Transforming Energy Access (TEA)

Health and Safety Support Service Design Phase

H&S Energy Access Framework

Prepared for: The Carbon Trust as a part of Transforming Energy Access

Date: November 2024

Project Ref: CI-23-0018

Version: 1.0

Project name:	Transforming Energy Access (TEA) Health and Safety Support Service Design Phase		
Client:	The Carbon Trust (CT)		
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H&S Framework			
Related Documents	**Type of document**	**Draft/final**	**Date of submission**
Recommendations and Adoption Strategy	Report	Final	November 2024
State of the Sector Report	Report	Final	November 2024
Financed by:	Transforming Energy Access		

PRESENTATION

This document introduces a Health and Safety (H&S) Framework designed to enhance safety in energy access projects. It emphasises a collaborative approach among stakeholders, utilizing tools like an H&S Heat Map to identify and prioritise risks. The framework outlines clear accountability and provides guidance for implementation, incorporating international standards and best practices. It also includes decision trees for various energy access technologies, aiding stakeholders in making informed decisions to minimise safety risks and create a secure work environment for all involved.

The authors of this report are Trama TecnoAmbiental S.L. (TTA) and Consultoría ECOS.

This project was funded with UK aid from the UK government via the Transforming Energy Access platform.

UK Government Acknowledgement Disclaimer

This material has been funded by UK aid from the UK government; however the views expressed do not necessarily reflect the UK government's official policies.

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A3. ACRONYMS

Abbreviation	Explanation
AFSEC	African Electrotechnical Standardization Commission
BIS	Bureau of Indian Standards
CSO	Charging Station Operators
CSP	Charging Service Providers
EA	Energy Access
EPC	Engineering, Procurement, and Construction
EV	Electric Vehicles
FCDO	UK Foreign, Commonwealth and Development Office
GOGLA	Global association for the off-grid solar energy industry
H&S	Health and Safety
IEC	International Electrotechnical Commission
IEC - AFRC	IEC Africa Regional Centre
IEEE	Institute of Electrical and Electronics Engineers
ILO	International Labour Organisation
ISO	International Organization for Standardization
LAB	Lead Acid Batteries
LIB	Lithium-Ion Batteries
LPG	Liquid Petroleum Gas
NEC	National Electrical Code (United States)
NESC	National Electrical Safety Code (United States)
OPPS	Office for Product Safety and Standards
PIDG	Private Infrastructure Development Group
PPE	Personal Protective Equipment
SDG	Sustainable Development Goals
SHS	Solar Home Systems
TEA	Transforming Energy Access
UNECE	United Nations Economic Commission for Europe
WPT	Wireless Power Transfer

B. INTRODUCTION

This document outlines a comprehensive Health and Safety (H&S) Energy Access Framework designed to empower project executors, managers, developers, funders, and local authorities to prioritise safety throughout the project lifecycle. The framework underscores the collaborative nature of safety, leveraging international standards and best practices to address challenges. It emphasises the critical importance of stakeholder engagement in identifying, assessing, and mitigating potential risks.

A key component of this framework is the practical and user-friendly H&S Heatmap. This visual tool categorises and prioritises potential safety risks associated with various energy access technologies. By utilising the H&S Framework and Heat Map together, stakeholders can confidently make informed decisions to minimise safety risks and create a work environment that prioritises the well-being of workers and communities.

B1. ACCOUNTABILITY IN H&S FOR ENERGY ACCESS PROJECTS

Safeguarding the well-being of workers, communities, and the environment throughout a project demands **cohesive accountability** among all stakeholders. Fragmented responsibility only breeds confusion and inefficiency, hindering progress and potentially leading to negative consequences. Therefore, it is imperative to establish clear lines of responsibility and foster open communication channels. By doing so, stakeholders can collaborate effectively, identify potential issues early on, and address them promptly. Consequently, a culture of shared responsibility flourishes, paving the way for transparency and trust among project participants.

This section presents a high-level analysis, delving into the concept of accountability within the context of H&S in energy access projects. The aim is to pinpoint the specific entities responsible for the different aspects involved in Energy Access projects, look closely at Health and Safety, and inform the potential repercussions of any lapses. Figure 1 presents the primary stakeholders and the areas where they may take accountability.

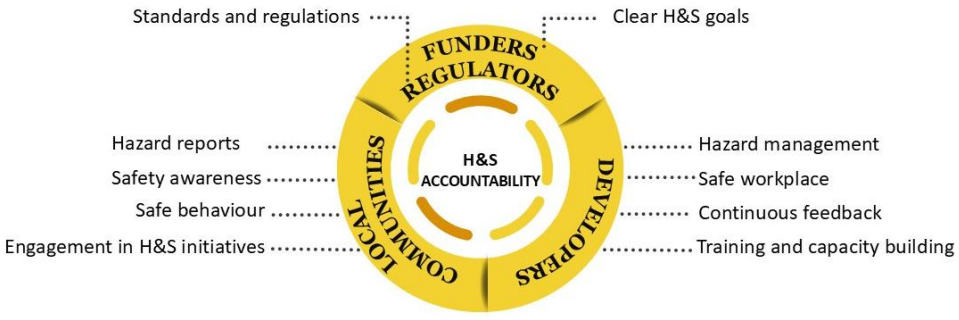

Figure 1. Primary stakeholders and their accountabilities

Understanding the implications of not adhering to environmental and specific industry regulations, safety protocols, and measures is essential for upholding accountability standards. Also, it is noteworthy that these repercussions vary depending on project scope, national regulation and standards, industry regulations, geographical location, stakeholder expectations, project objectives, legal frameworks, and public perception. It is imperative to ensure that all stakeholders grasp the implications of neglecting their responsibilities and how this may impact other stakeholders' work. It is also important to acknowledge that disregarding health and safety obligations can imperil project success, stakeholder trust, and long-term sustainability.

