



International
Labour
Organization



STRENGTHEN2

► Guide for Employment Impact Assessments in the Roads Sector

Strengthen2: Employment impact assessment to maximise job creation in Africa

Author / Maikel Lieuw-Kie-Song and Valentina Papu



Co-funded by
the European Union

© International Labour Organization 2026.

First published 2026.



Attribution 4.0 International (CC BY 4.0)

This work is licensed under the Creative Commons Attribution 4.0 International. See: creativecommons.org/licenses/by/4.0. The user is allowed to reuse, share (copy and redistribute), adapt (remix, transform and build upon the original work) as detailed in the licence. The user must clearly credit the ILO as the source of the material and indicate if changes were made to the original content. Use of the emblem, name and logo of the ILO is not permitted in connection with translations, adaptations or other derivative works.

Attribution – The user must indicate if changes were made and must cite the work as follows: ILO, *Guide for Employment Impact Assessments in the roads sector*, Geneva: International Labour Office, 2026. © ILO.

Translations – In case of a translation of this work, the following disclaimer must be added along with the attribution: *This is a translation of a copyrighted work of the International Labour Organization (ILO). This translation has not been prepared, reviewed or endorsed by the ILO and should not be considered an official ILO translation. The ILO disclaims all responsibility for its content and accuracy. Responsibility rests solely with the author(s) of the translation.*

Adaptations – In case of an adaptation of this work, the following disclaimer must be added along with the attribution: *This is an adaptation of a copyrighted work of the International Labour Organization (ILO). This adaptation has not been prepared, reviewed or endorsed by the ILO and should not be considered an official ILO adaptation. The ILO disclaims all responsibility for its content and accuracy. Responsibility rests solely with the author(s) of the adaptation.*

Third-party materials – This Creative Commons licence does not apply to non-ILO copyright materials included in this publication. If the material is attributed to a third party, the user of such material is solely responsible for clearing the rights with the rights holder and for any claims of infringement.

Any dispute arising under this licence that cannot be settled amicably shall be referred to arbitration in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law (UNCITRAL). The parties shall be bound by any arbitration award rendered as a result of such arbitration as the final adjudication of such a dispute.

For details on rights and licensing, contact: rights@ilo.org. For details on ILO publications and digital products, visit: www.ilo.org/publns.

ISBN: 9789220434758 (print); 9789220434765 (web PDF)

DOI: <https://doi.org/10.54394/00034144>

The designations employed in ILO publications and databases, which are in conformity with United Nations practice, and the presentation of material therein do not imply the expression of any opinion whatsoever on the part of the ILO concerning the legal status of any country, area or territory or of its authorities, or concerning the delimitation of its frontiers or boundaries. See: www.ilo.org/disclaimer.

The opinions and views expressed in this publication are those of the author(s) and do not necessarily reflect the opinions, views or policies of the ILO.

Reference to names of firms and commercial products and processes does not imply their endorsement by the ILO, and any failure to mention a particular firm, commercial product or process is not a sign of disapproval.

► Purpose of this guide

This guide presents how Employment Impact Assessment can be conducted to help inform and support decisions on road-related investments that can maximize positive employment outcomes, i.e. more and better jobs, based on credible, decision-relevant evidence. This guide is intended for the institutions and practitioners who plan, finance, design, implement, and evaluate road investments – along with the analysts supporting those decisions and processes.

► Executive summary

Road investments are frequently presented as job-creating interventions. Yet their employment effects are neither automatic nor confined to the number of workers engaged during construction. Roads influence employment through multiple channels and over different time horizons: they generate direct jobs during construction, rehabilitation, and maintenance; support indirect jobs through supply chains; and can stimulate induced employment through local expenditure effects. Over time, they may also reshape labour-market opportunities more broadly by improving connectivity, expanding access to markets and services, reducing transport frictions, and enabling growth in connected economic activities. Because these effects differ in form, timing, and visibility, they cannot be understood through construction-phase headcounts alone.

It is against this backdrop that Employment Impact Assessments (EmpIAs) have become an important tool for the ILO. An EmpIA helps convert broad expectations about “jobs” into evidence that can support real decisions: what employment is being generated, for whom, through which channels, under what conditions, and with what trade-offs. In the roads sector, this matters not only for understanding employment quantity, but also for assessing job quality, inclusion, and labour standards. Without such an assessment, road programmes often rely on partial signals. Employment creation may be overstated, differences across delivery models may remain obscured, and risks related to informality, wage compliance, occupational safety and health, or exclusion may remain invisible until they emerge as implementation or accountability problems.

This guide provides a practical framework for conducting EmpIAs in the roads sector. It is intended for the institutions and practitioners who plan, finance, design, implement, supervise, and evaluate road investments, as well as for the analysts supporting those processes. Its central premise is that an EmpIA should begin with a clear decision-use purpose. This means establishing, from the outset, who will use the findings, which decision they are intended to inform, what employment effects are in scope, and what level of analytical depth is feasible within the available assessment window. On that basis, the guide sets out how to design an assessment, choose appropriate methods and indicators, collect and analyze evidence, and report results in a form that matches policy and project decision cycles.

The guidance also emphasizes that not every EmpIA needs to estimate every type of employment effect, nor apply every available method. What matters is that the assessment is fit for purpose, transparent about its assumptions and limitations, and proportionate to the context in which it is undertaken. In some cases, the priority may be to measure direct employment and job quality during implementation; in others, it may be to estimate indirect and induced effects, or to examine longer-term place-based impacts. Across all cases, the objective remains the same: to produce credible, decision-relevant evidence that helps identify feasible improvements in design and delivery, clarify trade-offs, and strengthen accountability and learning across road projects, programmes, and portfolios.

A distinctive feature of the guide is its insistence that employment impacts should not be reduced to headline job numbers alone. A meaningful assessment must also consider who benefits, under what conditions, and with what implications for inclusion, resilience, and labour standards. In the roads sector, this includes attention to issues such as wages, working time, occupational safety and health, social protection, formality, skills development, and the participation of women and youth. By making these dimensions visible, EmpIAs can support more informed decisions on procurement, subcontracting, labour-based approaches, maintenance modalities, local sourcing, and complementary measures that can improve employment outcomes in practice.

Taken together, the guide seeks to make employment analysis in road investments more operational, more comparable, and more useful for action. It presents the EmpIA not simply as an analytical exercise, but as a practical instrument for improving project design, guiding implementation, supporting policy dialogue, and strengthening the accountability of investments that are often justified in employment terms.

► Contents

Purpose of this guide.....	3
Executive summary.....	4
Contents.....	5
List of tables.....	6
List of figures.....	6
Acronyms and abbreviations.....	6
Acknowledgements.....	7
1. Introduction.....	8
2. EmpIA design.....	10
2.1. Framing, timing, and depth.....	10
2.2. Project selection core considerations.....	11
2.3. Methodology selection by project status, assessment purpose and data availability.....	13
2.4. Indicator framework: quantity, quality, and road-specific metrics.....	19
3. Conducting the assessment.....	22
3.1. Literature and context review.....	22
3.2. Targeted data collection: sites, suppliers and context.....	23
3.3. Analysis and modelling: direct, non-direct, and long-term effects.....	25
3.4. Conclusions and recommendations.....	26
4. Reporting results: decision-ready outputs.....	28
5. Closing: making EmpIA findings usable in road projects.....	29
References.....	30
Annexes.....	31
Annex 1. Strengths and limitations of employment impact assessment methodologies.....	31
Annex 2. Reporting and detailed guidance.....	35

List of tables

Table 1. Types of employment effects.....10

Table 2. Methods by timing and employment effects.....18

List of figures

Figure 1. Travel time to schools from improved road access in Rwanda (2023).....17

Acronyms and abbreviations

BoQ	Bill of Quantities
CGE	Computable General Equilibrium
EmpIA	Employment Impact Assessment
FTE	full-time equivalent
GIS	Geographic Information Systems
I-O	Input-Output
km	kilometer
LFS	Labour Force Survey
MSME	Micro, small and medium enterprise
NTL	night-time lights
OSH	occupational health and safety
SAM	Social Accounting Matrix
SMSD	Structural Model for Sustainable Development

► Acknowledgements

This guide was prepared under the overall guidance of Mito Tsukamoto, Chief Employment in Investments branch and Ralf Krueger, Chief Technical Adviser STRENGTHEN2 project (both ILO).

The authors would like to acknowledge the contributions from Karen Neza who helped to conceptualize the guide and provided important inputs on earlier versions. They would also like to thank Alina Game, Guannan Miao, Pamphile Sossa, Xiao Jiang, David Huysman, Collins Oyuma and Ralf Krueger, who made themselves available for interviews to share their experiences and insights which helped inform the guide. They would also like to thank them for peer reviewing it. Finally, they would also like to acknowledge the comments and inputs received from Cyrano Afidi Ombolo Lebogso, colleague at the ILO.

► 1. Introduction

Roads are not just transport assets they are economic infrastructure that shapes where firms invest, how markets function, and whether people can access jobs and essential services¹. Through these mechanisms, they impact job creation and the labour market. This guide sets out how to assess the employment effects of road investments in a rigorous and decision-relevant way. It explains why Employment Impact Assessments (EmpIAs) matter in the roads sector and provides a practical approach to designing, implementing, and reporting on an EmpIA so decision-makers can strengthen positive job outcomes while managing trade-offs.

