak OR Malawi OR Maldives OR Mali OR "Marshall Islands" OR Mauritania OR Mauritius OR "Agalega Islands" OR Mexico OR Micronesia OR Moldova OR Mongolia OR Montenegro OR Morocco OR Mozambique OR Myanmar OR Myanma OR Burma OR Namibia OR Nauru OR Nepal OR Nicaragua OR Niger OR Nigeria OR Niue OR “North Macedonia” OR Oman OR Pakistan OR Palau OR Palestine OR Panama OR “Papua New Guinea” OR Paraguay OR Peru OR Philippines OR Philipines OR Phillipines OR Phillippines OR Qatar OR Rwanda OR Ruanda OR “Saint Kitts” OR “St. Kitts” OR Nevis OR "Saint Lucia" OR "St Lucia" OR "St. Lucia" OR "Saint Vincent" OR "St Vincent" OR "St. Vincent" OR Grenadines OR Samoa OR "Samoan Islands" OR "Sao Tome" OR "São Tomé and Príncipe" OR “Saudi Arabia” OR Senegal OR Serbia OR Seychelles OR "Sierra Leone" OR Singapore OR "Sri Lanka" OR "Solomon Islands" OR Somalia OR Sudan OR Suriname OR Surinam OR "South Africa" OR Syria OR Syrian OR Tajikistan OR Tadjikistan OR Tadjik OR Tanzania OR Thailand OR Togo OR "Togolese Republic" OR Tonga OR Tunisia OR Turkmenistan OR Tuvalu OR Uganda OR Uzbekistan OR Uzbek OR Vanuatu OR Venezuela OR Vietnam OR "Viet Nam" OR "West Bank" OR Gaza OR Yemen OR Zambia OR Zimbabwe)

General interventions

(“green jobs” OR “retain* worker” OR “retrain* worker” OR “retrain*” OR “redeploy* worker” OR “secure* livelihoods” OR reskill* OR upskill* OR “early retirement” OR “retire early” OR “universal basic income” OR re-employment OR subsidies OR investment OR “legislative reform”

OR “legal reform” OR “policy reform” OR “iterative governance approach” OR “fair compensation” OR “decent compensation” OR incentive OR “worker protections” OR “labour protections” OR “pension scheme” OR “structural reform” OR “social dialogue” OR “green technology” OR “green innovation” OR “climate innovation” OR “resource efficiency” OR “climate innovation” OR “resource efficient*” OR “low carbon transformation” OR education OR “green finance*” OR “financially viable” OR “economic diversification” OR “public private partnership” OR JETP OR “Just Energy Transition Partnership”)

Sectoral interventions

Energy

(“low-carbon” OR “low emission” or “low-emission” OR “renewable energy” OR “renewable technology” OR “solar power” OR “hydro power” OR “hydroelectric power OR “wind power” OR “nuclear power” OR “thermal power” OR “green electricity” OR “carbon capture and storage” OR “energy efficient” OR “energy efficiency” OR “fuel efficient*” OR “carbon neutral” OR “fossil fuel” OR bioenergy”)

Agriculture/food

(“livestock emission” OR “animal waste” OR fertiliser OR “GHS” OR “greenhouse gas emission” OR “agricultural practice” OR “improved livelihood” OR “food security” OR “reduced biodiversity loss” OR “resilient food system” OR “small scale farmer” OR “small-scale farmer” OR “land-use emission” OR “land use emission” OR “agricultural subsid*” OR “rural development” OR “land right” OR “land reform” OR “resilient agroecology” OR “strengthen agricultural economies” OR “energy efficient fertilizer production” OR “reliable storage facility*” OR “climate information service” OR “modern ICT tool” OR agroforestry OR “livestock and manure management” OR “livestock management” OR “manure management” OR “aquaculture” OR “polyculture”)

Infrastructure

(“green infrastructure” OR “physical infrastructure” OR “ecological infrastructure” OR “institutional infrastructure” OR “cultural infrastructure” OR “land use planning” OR “asset management” OR “water management” OR “waste management” OR “sewage management” OR “digital communications” OR “green building” OR “retrofitting” OR “energy efficient building” OR “solar energy” OR “solar PV” OR “solar photovoltaic” OR “urban green infrastructure”)