Table 1. Core Responsibilities and Potential Consequences for Funders

Accountable group	Core Responsibilities	Potential Consequences
FUNDERS	**Clear H&S goals** • Articulate clear and SMART (Specific, Measurable, Achievable, Relevant, and Time-bound) goals and expectations regarding health and safety as the foundation for achieving desired outcomes and maximising impact. • Ensure financial resources are available for projects.	**Lack of strategic direction** • Inability of the developer to formulate an action plan results in a lack of control over health and safety measures, rendering measurement impractical. • Ambiguity and confusion leading to misalignment within the employer's and funders' safety mission. • Without clear guidance and objectives from funders, developers may struggle to allocate resources and measure outcomes accurately, leading to potential failures in implementing health and safety initiatives.

Table 2. Core Responsibilities and Potential Consequences for Funders

Accountable group	Core Responsibilities	Potential Consequences
REGULATORS	**Standards and regulations** • Develop H&S standards and regulations • Enforce H&S standards and regulations	**Lack of legal framework** • No clear standards or regulations enforceable • Risk of no legal consequences to H&S issues

Table 3.Core Responsibilities and Potential Consequences for Developers

Accountable group	Core Responsibilities	Potential Consequences
DEVELOPERS	**Hazard management** • Open information exchange within the local community, the workers, and others concerned about safety and accidents related to their work. • Being responsive to H&S inquiries or complaints from workers, communities, or regulatory authorities • Identify potential hazards and potential measures to mitigate and/or isolate them to reduce the risk of accidents, injuries, and environmental damage. • Define clear roles and responsibilities.	**Heightened risk exposure** • Failing to identify and mitigate potential risks and not being aware of hazards can lead to more severe accidents, injuries, or environmental damage. • Unable to ensure accountability and keep individuals aligned with their goals.
	Safe workplace • Ensure the H&S guidelines are followed and non-compliance is reported. • Establish clear H&S policies and procedures and ensure all personnel are trained and informed about these guidelines. • Realise the work in compliance with national and international standards. • Regularly inspect work areas to maintain safety standards. • Be ready for emergencies with response strategies for accidents, injuries, hazardous incidents, and unforeseen occurrences. • Adherence to guidelines set forth by funders about human rights, environmental impact, and other pertinent obligations.	**Unsafe working conditions** • Poor communication and workers not being informed can trigger a negative safety culture in the workplace. • Unsafe work conditions, accidents, injuries, and potential fatalities due to non-compliance with safety guidelines and rules. • Possible legal penalties for the workers or employer impacting developer image in trust. • Possibility of halting the project for a certain period, thus causing project delays, even failure and economic loss. • Toxic safety culture in the workplace may lead employees (and other end users) to look for other opportunities. • Use of non-eco-friendly materials leading to more CO_2 emissions may cause damage to the health of workers and the local community.
	Continuous feedback	**Toxic work environment**

	• Implement a mechanism for reporting hazards, incidents, accidents, suggestions, complaints, and other pertinent issues. • Open communication is generally used to solicit and provide feedback.	• Lack of improvement and feedback leads to repeating the same accidents and issues. • Unresolved H&S issues may increase stress and anxiety and create a toxic work environment for workers, loss of trust in the employer, and financial damage due to inefficient and unsafe processes or equipment. • Disengagement from stakeholders such as workers and local community members. • No input or advice from the other local community members and funders.
	Training and capacity building • Providing adequate training and resources to workers to ensure they can perform their tasks safely. • Providing information about H&S, environmental, social, or other relevant issues to increase community members' knowledge and understanding	**Not providing training and capacity building** • Workers may not possess the technical knowledge to perform safely the assigned tasks. • Failure to address and identify safety concerns. • Increased risk of accidents and incidents in the workplace or the community due to lack of appropriate knowledge.

Table 4. Core Responsibilities and Potential Consequences for Local Communities

Accountable group	Core Responsibilities	Potential Consequences
LOCAL COMMUNITIES	**Hazard reports** • Providing feedback on the malfunctioning of equipment and appliances. • Reporting unusual incidents in the provided services. • Reporting electrical discharge in appliances and outlets. • Reporting fires • Reporting accident	**Unidentified hazards** • Health risk for the community. • Developers are not able to identify the hazards affecting most communities.