Road investments influence employment through multiple channels and time horizons. During implementation, road projects create direct employment in construction, and support indirect employment in supply chains providing materials, equipment, fuel, transport and logistics, and related services. As incomes earned through these activities circulate locally, additional induced employment may be supported through increased consumption of goods and services.²

Beyond immediate effects, road investments can shape employment over the medium to long term by improving access and reducing the frictions that limit participation in markets. By lowering travel times, vehicle operating costs, and transport uncertainty, roads can strengthen connectivity to input and commodity markets, link producers more effectively to buyers, traders, and processors, and improve access to services such as health facilities, schools, and administrative centres. These reductions in transport costs can also expand access to labour markets by widening feasible commuting and job-search areas – effects that are often most pronounced for geographically isolated populations.³

Over time, improved access can contribute to more sustained employment effects by enabling firm entry and expansion, strengthening value chains, and improving productivity⁴. Whether these longer-term outcomes materialize often depends on complementary conditions such as skills availability, access to finance, land and regulatory constraints, and market institutions.⁵

Taken together, these dynamics imply that assessing the employment impacts requires an approach that differentiates yet is also able to aggregate these impacts. This is why the ILO has been developing EmpIAs as a systematic and consistent approach for doing so. An EmpIA helps decision-makers move from broad expectations about “jobs” to a disciplined understanding of who benefits, through which channels, where, and over what time horizon – and what design and implementation choices can strengthen positive outcomes while managing trade-offs.⁶ It also draws attention to the quality of employment generated, including whether jobs are formal or informal. This is particularly relevant in the road sector, where subcontracting, short-duration site work, and diverse recruitment arrangements can make informality an important dimension of employment quality and worker protection. This more comprehensive understanding of employment impacts can, in turn, inform design and implementation choices that strengthen positive outcomes while managing trade-offs.

An EmpIA can be conducted *ex ante* to inform project design and set employment objectives, during implementation to monitor progress and adjust interventions toward targets, or *ex post* to assess realized impacts and derive lessons. This guide was developed under STRENGTHEN2,⁷ a joint European Union-ILO initiative supporting Employment Impact Assessments. It draws on lessons learned from roads sector EmpIAs conducted by the ILO and is intended as a practical reference – not a prescriptive blueprint – highlighting what was learned from the methods and approaches applied in practice. Reflecting this logic, the guide is organized as follows: Section 2 sets out how to design a road EmpIA (scope, timing, methods, and indicators); Section 3 covers implementation (data collection and analysis across direct, indirect,

¹ Kuncoro, E., Wurarah, R. N., & Erari, I. E. (2024). The impact of road infrastructure development on ecosystems and communities. *Social, Ecology, Economy for Sustainable Development Goals Journal*, 1(2).

² Vagliasindi, M., & Gorgulu, N. (2025). Disentangling the Key Economic Channels through Which Infrastructure Affects Jobs. World Bank.

³ Pienaar, W. J. (2024). Impact of rural road provision on employment. *South African Journal of Industrial Engineering*, 35(1), 31-40.

⁴ Meng, X., Li, J., Zhou, X., & Yao, X. (2024). Transportation infrastructure, market access, and firms' export competition: Evidence from China. *Finance Research Letters*, 61, 105022.

⁵ Gibbons, S., Lyytikäinen, T., Overman, H. G., & Sanchis-Guarner, R. (2019). New road infrastructure: the effects on firms. *Journal of Urban Economics*, 110, 35-50.

⁶ International Labour Organization. (2025). *Reference guide on employment impact assessment* (2nd ed.). <https://doi.org/10.54394/INYX6157>

⁷ www.ilo.org/strengthen2

induced, and longer-term effects); and Section 4 focuses on reporting results in formats that support accountability, project design, and policy dialogue. Section 5 concludes by drawing together the main messages and highlighting the core points emphasized throughout.

► 2. EmplA design

This chapter explores key design choices that shape an EmplA's relevance and feasibility. It clarifies the purpose, timing, and appropriate depth; sets out a structured approach to selecting a suitable project within the desired assessment window; and then guides methodology and indicator selection so the assessment aligns with the project's stage, available data, and the decisions it is intended to inform. Decisions on the design elements presented below do not necessarily need to be taken in the sequence they are presented. Firstly, because some decisions may be made by third party actors, for example a project may be selected because of its prominence for an EmplA, without having been assessed on the criteria below. The design of the assessment should thus not be seen as a linear process, but rather an iterative one.

► Table 1. Types of employment effects

Employment effect	Definition
Direct	Jobs created in the activity/sector that is directly affected by the intervention or spending.
Indirect	Jobs created in supplier industries because the directly affected sector buys more (or less) inputs.
Induced	Jobs created because incomes change, leading households to spend more (or less), which boosts demand across the economy.
Long-term	Jobs that arise over time from longer-run changes (e.g., sustained investment, productivity/capacity improvements, or structural shifts), beyond the short-run project/spending pulse.

Source: Authors.

2.1 Framing, timing, and depth

Purpose and intended users

A practical starting point is to clearly state the purpose of the EmplA and who will use the results. This *purpose* determines what counts as decision-useful evidence, the appropriate depth and scope of analysis, and the feasible delivery timeline. Without this anchor, analytical choices can drift toward what is easiest to measure rather than what is most valuable for job-rich investment decision-making.

This framing should also clarify whether the EmplA is intended to influence sector policy and public investment allocation or to shape project delivery (including inclusion and labour intensity). That distinction affects which projects are viable candidates and at what stage they can be assessed.

In the roads sector, EmplAs can help to inform decisions on:

- **Investment policies and programme design:** Investment priorities; employment and local content objectives; and safeguards requirements.
- **Planning and prioritization:** What is funded and in what order, including trade-offs between construction, rehabilitation, and routine/periodic maintenance; corridor/ segment selection; sequencing across a programme.
- **Technology choices:** Design approaches; materials selection and sourcing, construction methods; resilience features.
- **Delivery model:** Labour-based vs equipment-intensive vs mixed approaches; maintenance modalities and models.
- **Contract packaging and procurement:** Lot/contract sizing; provisions on local hiring, training, occupational safety and health (OSH), wage compliance, and subcontracting transparency.

Assessment window

The assessment window is the point in the project cycle when the EmpIA is carried out. It should be chosen so that results are delivered in time to inform the relevant decision, and so that there is practical capacity to collect and validate evidence. Under the ILO–EU STRENGTHEN2 project, road EmpIAs have been implemented ex ante, during implementation, and ex post. As a practical rule:

- **Ex ante:** Most appropriate for informing design, technologies, and procurement choices before deploying the road project – often through rapid modelling using project documents and budget estimates.
 - Example: An ex-ante EmpIA of Malawi’s M1 road rehabilitation estimated 3,932 direct jobs and 11,977 indirect and induced jobs⁸ jobs, supporting early choices on delivery approach and accompanying measures (e.g., employment targets, skills provisions, and contract clauses).⁹
- **During implementation:** Particularly effective to measuring delivery as it happens, where site access and administrative records exist and practices of the ongoing project can still be adjusted, or where future projects of a similar nature can be improved (e.g., recruitment, training, OSH, wage compliance, subcontracting).
 - Example: The EmpIA of the Logone Bridge project (Cameroon) combined site-based data collection with economy-wide modelling; direct job creation could be tracked during works (a control-mission period report cited 523 cumulative direct jobs), and findings could feed into implementable recommendations on inclusion and job quality while delivery was still underway.¹⁰
- **Ex post:** Best suited to validating results and extracting lessons for future projects, programmes, policies – often using quasi-experimental or spatial approaches once outcomes can be observed.
 - Example: An EmpIA of the Luangwa–Mwami road (Zambia) applied Labour Force Survey (LFS) analysis alongside travel-time modelling using geographic information systems (GIS) to assess post-completion changes; it found an increase in long-term employment outcomes and a decrease in motorized travel times to hospitals, strengthening the evidence base for targeting and service-access outcomes.¹¹

EmpIA depth

The intended depth of the EmpIA should be defined early, as requirements are not universal – they depend on timing, purpose, and method. Where an imminent decision requires timely directional evidence, a rapid assessment, i.e., a model-based “light-touch” exercise may be appropriate. Conversely, an in-depth assessment is often warranted where records and access allow stronger measurement and where results are intended to improve a pipeline of projects.

In practical terms, financial, time and capacity resources and constraints will determine the depth of the assessment. Limited time, access, data availability, or counterpart engagement often necessitate short, tightly scoped EmpIA. Where there are resources and the decision involves multiple variables (as is often the case for larger projects, programmes, or portfolios), a more in-depth EmpIA can be more valuable.

2.2 Project selection core considerations

Project selection may be driven by different factors. Ideally, it is a structured screening exercise rather than an open-ended search. But in some cases, a specific project may actually be the starting point for the EmpIA as its scale or importance has already raised questions about its employment impact. But where there is a choice of projects, the assessment window, in particular, conditions the feasible candidate set: projects whose status does not align with the chosen window are unlikely to yield decision-useful evidence within available time, access, and resource constraints.

Within this framework, the considerations below provide a practical basis for considering which projects to select for an EmpIA among possible candidates.

⁸ Non-direct jobs include indirect (supply-chain) and induced (consumption-driven) employment effects.

⁹ Villanueva, L., & Neza, K. (2023). *Employment impact assessment of the Malawi M1 road rehabilitation project*. International Labour Organization.

¹⁰ Miao, G., & Chassem, N. (2025). *Employment impact assessment of the Logone Bridge project in Cameroon*. International Labour Organization.

¹¹ Game, A., Dotse-Gborgbortsi, W., & Roeland, A. (2025). *Employment impact assessment of the Luangwa–Mwami road, Zambia, using LFS and GIS*. International Labour Organization.

1) Project relevance and learning value

This criterion assesses the relevance associated with the project and the value of evidence an EmpIA could generate – i.e., where analysis is most likely to matter because decisions involve meaningful resources, risks, or missed opportunities, or findings could inform practice beyond a single site. It does not imply that only large projects are suitable; smaller projects may score highly where they are strategically important, piloting a new approach, or representing a wider pipeline.

Key considerations

- **Strategic significance:** Clear links to national/sector strategies, investment priorities, and employment objectives (with citations where available).
- **Relevance and opportunity cost:** The resources and policy attention involved, including the potential cost of *not* using the investment effectively (e.g., missing a feasible opportunity to maximize employment and poverty-reduction benefits through design, delivery, or local sourcing choices).
- **Materiality (beyond size):** Not only the scale of financing, but also workforce intensity, public visibility, and political/safeguard sensitivity – factors that increase the value of credible evidence.
- **Replicability:** Where the project is representative of a larger pipeline, uses common templates, or could inform programme rules, or procurement approaches.
- **Sensitivity to choices:** Likelihood that employment outcomes vary materially across plausible design and delivery options (e.g., labour-based vs equipment-intensive methods; different construction technology options, packaging and procurement approaches; local content provisions), increasing the payoff to measurement and learning.