Ecosystem services

(“nature based solution” OR “nature-based solution” OR “conservation” OR “biodiversity” OR “nature positive economy” OR “reforestation” OR “forest management” OR “forest restoration” OR “sustainable fishing” OR “regeneration” OR “rights of nature” OR “watershed management” OR “environmental stewardship” OR “ecosystem-based management” OR “traditional ecological knowledge” OR “ecosystems resilience” OR “wetland restoration” OR “ecosystem protection” OR “erosion control”)

Outcomes

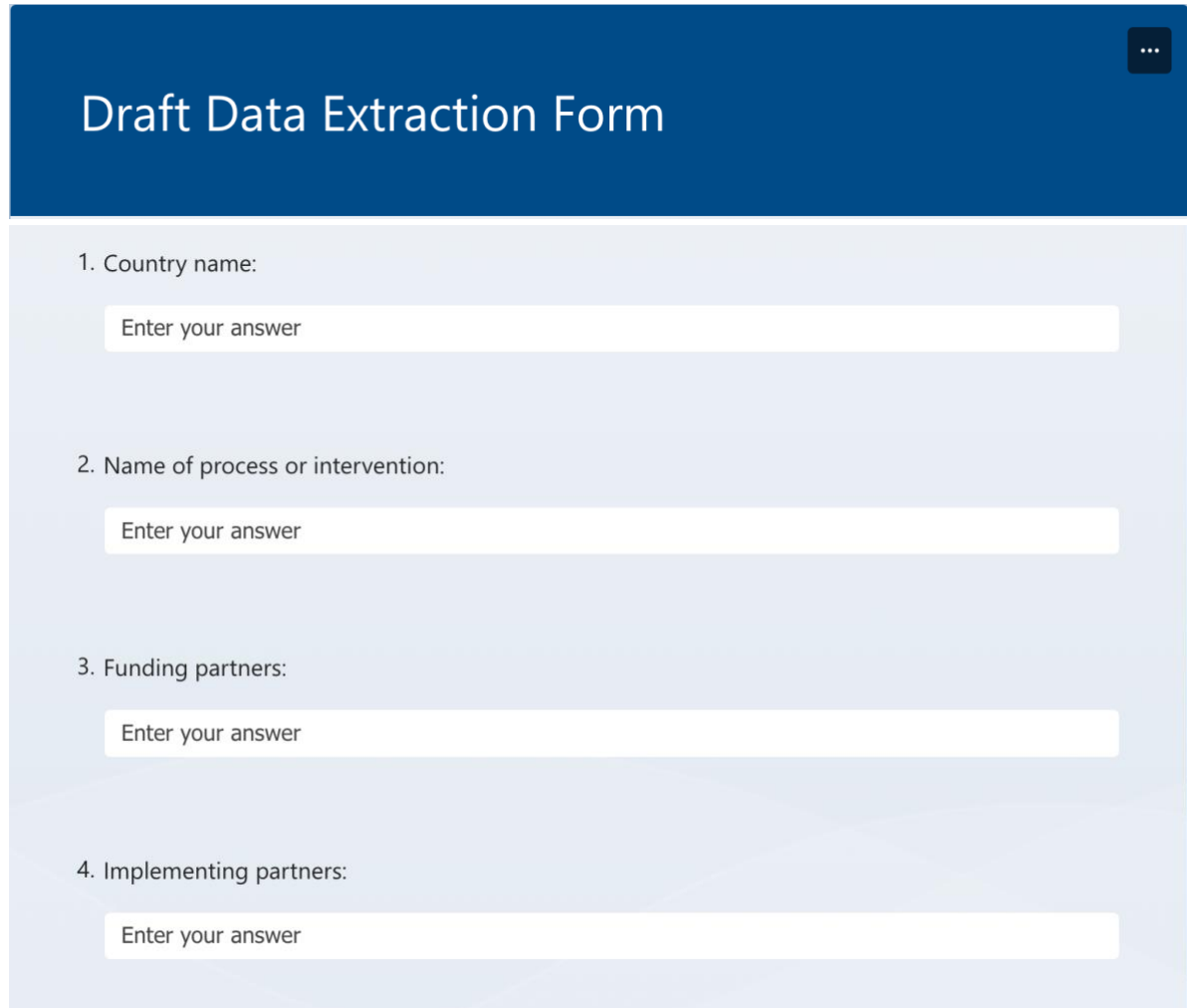
(“social equity” OR “social equality” OR “social justice” OR equality OR equity OR “low greenhouse gas emission” OR “low GHG emission” OR “equal bargain” OR “long term solution” OR “systemic justice” OR “sustainable supply chain” OR “reduced inequality” OR “low-carbon society” OR “low carbon society” OR “labour market stability” OR “improved livelihood” OR “food security” OR “biodiversity” OR “stability” OR “stable” OR “resilient*” OR “community* empowerment” OR “empower* community*” OR “access to green work” OR “green jobs” OR “fair distribution of costs and benefits” OR “environmental restoration” OR “environmental protection” OR “poverty reduction” OR “living wage” OR “transformational planning” OR “transformational programme*” OR “climate innovation” OR “finance mobilisation at scale” OR “knowledge