	Safety awareness • Attending all mandatory safety awareness campaigns. • Questioning about misunderstood H&S subjects. • Promote other community members' attendance at H&S events. • Disseminate potential risks and adequate precautions for hazard mitigation among other community members.	**Lack of awareness** • Higher risk of accidents and injuries due to lack of awareness.
	Safe behaviour • Apply relevant H&S practices received from the training and awareness campaign to daily life. • Teach safety practices to other community members, especially children and the elderly.	**Increased risk of accidents and injuries** • Not being able to identify potential risks. • Not incorporating safety behaviour into their daily life increases the risk of accidents.
	Engagement in H&S initiatives • Active participation in H&S training sessions. • Community engagement to adopt best practices of H&S within households and across community settings.	**Missed opportunities** • Not being fully informed of project progress about H&S issues. • Lack of support to the developer in his work to manage H&S measures. • Missing opportunities to learn about H&S practices.

Building on the core responsibilities outlined above for funders, regulators, and developers in implementing appropriate safeguards for workers and communities, this framework serves as a foundation for establishing a robust health and safety culture. It provides a theoretical and practical roadmap for understanding the phases, actions, and responsibilities each stakeholder should embrace when implementing an energy access project. The subsequent sections will delve deeper into the specifics of the H&S Energy Access Framework, exploring its implementation guide, risk assessment tools, and illustrative case studies. The H&S Accountability RACI section will further elaborate on the roles and responsibilities of each stakeholder, ensuring clarity and promoting effective collaboration throughout the project lifecycle.

C. HEALTH AND SAFETY ENERGY ACCESS FRAMEWORK

C1. FRAMEWORK EXPLANATION

The Energy Access Health and Safety (H&S) Framework provides a structured, risk-based approach to integrating health and safety practices into energy access projects. It acknowledges that different projects carry varying levels of inherent risk and, therefore, tailors the H&S implementation to match those risks. To assist in this process, the framework incorporates **Decision Trees**, visual guides designed to help stakeholders determine the appropriate level of H&S measures required for their specific project (Decision Trees).

To facilitate risk assessment, the framework includes a **H&S Risk Heat Map**, which visually categorises and prioritises potential safety risks associated with different energy access technologies. This heat map serves as a valuable guide for project implementers in evaluating their specific risks and tailoring their H&S strategies accordingly.

The H&S Framework is intentionally designed to be both **adaptable and scalable**, recognising that energy access projects vary significantly in terms of their scale, complexity, and operating environments. While the Decision Trees offer guidance on minimum H&S implementation levels, projects have the flexibility to adopt measures from higher levels as needed. This adaptability empowers project teams to tailor their H&S strategies to their unique circumstances, ensuring that safety remains a top priority throughout the project lifecycle. The framework not only allows for adaptation but also encourages projects to proactively adopt measures from higher levels to foster a strong safety culture and go beyond the minimum requirements.

The framework outlines three different levels of H&S implementation:

- **Level 1:** This level establishes the foundations of H&S actions that every energy access project should implement, regardless of its perceived risk level. It covers fundamental aspects such as compliance with standards, risk management, incident investigation, establishing H&S policies, and fostering community awareness and feedback.
- **Level 2:** Building upon the foundational elements of Level 1, this level emphasises capacity building and proactive safety measures. It includes staff training programmes, emergency preparedness plans, workplace safety programmes, and community education initiatives. Projects with moderate inherent risks or those seeking to establish a stronger safety culture would typically implement Level 2 measures.
- **Level 3:** This represents the highest level of H&S implementation, focusing on strategic planning and comprehensive documentation. It encompasses the development of a formal H&S strategy, participation in specialised training programmes, and meticulous record-keeping. Projects with high inherent risks or those operating in complex environments would benefit from implementing Level 3 measures.

The framework is based on the **Deming Continuous Improvement Cycle** (PDCA), ensuring a dynamic and iterative approach to health and safety management. This methodology comprises four phases or steps that should be followed:

- **Plan:** Funders and regulators take the lead in establishing clear H&S goals, providing guidelines, establishing standards, as well as defining roles and responsibilities.
- **Do:** Project implementers such as employers, developers, or manufacturers implement the planned H&S measures, ensuring compliance with policies and procedures during project execution.
- **Check:** Local communities/ end users provide feedback on the effectiveness of H&S implementation, reporting any concerns or incidents.
- **Act:** All stakeholders collaborate to review performance, identify areas for improvement, and implement corrective actions, fostering a culture of continuous learning and adaptation.

The framework outlines specific **activities and actions** to be undertaken at each established phase and is further categorised based on the identified level of implementation. While each phase has a primary stakeholder leading its execution, the framework encourages cross-pollination and open communication among all parties. This collaborative approach ensures that local communities have a voice in the planning and implementation process, funders remain engaged in monitoring and evaluation, and developers actively participate in risk assessment and community feedback.

The framework recognises these stakeholders as key entities in driving its implementation (each role is explained further in section C4. Stakeholders):

1. **Funders:** Provide financial and strategic support, define H&S goals, and ensure compliance with relevant standards and regulations.
2. **Regulators**: Set and enforce national H&S standards, conduct audits, and define project-specific requirements based on technology and risk assessments. Their responsibilities may also include product, facility, or production certifications.
3. **EPCs, developers, and manufacturers** (Project implementers): Directly implement H&S measures, establish policies and procedures, and conduct safety programmes, training, and emergency preparedness activities.
4. **Local Communities and End users** (including customers, appliance users etc. Directly and indirectly affected): Provide feedback, report concerns, and actively participate in H&S training and awareness programmes.