2) Feasibility and access to data

Even highly relevant projects should be screened out if the team cannot reliably access the required information. This criterion reduces execution risk and protects delivery timelines.

Key considerations

- **Core project information** is available and consistent: Clear scope (what/where), implementation timeline (start/end and major milestones), delivery model (implementing agencies and contractors), and outputs (e.g., km by work type/ standard), including traceable revision histories where relevant. This information can often be accessed through relevant project documents.
- **Stakeholders and project partners**, particularly implementing agencies, have confirmed that they are all willing to collaborate on the assessment and understand the types of results and recommendations that may be generated, and agree on the findings being published. However, the scope of collaboration and publication expectations may not be fully clear at the outset and must be confirmed early in the process. If alignment cannot be reached, this assignment may be deemed unsuitable, and alternative project options may need to be explored.
- **Documentation** supports attribution and mapping: Approved designs/alignments, workplans and schedules, contracts and amendments, and progress reports are sufficiently complete to link analysis to a defined intervention and period.
- **Method-specific evidence** exists (minimum considerations):
 - *Multiplier-based modelling (I-O/SAM) or Advanced Modelling:* A project expenditure profile that can be mapped to sectors/input categories, ideally including labour/materials/equipment/services splits and local vs imported shares where feasible.
 - *GIS/remote sensing/spatial econometrics:* Reliable road geometry/footprint (pre/post and/or as-built where possible), dates of completion/opening, and relevant contextual geospatial datasets to support analysis. LFS or similar household survey data containing information on employment.
 - *On-site/direct measurement:* Access to payrolls, timesheets, and/or site registers (plus basic worker/job-quality attributes) to credibly estimate direct employment.

3) Inclusion potential

Where EmpIAs aim to influence not only how many jobs are created, but also the quality of jobs created and who benefits from these, projects selected should also have channels and levers to influence these outcomes.

Key considerations

- **Distributional channels are credible and can be improved:** Plausible pathways for women, youth, persons with disabilities, local micro, small and medium enterprises (MSMEs), and/or lagging regions to benefit (e.g., labour-based methods, recruitment practices, local sourcing, training).
- **Room to adjust design and delivery:** Feasible levers exist within the project – construction technologies, contract clauses, lot sizing, procurement criteria, targeting and training requirements – that could improve inclusion outcomes.
- **Baseline insights exist:** Available information on local labour markets, skills, and enterprise capacity that supports an inclusion hypothesis and interpretation of results.
- **Stakeholder demand is real:** Evidence that decision-makers value distributional findings and are positioned to use them.

4) Clarity of learning questions

Defining clear questions helps discipline the scope, helps define minimum evidence requirements, and keep the EmpIA focused.

Key considerations

- **Decision-linked questions:** Two to four specific, answerable questions explicitly tied to the relevant decision context (e.g., “How would employment-intensive methods or use of local materials change labour-days and local hiring outcomes relative to equipment-intensive or imported materials alternatives?”).
- **Measurable outcomes:** Clearly defined metrics (e.g., local labour-days, female participation rate, wage compliance, MSME contract share, labour share of total costs).
- **Scope control:** Explicit exclusions (what will not be covered) to prevent scope creep and protect delivery timelines.

Having applied these considerations and selected the project to be assessed, the next step in the EmpIA design is to choose the appropriate methodology – selecting the approach that aligns with the project’s stage, available data, access conditions, and the specific decisions the assessment is intended to inform.

2.3 Methodology selection by project status, assessment purpose and data availability

A range of methodologies can be used to carry out Employment Impact Assessments in the road sector.¹² The approaches presented in this guide are **complementary**, and robust EmpIAs often combine more than one method, provided that assumptions and boundaries are stated transparently.

Method selection is typically shaped by: (i) the assessment window (ex-ante, during implementation, ex-post), (ii) the learning questions and decisions to be informed, and (iii) feasibility (data availability, access, and analytical capacity). The depth of the assessment is also influential: as ambition increases (more outcomes, more disaggregation, stronger inference), the number of methods used, and the range of effects examined tend to increase.

¹² See ILO 2025 for a comprehensive overview of EmpIA methodologies and their application.

Core methodologies used by ILO in road sector EmPIAs

A. On-site direct data collection

On-site primary data collection uses structured evidence gathered directly in the project area – such as payroll and site-register reviews, interviews, short surveys, and focus group discussions. This approach is mainly used for EmPIAs carried out **during** road-project implementation to assess the quantity and quality of **direct employment effects**.

Typical questions it can address

- How many direct jobs were created (preferably reported as full-time equivalents), how long did they last, and how did labour demand vary across phases, lots, and subcontractors?
- What was the job-quality and inclusion profile (gender, age group, skill/occupation, formality), and – where feasible – what were wages, contract duration, working time, occupational safety and health conditions, and social protection coverage?
- What skills development occurred (induction, on-the-job learning, structured training, certification), and how well did assigned tasks align with workers' qualifications?
- What barriers to access existed (especially for women and youth), and what were perceptions of local employment effects?

Data sources typically used¹³

- Occupational safety and health records (incident/accident logs and related registers).
- Training and skills documentation (training plans, attendance lists, induction/toolbox talk records, certifications).
- Short worker survey (demographics and job-quality variables such as wages/earnings where feasible, hours, contract type, social protection, occupational safety and health conditions, perceptions).
- Employer interviews (recruitment channels, subcontracting structure, use of labour-based methods, inclusion measures, work organization by phase).
- HR records, salary and wage payment data, employment contracts.
- Focus group discussions with workers and/or nearby communities.
- Project planning documents (bill of quantities, work programme/schedule) to interpret labour peaks and ensure coverage across phases/lots.

To further explore the pros and cons of using this methodology to conduct EmPIAs go to Annex 1 of this guide. Additionally, for a during-implementation, site-based EmPIA focused on direct employment and job quality (using contractor/subcontractor employment fiches, worker questionnaires, and key-informant interviews), see the STRENGTHEN2 assessment of [Senegal's RN4 \(Sénoba-Ziguinchor-Mpack\)](#) (Sossa & Mbaye 2023).

B. Input-Output (I-O) / Social Accounting Matrix (SAM) multiplier analysis

Input-Output (I-O) tables and Social Accounting Matrices (SAMs) are national accounts frameworks that – combined with sector employment coefficients – can be used to estimate the employment effects associated with project spending via production and income channels. Using this approach, analysts can estimate (often at a disaggregated level) **direct, indirect, and induced** employment effects, typically interpreted as **short-term employment effects**. The method can be applied in **ex-ante**, **during-implementation**, or **ex-post** assessments.

Typical questions addressed

- What direct employment is likely to be supported by the investment based on the project expenditure profile?
- What indirect (supply-chain) employment is supported by road spending across supplier sectors (e.g., cement, aggregates, steel, transport/logistics, equipment services), and how does this break down by sector?
- How could increased local content impact employment outcomes?

¹³ Further detail on how to collect the data sources mentioned and key considerations to keep in mind while doing so are accounted for in Chapter 3, section B.

- What induced employment is supported by household consumption out of wages earned in direct and indirect jobs?
- What overall employment effects are associated with the infrastructure-demand shock created by the road investment and how are they distributed (by gender age, etc.)?

Data sources typically required

- Most recent Input-Output table or Social Accounting Matrix (or credible proxy) with sufficient sector detail.
- Employment coefficients (employment per unit of output/value added), ideally disaggregated where possible.
- A mapped project expenditure profile (bill of quantities/contracts/financials; labour/materials/equipment/services; local versus imported shares).
- For induced effects: household consumption multipliers plus wage/income distribution data (to avoid overstating induced jobs).

For an overview of the strengths and limitations of this methodology in employment impact assessments (EmpIAs) see Annex 1. Further technical detail on I-O and SAM multiplier analysis is available in STRENGTHEN2's [Brief Review of Input-Output Approaches to Employment Impact Assessment](#) (Miao et al. 2024) and on page 28 of the ILO [Reference Guide on Employment Impact Assessment](#) (ILO 2025). An example of an EmpIA that complements direct employment measurement with SAM-based multipliers to estimate indirect and induced employment effects is provided in the STRENGTHEN2 [EmpIA of the Logone Bridge Project \(Cameroon\)](#) (Sossa & Mbaye 2023). That assessment combines employee and employer survey data with SAM-based modelling and illustrates how project cost structure, particularly the labour share, affects employment outcomes.

C. Advanced economic modelling such as with the Structural Model for Sustainable Development (SMSD)

Employment impacts can also be assessed using advanced macroeconomic models such as Computable General Equilibrium (CGE) models and structural models. The ILO uses the SMSD model for this. It is a sector-disaggregated, economy-wide structuralist simulation model built on a SAM that represents how production, incomes, and spending are linked across sectors and institutions; it simulates how a roads intervention (construction/ rehabilitation/maintenance spending, plus financing) propagates through inter-industry linkages, income-consumption feedbacks, and price-quantity interactions, while allowing for capacity constraints and investment-driven capacity expansion (so results are not driven by full-employment/fully competitive-market assumptions).

It is typically used **ex ante** for scenario testing and design choices (scale, phasing, local vs imported inputs, financing options), and can also be used **during implementation** or **ex post** when the evaluation needs to capture **economy-wide adjustment** and **medium- to long-term “capacity effects”** that roads can generate (e.g., easing transport bottlenecks and shifting growth patterns over time). For roads, the SMSD can provide estimates of **direct, indirect, and induced effects** within a single economy-wide response – even if often not as cleanly decomposed as in I-O/SAM multipliers – alongside **long-term effects** when road investment increases productive capacity and changes the economy's growth path.