expansion” OR “knowledge sharing” OR “circular economy” OR “resource recovery” OR “blended finance” OR “procedural justice” OR “transformative justice” OR “distributive justice”)

Appendix 5. ILLUSTRATIVE DATA EXTRACTION FORM

Microsoft Forms is an Internet-based survey generator integrated within the Office 365 suite. Data collected using Microsoft Forms can be easily exported to Microsoft Excel for further analysis and processing. An example data extraction form has been developed to illustrate the team's approach. The form will be refined in collaboration with the GCF-IEU and ILO.

Figure 2. Draft data extraction form



The image shows a screenshot of a Microsoft Forms draft titled "Draft Data Extraction Form". The form is displayed on a light blue background with a dark blue header. The header contains the title "Draft Data Extraction Form" in white text and a three-dot menu icon in the top right corner. Below the header, there are four numbered questions, each followed by a white text input field with the placeholder text "Enter your answer".

1. Country name:
2. Name of process or intervention:
3. Funding partners:
4. Implementing partners:

5. Sector(s):

- Agriculture/food
- Energy
- Infrastructure
- Ecosystems Services

6. Description of process or intervention:

Enter your answer

7. Is a programme or intervention theory of change available?

- Yes, full ToC
- Yes, partial ToC
- No
- Not clear

8. Where a full or partial ToC is available, please capture a summary:

Enter your answer

9. Timing of intervention: month/year started:

Enter your answer

10. Timing of intervention: Intended or actual duration:

Enter your answer

11. Status of intervention:

- Underway
- Closed

12. Scale of intervention:

- Household
- Community
- District
- Region
- Country

13. Output category:

- Increased supply of affordable, low emission technologies and infrastructure
- Changes in consumption and demand towards low emission/more resilient patterns
- Increased adoption of low emission/resilient practices and technologies
- Enhanced benefits for the local economy, including job creation
- Workforce with skills relevant to job opportunities and new technology requirements
- Vulnerable workers and communities protected from potential negative impacts
- Respect for human rights and fundamental principles and rights at work
- Broad stakeholder consensus
- Other

14. Intermediate outcome category (planned positive):

- Reduced GHG emissions
- Enhanced climate resilience
- Job losses avoided, minimized and mitigated
- Negative social impacts avoided, minimized and mitigated
- Social, economic, decent work gains maximized
- Social equality and gender equality promoted
- Other

15. Intermediate outcome category (unplanned positive):

- Reduced GHG emissions
- Enhanced climate resilience
- Job losses avoided, minimized and mitigated
- Negative social impacts avoided, minimized and mitigated
- Social, economic, decent work gains maximized
- Social equality and gender equality promoted
- Other

16. Intermediate outcome category (unintended actual or potential harms):

- Backlash by firms/industries/individuals
- Increased inequality
- Other

17. Final outcome category, where available (planned positive)

- Reduced GHG emissions
- Enhanced climate resilience
- Job losses avoided, minimized and mitigated
- Negative social impacts avoided, minimized and mitigated
- Social, economic, decent work gains maximized
- Social equality and gender equality promoted
- Other

18. Final outcome category, where available (unplanned positive)

- Reduced GHG emissions
- Enhanced climate resilience
- Job losses avoided, minimized and mitigated
- Negative social impacts avoided, minimized and mitigated
- Social, economic, decent work gains maximized
- Social equality and gender equality promoted
- Other

19. Final outcome category, where available (unintended actual or potential harms):

- Backlash by firms/industries/individuals
- Increased inequality
- Other

20. Enablers, barriers and risks:

Submit

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