The activities within each phase are tailored to the specific needs and risks of the project. For instance, during the **Planning** phase, funders emphasise compliance with local and international standards and establish clear roles and responsibilities. In the **Do** phase, employers prioritise adherence to H&S policies, incident investigation protocols, and workplace safety programmes. Meanwhile, local communities play a crucial role in the **Check** phase by providing feedback and reporting any H&S issues.

The framework also acknowledges, as part of the project implementers team, the crucial involvement of health and safety professionals in designing and implementing safety protocols, managers in overseeing H&S activities within their teams, and employees in actively participating in safety practices and reporting concerns. It emphasises the importance of collaboration and shared responsibility in achieving the overarching goal of a safe and healthy working environment.

To support the effective implementation of this framework, an H&S Indicators Guide is provided, offering key metrics and benchmarks to track progress and evaluate the success of H&S initiatives at each level. Additionally, an H&S Accountability RACI matrix clearly defines the roles and responsibilities of each stakeholder, ensuring clarity and promoting effective collaboration throughout the project lifecycle.

Finally, the framework recognises that different projects may require customised approaches and allows for flexibility in implementation. However, any deviations from the framework should be justified and based on the unique requirements and circumstances of the project.

C2. H&S Energy Access Framework – Summary

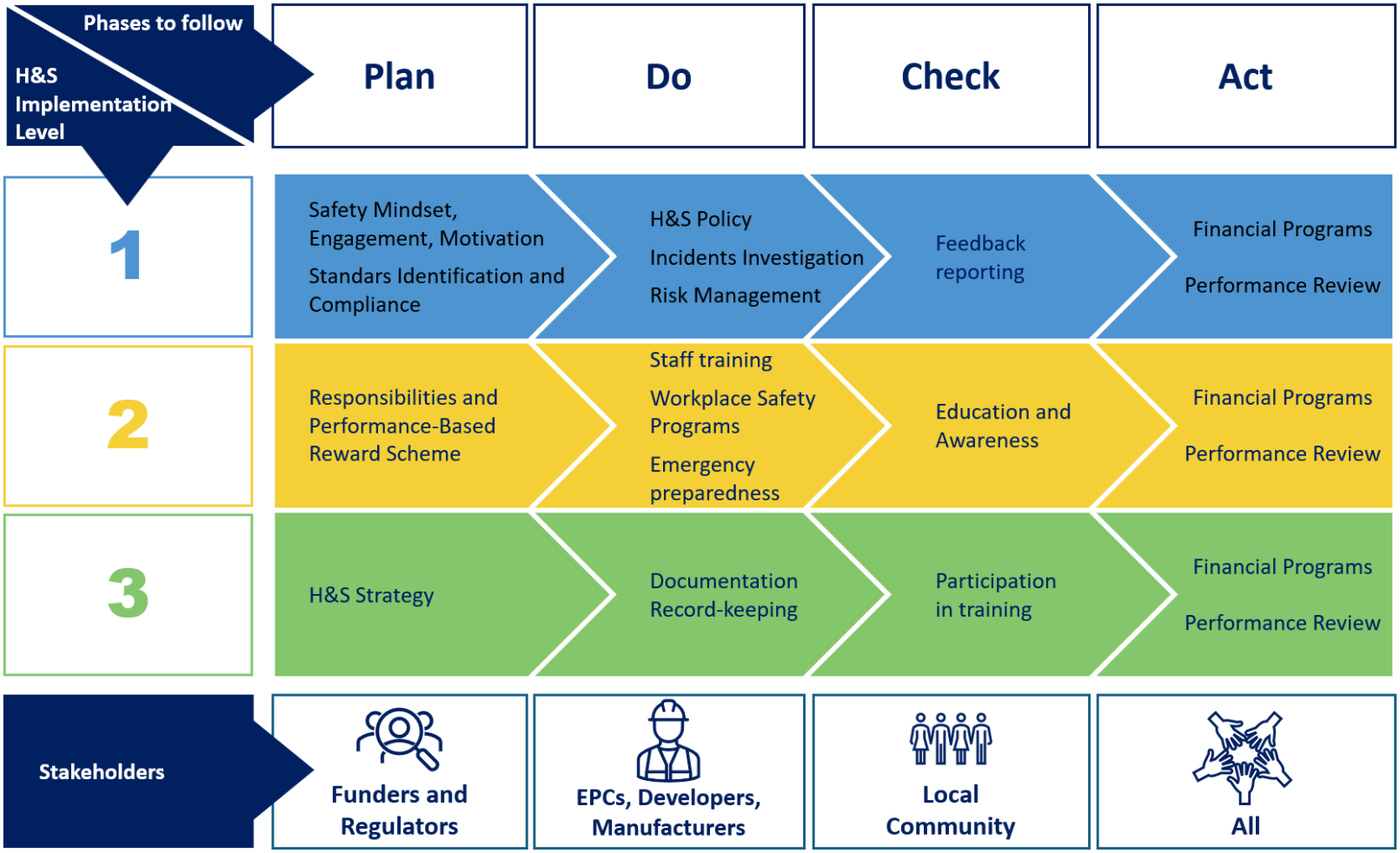

Figure 2 H&S Energy Access Framework

C3. Framework Implementation Tool

The flowchart below (*Figure 3.FRAMEWORK implementation tool*) provides a structured approach for implementing the Health and Safety (H&S) framework across various technologies. The process is divided into three distinct levels, with each level involving specific actions that must be undertaken by different stakeholders, including funders, regulators, project implementers, and the local community.