Typical questions this methodology can explore:

- What are the social and economic impacts of a road investment across sectors (e.g., construction, materials, transport/logistics, services)?
- What kind of employment does the investment generate by labour group (gender, age group, skill/occupation, and formal vs informal status), where data permit?
- What is the impact on household income levels and inequality (e.g., rural/urban and income-group distribution)?
- How do results change under alternative financing mechanisms, and what are the implications for the macroeconomy?
- How do employment effects differ when output expansion occurs in different sectors?
- What complementary policies (skills/training, local procurement, SME support, labour-market and social protection measures) are needed to strengthen outcomes and support “just” transitions?

Data sources typically required

- Country Social Accounting Matrix (ideally including an investment/capital formation account)
- Employment satellite account linked to the SAM (where available)
- National accounts data (GDP, sector value added, consumption, investment, government accounts)
- Trade data (imports/exports by product/sector)
- Labour market data (labour force survey and/or administrative sources; employment by sector and labour group where possible)
- Household income–expenditure / living standards survey data (for consumption patterns and distributional analysis)
- Time-profiled roads project expenditure breakdown mapped to model accounts (labour, materials, equipment, services, imports, taxes/subsidies)
- Inputs for long-run investment dynamics: capital flow matrices where available.

To explore the pros and cons of using this methodology to conduct EmpIAs go to Annex 1 of this guide and for further technical detail on SMSD Modelling, see the ILO [Reference guide on Employment Impact Assessment](#) (ILO 2025) section starting on page 34. Moreover, for an ex-ante EmpIA using SMSD to estimate temporary and longer-run employment effects, see the assessment of the [M1 Road Rehabilitation Project \(Malawi\)](#) (Villanueva & Neza 2023).

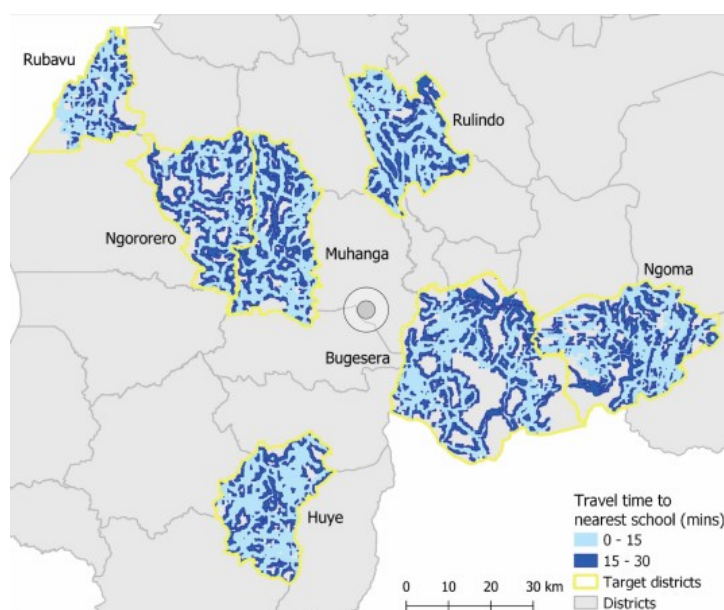
D. Geographic Information Systems (GIS), remote sensing, and spatial/econometric analysis

GIS integrates and analyses data with a **spatial component** (e.g., GPS coordinates, road features, settlements, administrative units) and time component so impacts can be measured **where** and when they occur. They can combine data from **satellite imagery** (e.g., night-time lights, land cover) with **spatial/quasi-experimental econometrics** (e.g., before–after with comparators, difference-in-differences, instrumental variables, spatial regression) and is well suited to roads because effects are **highly spatial**, dependent on **catchment areas and connectivity**. These methods are most commonly used **ex post** (or midline/endline) once the road footprint and post-works outcomes exist, and they can also support analysis of **longer-term employment and economic effects** when frequent satellite imagery or repeated surveys/censuses are available.

Typical questions

- Where, and by how much, did local economic activity and employment change after a road construction or rehabilitation (e.g., night-time lights trends in treated areas vs suitable comparators)?
- How did employment outcomes change for populations in the road catchment – employment rates, sector of employment, wages/earnings, hours – relative to comparison areas (using geolocated census/household/labour microdata) and over what timeframe?
- How did accessibility change – travel times to markets and services (commodity markets, schools, health facilities), population coverage within given time thresholds, and connectivity to corridors/urban centres (network-based travel time modelling)? (See Figure 1 for reference)
- Are impacts concentrated closer to roads or near urban centres, is there a spatial reallocation of activity (e.g. decreasing in a certain area and increasing elsewhere), are effects stronger for certain groups (e.g., rural workers, women/youth), or mediated by complementary factors (e.g., local economic structure, land use, baseline poverty)?

► **Figure 1. Travel time to schools from improved road access in Rwanda (2023)**



Source: Game and Kang, 2023b.

Data sources typically required

- Vector data: road features (shapefiles, geopackage), plus admin boundaries and key locations (markets, schools, health facilities, logistics hubs).
- Raster data: often coming from satellite data e.g. night-time lights (time series), land use/land cover or built-up area (as relevant), and gridded population datasets.
- Geolocated microdata: census, labour force surveys, household surveys (or administrative registers) with location identifiers (such as household coordinates, enumeration area shapefiles) suitable for before/after and comparator-based analysis (with the geocoded information often requiring access via the national statistics office).
- Transport network and friction data for accessibility: road network, road speeds/impedance assumptions before and after implementation, information on transport mode, landcover, elevation, natural barriers

To explore the pros and cons of using this methodology to conduct EmpIAs go to Annex 1 of this guide and for further technical detail, access STRENGTHEN2's [The use of GIS in employment impact assessments](#) document (Game 2021) and the associated [Q&As](#); additional information is also available on page 83 of the [ILO Reference guide on Employment Impact Assessment](#) (ILO 2025). Moreover, two practical STRENGTHEN2 road EmpIA references to explore that both use **GIS** are the **Luangwa–Mwami Road (Zambia)** assessment (Game et al. 2025), which combines GIS with labour force survey analysis, and the **Merille–Marsabit Road (Kenya, Isiolo–Moyale corridor)** assessment (Game & Kang 2023a), which uses night-time lights (remote-sensing) analysis.

► **Table 2. Methods by timing and employment effects**

Methodology	Timing of the assessment			Employment effects			
	Ex-ante	During	Ex-post	Direct	Indirect	Induced	Long-term
On-site direct data collection		X		X			
SAM/I-O multiplier analysis	X	X	X	X	X	X	
SMSD	X	X	X	X (Results are aggregated)			X
GIS			X				X

Source: Authors.

Considerations for selecting and combining methods

Table 2. provides an overview of the different methods, when they can be used and what kind of employment effects they can capture. In addition, the following guidance can also be considered:

- For direct effects, start with what you can measure best:
 - If the assessment is **during implementation**, prioritize **on-site records** (payroll, contractor HR files, worker registers, time sheets) to estimate **direct employment** and its timing (person-days/months, peak vs average).
 - If on-site records are **not available** (common **ex ante** and some constrained **ex post** cases), estimate direct jobs using either contract documents such as budgets and Bill of Quantities or I-O/SAM multiplier analysis.
- Choose the right tool for indirect and induced effects:
 - **I-O / SAM multipliers** are often the most practical for **indirect + induced** effects because they typically allow **clearer decomposition** and, depending on the SAM, **better disaggregation**.
 - SMSD can also generate total employment effects within a single economy-wide simulation, but these effects are generally not separable. They will be avoiding some of the limitations of I-O multipliers though.
- Pick the long-term method based on what “long-term” means for your question:
 - Use **SMSD** when you want a **macroeconomic/structural** story (capacity effects, price–quantity dynamics, financing implications, distribution/ redistribution).
 - Use **GIS/remote sensing + spatial/quasi-experimental econometrics** when you want to assess local-level effects over-time (where activity changes, catchment effects, accessibility/travel time gains, corridor development, or geographical concentration of impacts).
- Combine methods without double counting:
 - Report **measured direct jobs** (on-site) as one block.
 - Add **modelled indirect/induced** jobs (I-O/SAM or SMSD) as separate blocks.
 - Avoid counting the same labour twice (e.g., don’t treat contractor payroll jobs as both “direct measured” and “new demand” that generates extra “direct” jobs in the model).
- Match depth to proportionality (and document assumptions):
 - The more you extend from **direct** → **indirect/induced** → **long-term**, the more results depend on assumptions and data quality – so keep methods, parameters, and limitations **transparent** and interpret results accordingly.

Having reviewed the most common methodologies used in road EmpIAs by the ILO, it is useful to turn to the indicators that can be reported to capture the magnitude, distribution, and timing of employment effects – and to better understand the pathways through which a road investment influences jobs over the short and longer term.

2.4 Indicator framework: quantity, quality, and road-specific metrics

A clear, consistent indicator framework makes road EmpIAs comparable across projects and helps translate findings into practical decisions (e.g., designs, procurement/contracting strategy, labour-based approaches, and maintenance modalities). The framework below combines (i) employment quantity, (ii) employment quality, and (iii) a small set of road delivery and context metrics that help interpret why observed employment outcomes differ across road types, locations, and implementation approaches.

Employment quantity: headcount and FTE

a. Types of employment effects

EmpIAs should attempt to state explicitly which are the employment effects included (direct, indirect, induced and/or long-term), and present results separately for each type wherever the method allows.

b. Headcount and/or full-time equivalent (FTE)

All employment effects should be reported in both (available data permitting):

- **Headcount** – the number of individuals who worked on the project (or associated effect category), regardless of hours worked. This shows the reach of employment.
- **Full-time equivalents (FTEs)** – the total volume of labour expressed in standard full-time job units. This is the primary reporting metric because it allows like-for-like comparison across projects with different durations and contract patterns. When FTEs are reported in EmpIA, it usually refers to the equivalent of the hours worked by a full-time employee over a full year. An FTE converts total hours worked into a common “full-time” unit, using a weekly standard for full-time hours worked that is typically defined in each country (for example in labour legislation or official labour statistics) and is often 40 or 48 hours per week, depending on the national context:

$$\text{FTE} = \text{Total hours worked} / \text{Standard full-time hours}$$

Thus, one FTE in a country with a 40-hour work week and 50 working weeks per year would equate to 40 hours per week X 50 weeks per year = 2000 hours per year. Thus, for every 2000 hours of employment generated, 1 FTE would be reported. Where possible, EmpIA reports should present main results in **FTEs** (with headcount as a complement) and briefly explain large gaps (e.g. short contracts, seasonal spikes, reliance on part-time work). Moreover, beyond the number of jobs, EmpIAs should capture who benefits and under what conditions.