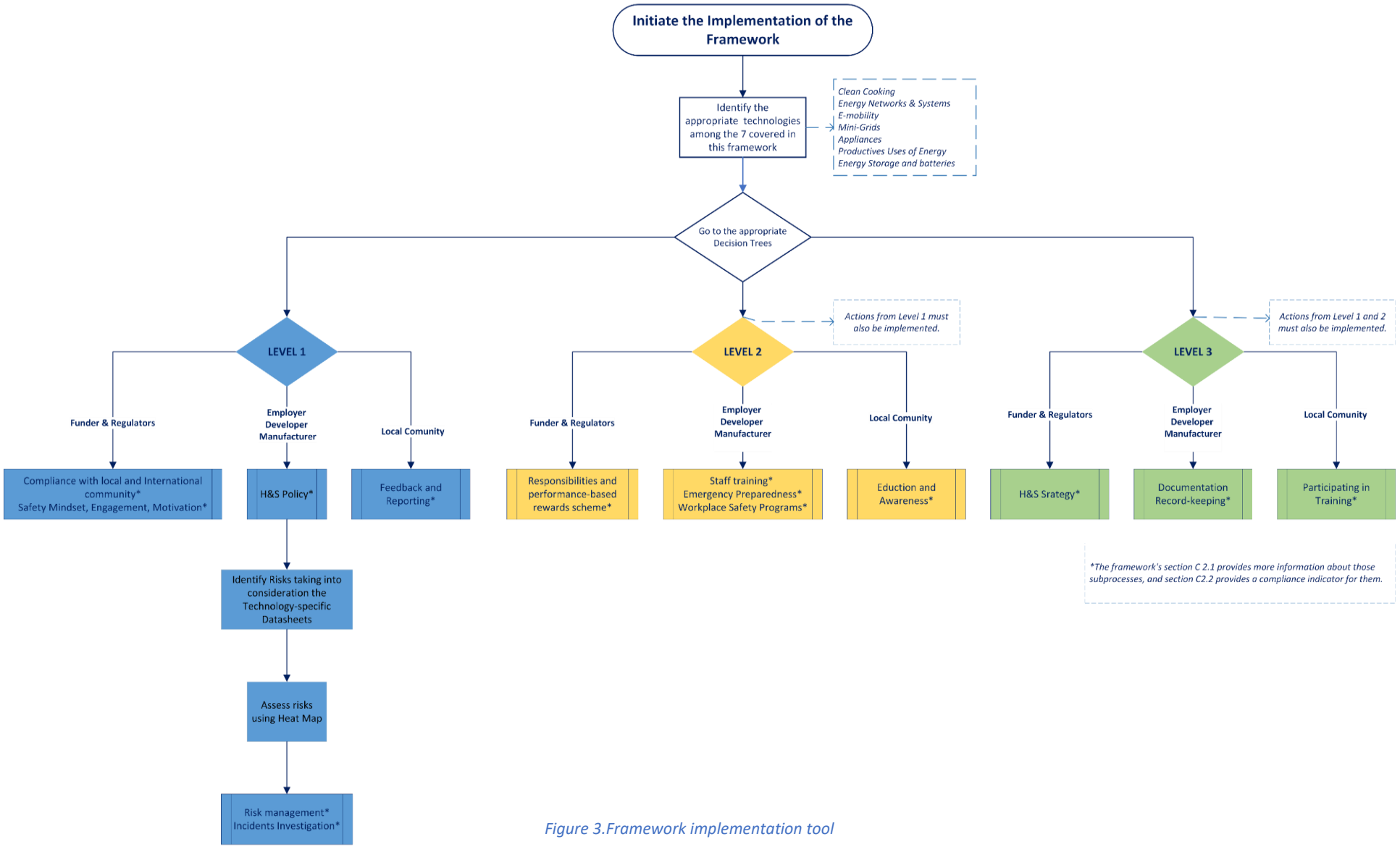

Figure 3.Framework implementation tool

C4. STAKEHOLDERS

The successful implementation of this framework relies upon the active participation and collaboration of the key stakeholders presented in the previous section throughout the project lifecycle. This section provides a comprehensive overview of the key participants within the stakeholders involved, their roles, and their contributions to fostering a safe and healthy working environment in energy access projects.

Within each stakeholder group, specific roles or "participants" are identified. These participants may be individuals or teams, depending on the company's and project's size. Some roles may be filled by internal staff, while others may be external consultants or contractors.

Regulators: Governmental or regulatory bodies responsible for setting and enforcing national H&S standards, conducting audits, and defining project-specific requirements. Their responsibilities may also include:

- Setting and Enforcing Standards: Developing and implementing comprehensive health and safety regulations and ensuring adherence through inspections, audits, and enforcement actions.
- Defining Project-Specific Requirements: Tailoring H&S requirements to the unique characteristics and risks of individual energy access projects.
- Conducting Audits and Inspections: Regularly assessing project sites and operations to verify compliance with H&S standards and identify potential hazards.
- Investigating Incidents: Thoroughly examining accidents and incidents to determine root causes and prevent future occurrences.
- Providing Guidance and Support: Offering technical assistance, training, and resources to project implementers to facilitate H&S compliance.

Key participants within regulatory agencies or bodies include commissioners, research or investigations departments, policy and operations teams, and management personnel.

Funders: Entities providing financial and/or strategic support, including development finance institutions, multilateral agencies, bilateral organisations, and international development agencies. They play an important role in establishing a H&S landscape as part of their funding agreements or due diligence processes by:

- Setting H&S Expectations: Integrating robust H&S requirements into funding agreements and due diligence processes, ensuring projects prioritise worker and community well-being from the outset.
- Providing Guidance and Leadership: Offering strategic direction and technical expertise to project implementers, fostering a culture of safety and promoting best practices.
- Encouraging Knowledge Sharing: Facilitating the exchange of information and lessons learned among stakeholders to drive continuous improvement in H&S performance across the energy access sector.

Funders are typically represented by participants such as boards of directors, leadership roles, and country or topic directors, play a crucial role in establishing the initial tone and strategic direction for health and safety in energy access projects. They champion the integration of H&S considerations into project planning and execution, setting clear expectations, providing guidance, and promoting knowledge sharing. By establishing policies, procedures, and organisational cultures that prioritise employee safety and well-being, funders foster a safety culture from the project's conception.

EPCs, Developers, Manufacturers

Organisations or entities directly responsible for implementing the project and ensuring H&S compliance on the ground. Given their frontline role in H&S implementation, it is important to examine their key participants in detail to define their level of involvement and responsibility. It is important to recognise that within these organisations, one individual or team might hold multiple roles, particularly in smaller projects or companies. Additionally, certain specialised roles, such as those related to compliance, safety audits, or incident investigations, might be outsourced or subcontracted to external experts.

The "EPC, Developer, and Manufacturer" refers to an entity that develops and operates manufacturing facilities and is responsible for employing and managing workers in that environment. In the context of health, this term describes an employer who is responsible for designing, implementing, and maintaining practices and policies that promote a safe and healthy work environment for their employees in manufacturing facilities. This involves identifying and managing hazards, providing adequate personal protective equipment, health and safety training, and complying with all relevant regulations and standards to ensure the safety and well -being of workers during their manufacturing activities.

The typical participants within this group include:

- **Leadership and Management:** This group includes the highest authority within the organisation (e.g., board of directors, CEO) and department heads or process managers. They are responsible for setting the overall H&S vision and strategy, overseeing implementation, and ensuring compliance within their respective areas.
- **Health and Safety Professionals**: This group comprises individuals with technical or university-level expertise in health and safety. They develop and implement H&S programmes, conduct risk assessments, and provide training and guidance to other employees.
    - **Emergency Response and Incident Investigation Team:** In some organisations, this specialised team might be part of the H&S Professionals group. They handle emergency situations, investigate accidents and incidents to identify root causes, and implement corrective actions to prevent recurrence.
- **Project Implementation Staff:** This group encompasses employees directly involved in the organisation's operations and day to day project activities, including those in production,

maintenance, technicians, sales and customer services, and other frontline roles. They are responsible for adhering to H&S policies and procedures, reporting hazards, and actively participating in safety initiatives.

- **Human Resources:** This group manages human capital and plays a crucial role in implementing policies related to employee safety and well-being . They may also be involved in H&S training and communication efforts.
- **Compliance and Legal Team:** Ensures adherence to regulations and standards, manages legal aspects of H&S, and may conduct internal audits.

Local Communities: Individuals and groups directly or indirectly affected by the project, including customers, appliance users, and community members. They provide feedback, report concerns, and participate in H&S training and awareness programmes.

In health and safety, the term community encompasses end users, workers, employees, and local members, or in other words the broader societal group affected by or involved in workplace activities. This includes residents living near projects, community organisations, governmental bodies, and other stakeholders interested in ensuring the safety and well-being of workers and the surrounding environment. The community is fundamental in providing support, advocacy, and oversight to promote health and safety initiatives. Their involvement can include participating in community engagement activities, giving feedback on workplace safety measures, and advocating for policies that prioritise worker health and environmental protection. Overall, the community's engagement is essential for fostering a collaborative approach to health and safety that considers the interests and concerns of all stakeholders involved.

- **External Stakeholders:** Other parties involved in or indirectly impacted by the project, such as suppliers, contractors, other members of the community or other communities.

The sections below provide an overview of various activities that correspond to three levels of implementation for funders, executors, and end users. The tables also identify key players in funding agencies, project implementers, and end users. For each player, the expected interventions and outcomes are listed.

As a critical component, an activity compliance indicator is integrated into the process to ensure thorough verification and ongoing monitoring of these activities. This indicator serves as a mechanism to systematically evaluate adherence to established protocols, standards, and regulations, providing insights into the effectiveness of risk mitigation measures. By continuously tracking compliance levels, organisations can promptly identify areas for improvement, implement corrective actions, and maintain a proactive approach to risk management.