Selected job quality indicators

At minimum, all direct employment results (and, where possible, indirect, induced and long-term effects) should be disaggregated by:

- **Gender** (women/men; and other identities where data permit)
- **Formality status** (formal vs informal, assessed using the national definition and relevant observable indicators such as written contracts, social-security enrolment, and access to employment-related protections)¹⁴
- **Age group** (at least 15–24, 25–54, 55+)
- **Skill level / occupation** (low/medium/high-skilled or occupational categories)

Understanding the nature and quality of jobs created is important and often of keen interest to decision makers. **Where data allow – especially for direct jobs – it is also useful to report on the following indicators:**

¹⁴ For the purposes of this guide, informality is understood in line with the ILO definition of informal employment, namely working arrangements that are not, in practice or by law, subject to national labour legislation, income taxation, or entitlement to social protection or other employment guarantees. Informality may also exist within the formal sector ([ILO, 2023](#)).

- **Wages and earnings** (average/median by occupation and disaggregated by sex and age; benchmark to minimum wage and relevant comparators)
- **Employment relationship and working time** (written contracts/ contract type/duration; full-time/part-time; overtime incidence)
- **Occupational safety and health** (OSH systems and training; accidents/illnesses where available)
- **Access to leave** (annual, sickness, family etc)
- **Social protection** (coverage by social insurance/pensions; access to key benefits)
- **Skills development** (numbers receiving on-the-job training, structured training, and/or formal certification; disaggregate training by gender and age where feasible)

These indicators can also be used to expand the understanding of the extent to which the direct jobs created are formal or informal, taking into account the limitations of national definitions and labour-market context of the country concerned. Because informality is defined, experienced, and measured differently across countries, EmpIA reports should state clearly how it is understood and assessed in the specific context. Informality should not automatically be equated with precarious employment, although the two may overlap.¹⁵ In practice, however, informality can be difficult to capture fully. It is often under-reported or only partially identified in national statistics, and it may also be hard to detect through project records or direct data collection, especially where employment relationships are complex, short-term, weakly documented, or embedded in subcontracting arrangements. As a result, EmpIAs may not always be able to measure informality comprehensively. Even so, it remains important to acknowledge its likely presence and relevance wherever possible, to state clearly any data limitations, and to use the best available combination of qualitative evidence, secondary sources, and direct indicators.

These indicators can also be used to assess to what extent the direct jobs created can be considered formal or informal, also depending on the definition used in the country concerned.

Depending on the context, EmpIAs may also track:

- Disability inclusion,
- Location of jobs (urban/rural, project area vs. other regions),
- Job security (probability of contract renewal, turnover), and
- Participation in collective representation (unions, worker committees).

Road-specific metrics

Road-specific metrics provide the context needed to interpret employment results and compare labour outcomes across road types, technologies and design choices. They focus on the variables that most strongly shape labour intensity, occupational mix, and the balance between short-term and sustained jobs. Not all of them might be able to be included in all reports, but depending on the methodologies chosen:

a. Type of road and works profile

- **Type of road (functional class):** e.g., trunk/interurban corridor, primary/secondary, rural access/feeder/community roads (and urban roads where relevant). This should be reported because employment intensity, feasible technologies, and skill mix differ sharply by road type.
- **Type of works:** length (km) and share of budget for new construction, upgrading, rehabilitation, construction of bridges/culverts, and routine/periodic maintenance. Maintenance is often more labour-intensive and can underpin more continuous employment if financed and organized well.
- **Surface type/standard:** paved vs unpaved; typical width; relevant design class. Higher standards typically imply higher equipment/material intensity and a different occupational structure.

¹⁵ Informality generally concerns the extent to which work is covered by labour regulation, taxation, social protection, and related employment guarantees, whereas precarious employment refers more broadly to insecurity, instability, or poor working conditions. The two concepts may overlap, but they are not equivalent: an informal job is not necessarily precarious in all respects, and a formal job may still be insecure or of poor quality. Their meaning and practical expression may also vary across countries and labour-market contexts.

b. Delivery model, labour intensity, and local content

- Construction/maintenance approach (by contract/lot): labour-based, equipment-intensive, or mixed.
- Cost structure: approximate shares of labour, materials, equipment and overheads; indicate, where possible, domestically sourced vs imported inputs.
- Normalized labour intensity (direct): direct labour cost (per cent of works cost) and direct FTEs per km, disaggregated by road type and type of works.
- Implementation arrangement (where relevant): contractor-led vs community-based/household contracting for routine maintenance and low-category rural roads, when this is used as an employment lever (local hiring, inclusion).

c. Connectivity and access outcomes (link to longer-term job pathways)

- Travel time to key services (before/after): markets, schools, health facilities (for representative communities/catchments).
- Transport costs (before/after): cost per tonne-km and/or passenger-km on the improved segment (or relative to comparable unimproved routes).

With the indicator framework in place, the focus now shifts to how an EmpIA is actually carried out in practice – moving from a designed approach (project, effects, indicators, and methods) to implementation through context review, targeted data collection, analysis/modelling, and decision-oriented recommendations.

► 3. Conducting the assessment

Once the EmpIA has been designed – project selected, employment effects and indicators defined, and methods chosen – the next step is implementation of the assessment.

In practical terms, following the design of the assessment, conducting a road sector EmpIA involves four core tasks:

- **Literature and context review** – establish what is already known about roads and jobs in the country and corridor/region and clarify the main hypotheses and gaps.
- **Targeted data collection** – collect method-specific datasets required for the methods chosen (on-site measurement, modelling, and/or GIS).
- **Analysis and modelling** – quantify direct, indirect, induced and (where feasible) long-term effects using the selected methods, and translate results into decision-relevant findings.
- **Formulating conclusions and recommendations** – list key conclusions and develop recommendations based on the findings, tailored to the needs and decision points of different stakeholders (e.g., government, funders, contractors, communities).

These tasks are more iterative than sequential: the context review determines what data is needed; early analysis often reveals gaps that require going back to project documents, contractors, or national statistics. The goal is credible, context-specific evidence – anchored in the project's actual delivery model and the country's labour market – rather than generic “jobs per kilometre” claims detached from design and procurement realities.

In addition, it is important that there is ongoing **liaising and coordinating with stakeholders** to keep them informed on progress, obtain relevant data and project information, respond to any queries and anticipate any questions and concerns.

3.1 Literature and context review

Initially, a short literature and desk review is useful to establish a shared understanding of how road investments interact with employment and inclusion in the specific country and region/corridor. The purpose is practical: to identify what is already known, what remains uncertain, and what therefore needs to be measured or modelled in the EmpIA.

Recommended focus areas

- **Roads and jobs evidence (what is known):**
Review prior EmpIAs and evaluations in the country/region, complemented by relevant international evidence. Extract usable benchmarks (for example FTEs per kilometre or per unit of spending, by road type) and recurring job-quality patterns (wages, informality, occupational safety and health, gender and youth participation). Include evidence on how delivery choices shape employment outcomes (labour-based versus equipment-intensive methods, contract packaging/lotting, subcontracting, and measures intended to strengthen local participation and inclusion).
- **Labour market and distributional context (what is plausible):**
Summarize labour market conditions in the country and/or region (unemployment/ underemployment, informality, sectoral employment, gender/youth gaps) using labour force surveys and related sources. Where relevant, add a road-construction lens (skills availability, wage levels, local versus migrant labour patterns, typical contracting arrangements). Include spatial and distributional context for the likely catchment area (poverty/inequality, livelihoods, and groups facing barriers such as women, youth, and remote rural communities).
- **Policy and project setting (what is intended and what is feasible to influence):**
Review national development, transport/road sector and employment strategies, focusing on how roads are expected to contribute to jobs and inclusion (and how priorities differ by road category and type of works). Summarize the institutional and delivery environment that shapes outcomes (procurement practices, contract management, implementation capacity, feasibility to adopt employment-intensive and local resources-based

approaches, fiscal space). Review core project documents (design/feasibility, bill of quantities, contracts/amendments, schedules and progress reports), focusing on what they imply about workforce needs, labour standards, inclusion measures, and training commitments.

3.2 Targeted data collection: sites, suppliers and context

Building on the literature/context review and the EmpIA design choices already made, this step turns the assessment into an operational data plan. In practice, it means specifying (i) exactly which datasets are needed for each methodology, (ii) where they can be obtained (sites, suppliers, national statistics, spatial sources), and (iii) how they can be collected and quality-assured.

On-site / direct data collection

Data sources required

The direct on-site data collection should be anchored in *administrative project evidence* and complemented with lean field instruments:

- **Contractor and subcontractor employment records:** payrolls, timesheets, human resources registers and/or site registers (ideally by month/lot/contract package).
- **OSH records:** incident/accident logs and related registers (and, where feasible, evidence of OSH systems/practices).
- **Training and skills documentation:** training plans, attendance lists, induction/toolbox talk records, certifications (to capture what skills development actually occurred, not what was promised).
- **Worker survey (short):** demographics and job-quality variables (e.g. wages/earnings where feasible, hours, contract type, social protection, OSH conditions, perceptions).
- **Employer survey / interviews (short):** recruitment channels, subcontracting structure, use of labour-based methods, inclusion measures, work organization by phase.
- **Focus group discussions:** with workers and/or nearby communities to surface barriers to access (women/youth/local workers) and issues that records systematically miss.
- **Project planning documents:** Bills of Quantities (BoQ), work programme/schedule, and contract packaging – mainly to interpret labour peaks and ensure coverage across phases/lots.