C5. PLAN PHASE

The "Plan" phase lays the groundwork for a robust health and safety (H&S) framework in energy access projects. It is a crucial stage where funders and regulators are the key stakeholders and collaborate to proactively shape the project's safety landscape, ensuring that health and safety considerations are integrated from the outset.

Funders set the tone for safety by defining the overall H&S strategy for supported projects. This includes providing guidance and technical support to project implementers, particularly in situations where regulations might be ambiguous or absent. Funders also incentivise good H&S practices through mechanisms like due diligences, performance-based rewards or by mandating comprehensive H&S strategies depending on the project's risk level.

Regulators, on the other hand, act as the custodians of H&S standards. They define the legal and compliance requirements for each project, ensuring adherence to national regulations. In cases where national regulations are not specific enough, regulators offer guidance on selecting and applying appropriate international standards. They also play a crucial role in overseeing the implementation of these standards through audits and inspections.

The culmination of the "Plan" phase equips project implementers with a clear understanding of the required H&S regulations needed for their specific project. This clarity sets the stage for the subsequent phases of the project lifecycle and fosters a culture of safety from the beginning. By proactively addressing H&S considerations in the planning stage, funders and regulators contribute significantly to the implementation of adequate H&S practices.

Level 1: Standards Identification and Compliance

Compliance with local and international H&S standards and regulations is crucial for organisations to establish a strong foundation for legal integrity, ethical conduct, and high-quality operations. Adhering to these standards mitigates legal risks, builds stakeholder trust, enhances product and service quality, and reinforces social responsibility. Meeting regulatory requirements protects operations from legal consequences and ensures sustainable growth. Compliance is essential for maintaining reliability, upholding ethical principles, and ensuring the longevity and success of an organisation. This commitment reflects a dedication to operational excellence, ethical governance, and positive societal contributions.

In cases where specific H&S national regulations or standards are not clearly defined or readily available, a collaborative effort among the project implementer, funder, and regulator is essential. This collaboration may involve jointly researching and adopting relevant international standards, conducting a joint risk assessment, and developing project-specific H&S guidelines. The goal is to create a tailored H&S plan that ensures the project adheres to the highest safety standards, even in the absence of explicit regulations. This approach fosters a shared understanding of H&S expectations, leading to improved safety outcomes and reduced risk of legal or regulatory issues.

Stakeholder	Participants	Proposed Actions	Expected Results
1. Funders	**Governance and Oversight teams** develop	**Develop policy**	**Clear H&S Expectations:** Project implementers

	clear health and safety policies and incorporate them into funding agreements, setting expectations for project implementers. They also assess H&S risks in potential projects and evaluate the implementer's ability to manage them.	• Incorporate clear and specific H&S requirements into their funding agreements, outlining clear expectations for project implementers. **Due Diligence** • Funders conduct thorough due diligence on potential projects, including assessing H&S risks and evaluating the implementer's capacity to manage them.	have a clear understanding of the H&S requirements and expectations from both funders and regulators. **Robust H&S Plans:** Projects develop the requirements needed for a H&S policy that address potential risks and align with relevant standards.
2. Regulators	**Regulatory and Compliance Bodies,** create and maintain national H&S standards and guidelines for the energy access sector, offering guidance on international standards when needed.	**Development of H&S Regulations or Standards** (if non-existent or incomplete) • Establish and update national H&S standards and guidelines for the energy access sector.	**Increased Compliance:** Projects demonstrate a high level of compliance with local and international H&S standards.
3. EPCs, Developers, Manufacturers	**Leadership and Management** establishes policies and strategies that ensure regulatory compliance.	**Compliance Policy Development and Training** • Collaborating with leadership compliance teams and legal teams to establish clear regulations. • Implementing training programmes for all departments. • Integrating compliance practices into daily operations. • Fostering a culture of compliance as a core value. • Implementing a continuous improvement cycle based on audit results and regulation changes.	**Corporate Integrity Reputation:** Development of a solid and positive reputation regarding integrity and social responsibility. **Continuous Process Improvement:** Identification of areas for constant improvement in compliance-related processes. **Resilience to Regulatory Changes:** Ability to adapt efficiently to changes in regulations without affecting normal operations. **Positive Impact on the Community:** Positive contributions to the community through

			ethical and socially responsible business practices.
	Compliance and Legal Teams oversee and manage compliance with regulations and standards and provide legal advice to ensure legal and ethical operations.	**Ongoing Legal Review** • Staying updated on regulation changes. • Adjusting policies and practices as needed. **Regular Audits** Facilitating internal and external audits to assess and improve compliance.	**Compliance matrix:** A matrix evaluating compliance with regulatory standards within the country where we undertake development projects. **Audit Ratings:** Positive outcomes in internal and external audits, demonstrating effective compliance.
	Project Implementation Staff implement practices compliant with regulations in their daily operations.	**Investigation and Corrective Actions** • Developing a proactive approach to breaches Investigation. • Taking corrective actions. • Preventing recurrences.	**Operational Efficiency:** Improvement in operational efficiency because of implementing effective compliance practices.
	Human Resources implement policies to comply with labour and HR regulations.		
4. Local Communities	**External Stakeholders** comprise end users, suppliers, and other parties with specific expectations.	**Stakeholder Involvement** • Maintaining open communication. • Encouraging participation in audit processes.	**Stakeholder Feedback:** Customer, supplier, and external stakeholders' evaluation of compliance and business ethics.
Indicators			
1. Number of complaints or instances of non-compliance identified during audits or follow-ups.			