How to collect them

- **Work with an in-country consultant:** This data collection is typically implemented through a local (in-country) consultant/team who can negotiate access, manage contractor relationships, operate in local languages, and oversee enumerators and site entry protocols.
- **Negotiate access early:** Agree confidentiality terms with contractors and explain the use of results (aggregate, not compliance enforcement), since access to payroll/site records is the binding constraint.
- **Map all employing entities:** Contractor(s), subcontractors, and on-site service providers; assign a focal person in each to supply records and clarify definitions.
- **Use one standard template:** Capture headcount and hours worked by month (or quarter) and disaggregate consistently (gender, age group, skill/occupation, formality/locality as available), so the dataset flows directly into the indicator framework.
- **Triangulate systematically:** Reconcile contractor records with worker survey results, employer interviews, and the timing implied by the BoQ/work programme, especially where casual/day labour is under-recorded.

Practical recommendations

- **Sampling must reflect project structure:** multiple lots/subcontractors and different work phases; otherwise, you measure “one site” and report it as “the project”.

- **Enumerator profile matters:** for large works, plan a dedicated team that speaks the working languages on site, includes women enumerators (to interview women workers safely), and is trained on confidentiality and OSH protocols for site entry.
- **Timing:** direct-job evidence is easiest while works are ongoing or soon after completion; delay sharply increases potential for errors as workers disperse and records degrade.

Input-Output / Social Accounting Matrix (I-O/SAM) multiplier analysis

Data sources required

- **Most recent national I-O table or SAM** with enough sector detail to separate construction and key supplier sectors.
- **Sectoral employment coefficients** (employment per unit of output/value added), ideally allowing at least partial disaggregation (e.g. by skill and – where feasible – gender/ formality using labour force data).
- **Project expenditure breakdown mapped to sectors:** BoQ/contracts/financial reports allocating spending across labour/materials/equipment/services, with local vs imported shares for major items.
- **Price indices / national accounts** to express project spending in consistent base-year/price terms where needed.

Where to find I-O tables and SAMs

Typically via the national statistical office, central bank or ministry of finance, planning ministry, and sometimes universities/research institutes (often working with development partners). Start with the national accounts teams and request tables *with documentation/metadata*.

How to collect and prepare the dataset

- Obtain the latest I-O table / SAM and documentation; check base year, sector resolution, and whether households are represented.
- Map BoQ or budget line items to I-O/SAM sectors with clear, consistent mapping rules; treat “miscellaneous” items explicitly rather than burying them.
- Build (or update) labour coefficients using recent labour-force/enterprise statistics and run sensitivity checks when coefficients are old or highly aggregated.

Advanced economic modelling like with the Structural Model for Sustainable Development (SMSD)

Data sources required

- A country-calibrated macro model (SMSD or equivalent) grounded in a base-year SAM and behavioural parameters (e.g. savings/investment behaviour, capacity constraints).
- A SAM with the right “plumbing”: sector disaggregation relevant to roads (construction + key services), labour accounts by type, household groups, and ideally a fixed capital formation account.
- A time-profiled expenditure/investment path: annual project spending by major category (construction, supervision, land acquisition where relevant), consistent with how the model applies shocks over time.
- Transport-sector capacity parameters: empirical assumptions on how the road investment affects transport output/cost/capacity (often implemented through capital-flow information where available, or ICOR-style approximations).
- Labour market information aligned to the model: employment and earnings by sector and labour category (skill, gender, age group, and/or formality as the model structure allows).

How to collect and prepare the dataset (what the EmpIA team actually does)

- Confirm *at the outset* whether a usable, recent model exists; if not, SMSD is rarely a “quick add-on”.
- Harmonize classifications: align labour-force/enterprise data to the SAM/model sectors; reconcile totals with macro aggregates where possible.

- Assemble the project “shock” package: validated expenditure profile + financing assumptions + timing, in a format the modelling team can ingest.

GIS, remote sensing and spatial/econometric analysis (roads)

For roads, GIS data requirements depend on the type of spatial analysis being conducted.

(1) Night-time lights (NTL) analysis (*open source*)

- **Data required:** roads (pre/post), administrative units, night-time lights time series, locations of other infrastructure projects completed within the analysis timeframe and additional control data including, locations of other infrastructure projects completed within the analysis timeframe gridded population, landcover, Normalized Difference Vegetation Index (NDVI), precipitation, settlement extents.
- **Typical access:** these layers are usually available as open spatial datasets, meaning the main work is harmonizing time periods, projections, and units of analysis (buffers/corridors or admin units), not negotiating access.

(2) Spatial econometrics with LFS microdata (*mixed; key input often restricted*)

- **Data required:** LFS microdata with geographic identifiers (household coordinates or enumeration areas) + road locations (pre/post).
- **Typical access:** road geometry can often be sourced openly (or from the road agency), but LFS microdata with geographic information is frequently restricted and typically requires a formal request to the national statistics office and compliance with confidentiality protocols.

(3) Accessibility analysis (travel time and service reach) (*open source*)

- **Data required:** roads (pre/post), landcover, digital elevation model, gridded population, infrastructure/service locations (schools, hospitals/clinics, markets where available).
- **Typical access:** landcover, elevation, and population grids are often open access; additional infrastructure locations are often open access (Open Street Map, Humanitarian Data Exchange) or through relevant line ministries.

3.3 Analysis and modelling: direct, non-direct, and long-term effects

This section provides concise guidance on how to analyze and present employment effects once the indicators and methods have been selected. The objective is to produce results that are internally consistent, transparent, and clearly linked to the project and country context.

Structure the analysis by effect type and method

Not every EmpIA will analyze all employment effects. Begin the results chapter with a short statement that specifies **which effects are analyzed in this EmpIA**. Then structure the results section around the effects that are in scope.

For each effect type **included**, state:

- The **method(s)** used (on-site data, I-O/SAM, SMSD, GIS, qualitative);
- Whether results are measured, modelled, or a combination.

Use the indicator framework consistently

All results should follow the indicator framework defined in Section 2.3:

- Report employment mainly in **FTEs**, with headcounts as supporting information. Explain large differences (e.g. short contracts, seasonal work, high turnover).

- Present intensity indicators wherever possible:
 - **FTEs per million** of total expenditure;
 - **FTEs per million** of civil works;
 - **FTEs per km**, by road type/category and type of works.
- For direct employment – and where data allow for other effects – cross-tabulate job numbers with key quality and inclusion dimensions (gender, age group, formality, skill/occupation), and report enhanced indicators where feasible (wages, working time, OSH, social protection, training/skills).
- Relate results explicitly to road-specific characteristics (type of road, type of works, technology/labour intensity) so differences in employment performance can be traced back to practical design and delivery choices.

Be explicit about assumptions and uncertainty

Because EmpIAs often combine observed data with model-based estimates, key assumptions and uncertainties must be summarized clearly:

- List the main assumptions behind multipliers and models (employment coefficients, domestic/import shares, induced-effect parameters, key SMSD behavioural assumptions).
- Note data gaps and how they were handled (extrapolation across lots, use of national averages, proxy expenditure profiles, representation sample size in microdata).
- Where important effects cannot be quantified reliably, discuss them qualitatively rather than producing precise-looking numbers.

Compare results with the broader context

Interpretation requires checking whether results make sense in the country and project context. Compare key findings with patterns from the literature review and national statistics, for example:

- Which sectors appear to benefit most from the road investment (e.g., construction inputs and services during works; then transport, trade, agriculture/agribusiness, and local services after completion), and is this consistent with the local economic structure and what comparable studies find?
- How does women's and youth participation on the project compare with their share in the national labour force, the construction sector, and the project region?
- Is informality observed (contracts, registration, social protection) higher or lower than in comparable sectors or regions?
- Do wage levels align with statutory minimum wages and with typical wages in similar local jobs?
- Are local vs non-local hiring patterns consistent with local labour supply and skills, or do they suggest barriers to local participation?
- Do differences across road types and delivery approaches (e.g., labour-based maintenance vs equipment-intensive upgrading) match what is known from comparable projects?

A short comparative paragraph for each major result helps answer two questions: (i) are patterns broadly consistent with what is known about the country and the roads sector; and (ii) if not, what might explain the difference – and does that point to a risk, a good practice, or a design choice worth scaling.

The next step is to translate these context-specific findings into recommendations that fit the project's decision windows and the mandates of the actors who can implement them.

3.4 Conclusions and recommendations

Conclusions and recommendations emerge once findings have been analyzed in the context of the country and region in which the project is embedded – including labour market conditions, skills availability, local contracting capacity, and compliance and enforcement realities. This contextualized reading of the evidence helps distinguish what reflects structural constraints versus delivery choices, and it provides a practical basis for identifying feasible improvements.

Recommendations are most useful when they translate EmpIA findings into actionable policy options and clearly articulate possible trade-offs. They should be tailored to the mandates and decision points of the actors who can act on them (e.g., government, funders, contractors, and communities). Depending on the scope of the EmpIA, this can include both project- and programme-level adjustments and broader road sector policy implications (for example, maintenance strategies, workforce development, standard-setting, and approaches to labour compliance and supervision).

In practice, recommendations tend to be strongest when they:

- **Highlight the main drivers of results** (e.g., road type and works mix; design standards/ materials; delivery approach, including labour-based options and maintenance modality; procurement/packaging and subcontracting practices; and local sourcing/ logistics).
- **Clarify what remains adjustable and when**, given project status and the assessment window (ex ante, during implementation, ex post).
- **Frame implications relative to the status quo**, showing what changes under feasible options and what is likely if current practice is maintained (including the implications of no action for employment quantity, job quality, and inclusion).
- **Surface risks and feasible mitigation levers** where evidence points to informality, wage non-compliance, weak OSH performance, low social protection coverage, or exclusion of women and youth – and link these to measures aligned with local capacity.
- **Extend learning to a pipeline or portfolio**, where relevant, translating project findings into lessons for standard-setting, contract templates, supervision practices, and programme sequencing.
- **Identify sector policy implications**, such as technology choices, changes to routine and periodic maintenance approaches, contractor and supervisor capacity-building, skills and apprenticeship pathways, labour standards enforcement arrangements, and data systems for ongoing jobs and working-conditions monitoring.

Essentially, to ensure these recommendations lead to timely action, EmpIA results need to be reported in formats that match decision cycles and stakeholder needs.

► 4. Reporting results: decision-ready outputs

EmpIA reporting is most effective when it packages evidence and recommendations together in forms that fit how policy and technical decisions are actually taken. The appropriate mix of outputs vary by the EmpIA's purpose, audience, decision window, and depth, and reporting is most useful when it is proportionate rather than standardized.

In many road EmpIAs, dissemination works well through a small set of complementary products, for example:

- **Technical report (reference product):** A transparent record of what was measured and/or modelled, key assumptions, limitations, and interpretation of findings in the country/region context.
- **Decision brief (policy/management note):** A short synthesis that highlights the main results and the practical implications for design, delivery, and (where relevant) road sector policy – making clear what is feasible to adjust and what trade-offs are involved.
- **Presentation package:** A concise deck to support stakeholder discussion, validate interpretation, and translate agreed recommendations into responsibilities, timelines, and follow-up indicators.

For templates, suggested structures, and illustrative examples from ILO and STRENGTHEN2 practice, see Annex 1.

► 5. Closing: making EmpIA findings usable in road projects

Road investments are among the most visible and resource-intensive public actions in many countries – and among the most frequently cited as “job creating”.¹⁶ Yet employment effects are not automatic, and they are rarely captured fully through construction-phase numbers alone. An Employment Impact Assessment (EmpIA) helps convert broad expectations into evidence that can be acted on: what employment is being generated, for whom, under what conditions, and how design and delivery choices influence those outcomes.¹⁷

When EmpIAs are not undertaken, road programmes often operate with partial signals. Job creation may be overstated when reporting relies on headcount or short-term on-site activity, without translating labour inputs into comparable full-time equivalents or considering how employment evolves across phases. Job-quality and compliance risks – informality, wage non-compliance, weak occupational safety and health – can remain invisible until they become disputes, delays injuries, or reputational and fiduciary concerns. And when employment and inclusion are stated objectives, the absence of a transparent assessment framework makes it difficult to demonstrate results credibly, compare performance across projects, or justify trade-offs in procurement and implementation.¹⁸

The cost of not assessing is also measured in missed potential. Evidence is often what unlocks feasible improvements – adjustments to contract packaging and subcontracting, local sourcing strategies, technology choices, labour-based options where appropriate, targeted recruitment and training provisions, or stronger supervision of labour standards and occupational safety and health. Without an EmpIA, these levers may be applied inconsistently or too late, and maintenance may remain an engineering function without recognizing it as a channel through which more continuous local employment can be supported. Over time, the lack of comparable evidence across a programme or portfolio also limits learning: what works cannot be replicated systematically, and what underperforms is harder to correct.

This guide is intended to make EmpIAs more accessible. Not every EmpIA needs to estimate every employment effect or use multiple methods. What matters is early clarity on the decision to be informed, the assessment window, the audiences for the findings, and the feasible depth of analysis. From there, methods can be selected accordingly – ranging from focused measurement of direct employment and job quality during implementation, to modelling of indirect and induced effects, to geospatial analysis of longer-term, place-based outcomes where relevant.

To be used, findings must be presented in a way that facilitates the decision at hand. Results are most decision-ready when they are framed as change relative to the status quo: what differs under realistic options, and what is likely to happen if current practice is maintained. In the roads sector, this often involves comparing delivery approaches, procurement and packaging strategies, local sourcing assumptions, or maintenance modalities – and making explicit the employment, inclusion, cost, and implementation implications of each pathway.

Finally, EmpIAs add value when they close the loop from evidence to action. Recommendations are most useful when they translate findings into practical adjustments that are feasible within the project or programme, assign responsibility, align with decision-making timelines, and define a small set of indicators to track follow-through. Done this way, EmpIAs function less as an additional requirement and more as a pragmatic decision tool – reducing avoidable risks while increasing the likelihood that road investments deliver on their employment and inclusion potential.

¹⁶ Kuncoro, E., Wurarah, R. N., & Erari, I. E. (2024). The impact of road infrastructure development on ecosystems and communities. *Social, Ecology, Economy for Sustainable Development Goals Journal*, 1(2).

¹⁷ International Labour Organization. (2025). *Reference guide on employment impact assessment* (2nd ed.).

¹⁸ International Labour Organization. (2025). Global employment policy review 2025: Do employment-responsive policies work? How impact assessments, diagnostics and dialogue contribute to the answer.

► References

- Adanlawo, E. F., & Maphela, B. (2025). Road infrastructure in South Africa: What is missing? *International Journal of Business Ecosystem & Strategy* (2687-2293), 7(2), 470–478.
- Game, A. (2021). The use of GIS in employment impact assessments. International Labour Organization.
- Game, A., Dotse-Gborgbortsi, W., & Roeland, A. (2025). Employment impact assessment of Luangwa-Mwami road, Zambia, using LFS and GIS. International Labour Organization.
- Game, A., Kucera, D., & Neza, K. (2025). Employment impact assessment of the National Feeder Roads Programme in Rwanda, using GIS and LFS data. International Labour Organization.
- Game, A., & Kang, X. (2023a). Employment impact assessment of the Merille–Marsabit road, Isiolo–Moyale Transport Corridor in Kenya. International Labour Organization.
- Game, A., & Kang, X. (2023b). Employment impact assessment of the National Feeder Roads Programme (NFRP) in Rwanda. International Labour Organization.
- International Labour Organization. (2025). Reference guide on employment impact assessment (2nd ed.). International Labour Office.
- International Labour Organization. (2023). What is informal employment? Kuncoro, E., Wurarah, R. N., & Erari, I. E. (2024). The impact of road infrastructure development on ecosystems and communities. *Social, Ecology, Economy for Sustainable Development Goals Journal*, 1(2).
- Meng, X., Li, J., Zhou, X., & Yao, X. (2024). Transportation infrastructure, market access, and firms' export competition: Evidence from China. *Finance Research Letters*, 61, 105022.
- Miao, G., & Chassem, N. (2025). Employment impact assessment of the Logone Bridge Project in Cameroon. International Labour Office.
- Miao, G., Villanueva, L., Jiang, X., & La Marca, M. (2024). A brief review of input–output approaches to employment impact assessment. International Labour Organization.
- Pienaar, W. J. (2024). Impact of rural road provision on employment. *South African Journal of Industrial Engineering*, 35(1), 31–40.
- Sossa, P., & Mbaye, S. (2023). Évaluation des impacts sur l'emploi du projet de réhabilitation de la route Senoba-Ziguinchor-Mpack et de désenclavement au Sénégal. Organisation internationale du Travail.
- Sossa, P., & Mbaye, S. (2025). Évaluation des impacts sur l'emploi du projet de réhabilitation de la route Sénoba-Ziguinchor-Mpack et de désenclavement des régions du Sud. Bureau international du Travail.
- Vagliasindi, M., & Gorgulu, N. (2025). Disentangling the key economic channels through which infrastructure affects jobs. World Bank.
- Villanueva, L., & Neza, K. (2023). Employment impact assessment of the Malawi M1 road rehabilitation project. International Labour Organization.

► Annexes

Annex 1. Strengths and limitations of employment impact assessment methodologies¹⁹

On-site / direct data collection

Pros	Gives the most direct evidence on jobs actually created on site.
	Captures both job quantity and job quality, not just headcounts.
	Can show who benefited, including women, youth, local workers, and different occupations.
	Helps identify wages, hours, contract type, social protection, OSH conditions, and skills development.
	Can detect issues that records miss through worker surveys, interviews, and focus groups.
	Useful for monitoring implementation and adjusting project design while works are still ongoing.
	Allows triangulation between payrolls, site records, worker surveys, and employer interviews.
Cons	Can only be used for assessment taking place during implementation or immediately after completion, because once time passes, workers disperse, employment records become harder to access or verify, and recall becomes less reliable.
	Resource-intensive and time-consuming, often requiring local consultants, enumerators, and site access arrangements.
	Sampling can be difficult if the project has multiple sites, phases, lots, or subcontractors.
	Mainly captures direct employment effects and is weaker for other types of employment effects.

¹⁹ International Labour Organization. (2025). Reference guide on employment impact assessment (2nd ed.). International Labour Office.

Input-Output modelling

Pros	The input-output table and social accounting matrix are relatively simple to use.
	They are available for most countries and thus widely applicable. And they are the basis for more advanced modelling methods, such as computable general equilibrium models.
	The underlying assumptions are easy to understand.
	When the necessary information is available, both methods are useful for analyzing other nonemployment-related effects (such as CO2 emissions and water requirements) and to understand the main interactions in an economic structure.
Cons	The analysis and the results provided are usually static.
	Because the construction of an input-output table and social accounting matrix is resource-intensive work, some of the data sets are usually outdated, especially in developing countries
	Due to some of the assumptions implicit in the methodology, in particular that there are no supply constraints and that there are fixed technical coefficients (technological relationships), the results tend to overestimate the employment effects.
	In some cases, the sectors included in the matrix can be highly aggregated, with a wide variety of economic sub-activities aggregated in a single sector, which could distort results if the specific intervention analyzed is very specific and delimited
	The methodology provides little insight into the quality of jobs created; typically, it is assumed that jobs created will be, on average, similar to the employment structure in a sector as a whole, so firms will not change the composition.
	The Leontief model is dual, so the price system is assumed to be independent of the quantity model. This feature means that price and demand shocks cannot be analyzed simultaneously.

Structural Model for Sustainable Development (SMSD)

Pros	The structural model for sustainable development strikes the balance between the complexity needed to capture real economy phenomena and the parsimony needed for its applications and the interpretation of results.
	Because it is a full macroeconomic simulation model, with extensive price and quantity interactions, it is potentially more realistic and able to answer more complex questions, when compared to the input-output and social accounting matrix multiplier analyses.
	It is flexible enough to adapt to any social accounting matrix, including publicly available ones, and to address a range of policy and development questions.
	It is a tool that puts employment and job quality, social and environmental effects and policy consistency on centre stage.
	It allows the construction of user-friendly interfaces that suit the capacity of the end-users.
Cons	The application and comprehensiveness of the structural model and the scope of analysis depend on the quality of the underlying data. Thus, data processing and production can be a demanding task for more complex analyses.
	As with other macro and sector-disaggregated models, technological change is difficult to estimate and to incorporate without relying on strong assumptions. There can be uncertainty over some estimated parameters, and sensitivity analysis may be needed.
	The sectors included in social accounting matrices can be highly aggregated, with a variety of economic sub-activities aggregated in a single sector. This can bias the results if the analysis is on specific sectoral interventions and no further disaggregation is possible.
	Because it is a quantitative simulation tool, it requires interventions (a policy or investment) to be fully quantified and translated into an analytical scenario that can be included in the model.
	The analytical structure of the model shares some elements with the input-output and social accounting matrix analyses as well as with the computable general equilibrium models. Yet, the full model and its behaviour depart from those standard approaches, and the interpretation of its results requires some model-specific knowledge.
	The model requires a computing platform, and it is currently available in Wolfram Mathematica language. Computing efficiency and accuracy will depend on the programming and software used.

Geographic Information Systems (GIS)

Data source	Pros	Cons	Applications
Night lights	Collected at regular intervals (monthly/annual/daily) with high spatial resolution (~450×450 m)	Night lights	Collected at regular intervals (monthly/annual/daily) with high spatial resolution (~450×450 m)
Satellite imagery	Regularly collected; many sources	Satellite imagery	Regularly collected; many sources
Administrative & survey data (labour force survey, household budget survey, census)	Detailed employment + demographic info; often processed/ cleaned in-country	Administrative & survey data (labour force survey, household budget survey, census)	Detailed employment + demographic info; often processed/ cleaned in-country
Georeferenced data (infrastructure, roads, markets, events/ conflicts)	Straightforward; easy to obtain and apply	Georeferenced data (infrastructure, roads, markets, events/ conflicts)	Straightforward; easy to obtain and apply

Annex 2. Reporting and detailed guidance

This annex provides more detailed, optional guidance for teams producing EmpIA deliverables. The level of detail included should be calibrated to the depth of the assessment and audiences' needs.

A. Full EmpIA report (reference document)

The full report is the primary reference product. It should provide sufficient detail to distinguish **what was measured versus modelled**, explain how results were derived, and set out implications for road-sector decisions.

A practical structure is:

1. Introduction

The introduction is typically kept short and decision-oriented:

- **Context:** key labour market conditions (unemployment/underemployment, informality, women/youth participation) and the transport context (connectivity gaps, road condition/maintenance backlog, access constraints, regional disparities).
- **Project essentials:** name/objectives; road type and works (new construction, upgrading, rehabilitation, periodic/routine maintenance); length (km), location, timeline; budget/funders; implementing agency; delivery approach (packaging/lotting, labour-based versus equipment-intensive).
- **Policy relevance:** alignment with national transport/roads strategy and cross-cutting priorities (employment/skills, gender and inclusion, occupational safety and health, local micro, small and medium enterprises, climate resilience, road safety).
- **Why the EmpIA now:** the decision point supported (for example contracting strategy, feasibility of employment-intensive methods, maintenance modality, programme scale-up) and the effects covered (direct, broader ripple effects, longer-term/local effects), including the main job-quality dimensions assessed.
- **Methods snapshot and data:** one paragraph on methods used and main data sources.
- **Roadmap:** one short paragraph on the structure of the report.

2. Project background

This section should include only what is needed to interpret employment results:

- **Objectives and results chain:** the main pathways through which the road investment could affect jobs (during works and beyond).
- **Funding, partners, and governance:** key actors and delivery arrangements.
- **Scope and geography:** corridor/areas, road types and standards, and target populations.
- **Timeline and phases:** procurement → works → completion/defects liability → maintenance arrangements.
- **Design and delivery choices that shape jobs:** packaging/lotting, subcontracting structure, construction technologies, local content/micro, small and medium enterprise provisions, inclusion measures, occupational safety and health and training approach.
- **Expected beneficiaries:** workers, suppliers, and communities along the corridor.

3. Methodology

Methods should be explained in plain language, with technical detail moved to annexes where needed:

- **Approach and methods:** which methods were used and why they fit the learning questions, timing, and available data.
- **Methods by effect type:** what measures direct jobs; what estimates broader ripple effects (if included); what assesses longer-term/local effects (if included).
- **Data sources:** project documents and site records; surveys/interviews/focus groups (if used); national statistics; modelling inputs; geospatial datasets (if used).
- **Assumptions and limitations:** key definitions (for example full-time equivalent, local/ non-local), headline assumptions, and the main constraints affecting interpretation.

4. Results

Results are typically strongest when presented clearly and linked to actionable road decisions:

- **Employment impacts:** works versus maintenance/operation; direct versus broader effects (if included); short-run versus longer-run (if included). Full-time equivalents should be the main unit, with headcount and/or job-years used where helpful, and with clear time windows and phases stated.
- **Job quality and inclusion:** gender/youth participation, formality, wages/hours, occupational safety and health, skills/training – highlighting what differs materially from typical local conditions.
- **Sectoral dynamics and local linkages:** which sectors and business types gained most (for example construction inputs/services during works; transport, trade, agriculture/ agribusiness and local services after completion) and what this implies for local sourcing and capability constraints.
- **Interpretation (“so what?”):** how the magnitude and pattern of effects relate to the local labour market and economy, and how impacts differ by road type, standards, terrain, and delivery model (labour-based versus equipment-intensive; packaging/ subcontracting choices).
- **Data visualization:** benchmark tables; bar charts (project versus national/sector/ region); stacked bars (composition by gender/age/sector); wage distribution plots versus minimum wage/reference wages; and maps showing where jobs, contractors, or access gains concentrate along the corridor.
- **Benchmarks and uncertainty:** comparable intensities (per km, per unit of spending, per work type) where valid; key assumptions stated; main uncertainties summarized.

5. Conclusions, recommendations and proposed actions

This section should close with decision-ready implications tied to timelines:

- **Main takeaways:** the most decision-relevant findings (employment quantity, job quality, inclusion, sectoral/spatial patterns).
- **Recommendations:** what should change (or be defended) in standards, contracting/packaging, labour-based approaches, maintenance modality, inclusion requirements, occupational safety and health/training, and local micro, small and medium enterprise measures.
- **Action plan by actor:** a short set of implementable actions, with responsible parties (road agency, contractors, supervision consultant, relevant ministries/inspectorate, financiers), timing (this cycle versus next), and a small set of indicators to track follow-through.

6. Annexes

Annexes are typically used for:

- Methodological detail and robustness checks (including sensitivity tests where relevant).
- Additional tables/figures/maps.
- Supplementary data (for example expenditure breakdowns, mapping tables, survey instruments, and expanded descriptive statistics).

Illustrative STRENGTHEN2 road EmpIA outputs (examples that can be consulted as references):

- [Luangwa-Mwami Road, Zambia, using LFS and GIS](#)
- [Sénoba-Ziguinchor-Mpack road, Senegal - Final assessment](#)
- [National Feeder Roads Programme using GIS and LFS data, Rwanda](#)
- [Logone Bridge, Cameroon](#)
- [Luangwa-Mwami road, Zambia](#)
- [M1 road rehabilitation project, Malawi](#)
- [Sénoba-Ziguinchor-Mpack road, Senegal - Mid-term assessment](#)
- [Great North Road Upgrading, Zambia](#)
- [National Feeder Roads Programme, Rwanda](#)
- [Merille-Marsabit road, Isiolo-Moyale transport corridor, Kenya](#)

B. Policy brief / decision note (condensed product)

The policy brief condenses the EmpIA into a small set of messages and options. It should answer: **What was learned, and what should change in how roads are designed and delivered?**

A suggested structure is:

- **Title + 4 key messages** (jobs, job quality, inclusion, risks, most effective levers).
- **Why this matters now** (the decision window: upcoming procurement, standards choice, maintenance programming, financing approval).
- **What the EmpIA covered** (effects included/excluded; timing; methods in one paragraph).
- **What was found** (top-line full-time equivalents/headcount; who benefited; job-quality highlights; corridor/access findings if assessed).
- **What it means for road design and delivery** (3–6 concrete actions, each with “who does what”).
- **Assumptions, limitations and next steps** (what is robust, what is indicative, what should be monitored).

C. Presentation and stakeholder validation package

Results are typically strengthened when presented to stakeholders who shape road employment outcomes – road agencies, relevant ministries (transport, labour, finance/ planning), contractors, social partners, local authorities, affected communities, and (where relevant) financiers. The purpose is to surface operational realities and build shared ownership, so results are used.

A practical session format

- Start with the **decision questions**: what choices are coming up – at policy, budget, programme or project level (for example funding allocations, maintenance budgets, contracting/packaging rules, labour-based policy, inclusion targets, supervision and occupational safety and health enforcement).
- Present **headline findings** (not every table): direct jobs and job quality; sectoral/local linkages; broader and/or longer-term effects that were assessed.
- Use structured prompts to turn findings into action:
 - Do the patterns align with local labour supply, contractor practice, and delivery constraints?
 - Who benefits and who is left out (women, youth, local micro, small and medium enterprises) – and what barriers are binding?
 - What risks could undermine outcomes (occupational safety and health, informality, wage compliance, seasonal shocks, migration dynamics)?
 - What can realistically be changed now (contract clauses, packaging, supervision, training, grievance/occupational safety and health systems), and what requires the next budget/procurement cycle?

Close with an action ownership plan

- Agreed actions are captured, owners assigned (which institution does what), timing specified (this cycle versus next), and **2–5 indicators** identified to track follow-through – so the EmpIA becomes a living input to road policy and delivery rather than a one-off report.

Contact details**International Labour Organization**

Route des Morillons 4
CH-1211 Geneva 22
Switzerland

T: +41 22 799 7861
E: STRENGTHEN2@ilo.org
E: EMPINVEST@ilo.org

© International Labour Organization 2026

This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of the ILO and do not necessarily reflect the views of the European Union.