Level 1: Safety Mindset, Engagement, Motivation

A safety mindset is vital for motivation, employee well-being, accident prevention, and a workplace culture rooted in safety values. It involves engagement, a collaborative, committed, innovative workforce, and aligning individual efforts with organisational goals.

Stakeholders	Participants	Proposed actions	Expected results
1. Funders	**Top decision-makers** set the strategic direction for H&S integration into funding decisions.	**Incorporate H&S Performance Metrics**: Include H&S performance indicators in funding agreements and monitor progress regularly to ensure continuous improvement.	**Improved Safety Culture:** Project implementers demonstrate a proactive and positive approach to safety, with employees actively engaged in H&S initiatives.
2. Regulators	**Heads of regulatory bodies** responsible for overseeing H&S compliance in the energy access sector.	**Advocate for Safety Leadership:** Encourage project implementers to establish strong safety leadership at all levels of their organisations, promoting a top-down commitment to H&S.	
3. EPCs, Developers, Manufacturers	**Leadership and Management** are responsible for setting the overall direction for safety, fostering a positive safety culture, and actively supporting their teams in achieving health and safety goals.	**Safety Management Strategies** • Establishing leadership guidance on the importance of safety. • Communicating safety expectations and values. • Collaborating with safety committees to identify and address safety concerns. • Encouraging active participation in safety initiatives. • Promoting transparent communication and open dialogue.	**Innovation and Idea Generation:** Encourage and track the generation of innovative ideas and solutions as indicators of a motivated workforce. **Positive Organisational Culture:** Measure the development of a positive organisational culture through surveys and feedback. **Safety Incident Reduction:** Assess the extent to which an improved safety mindset contributes to a decline in safety incidents.
	Health and Safety Professionals guide the implementation of safety measures, collaborate with leadership to ensure regulations are followed, and design and implement safety awareness and motivation training programmes.		
	Human Resources contributes to developing and implementing safety and engagement initiatives and supports	**Employee Safety Training Programmes**	**Employee Feedback:** Gather feedback from employees on their perception of the

<table>
<tr><td></td><td>employee motivation through recognition programmes and professional development opportunities.</td><td rowspan="3">Implementing safety training programmes for all employees.
Recognition and Rewards Programmes
Establishing programmes for achievements and milestones.
Professional Development Opportunities
Offering avenues for skill development and career growth.
Implementing mentorship programmes to enhance engagement.</td><td rowspan="3">organisation's commitment to safety.</td></tr>
<tr><td></td><td>Project Implementation Staff embrace and practice a safety mindset in daily tasks, actively participate in engagement initiatives, and seek motivation for professional growth.</td></tr>
<tr><td>4. Local Communities</td><td>Participate in safety programmes and provide feedback. External stakeholders may influence engagement through partnerships and collaborations.</td></tr>
<tr><td colspan="4">Indicators</td></tr>
<tr><td colspan="4">Participation rate in safety training sessions.
Completion of Training Programmes.
Staff turnover rate.</td></tr>
</table>

Level 2: Responsibilities and Performance-Based Reward Scheme

Implementing a performance-based rewards scheme aligns individual efforts with organisational goals, incentivises employees for excellence, fosters accountability, and drives organisational success.

Stakeholders	Participants	Proposed actions	Expected results
1. Funders	**Programme Managers and other topic specialists:** Individuals overseeing funding programmes and monitoring project performance.	**Incorporate H&S Performance into Funding Agreements**: Include specific H&S performance metrics and targets as conditions for funding disbursement or continued support. **Link Rewards to H&S Outcomes:** Encourage project implementers to establish performance-based reward schemes that incentiviee achieving H&S goals.	**Improved Employee Morale and Engagement:** Recognising and rewarding good H&S practices can boost employee morale and engagement, leading to a more positive safety culture.
2. Regulators	**Inspectors and Auditors: Individuals** who assess project compliance with H&S regulations and standards.	**Monitor H&S Performance Data:** Regulators collect and analyse H&S performance data of metrics related to reward schemes to identify trends and areas for improvement.	**Transparent and Equitable Reward Systems:** Reward schemes are transparent and fair and avoid incentivising unsafe practices.
3. EPCs, Developers, Manufacturers	**Leadership and Management** establish the vision for the reward scheme, ensuring it aligns with organisational goals. They clearly communicate the importance of responsibilities and performance expectations to all employees, and play a key role in assigning tasks, providing feedback, and promoting the rewards scheme within their teams.	**Job Descriptions and Responsibility Mapping** • Providing clear job descriptions and expectations for each role. • Aligning responsibilities with individual strengths and organisational needs. • Defining performance-based rewards criteria. • Offering flexible rewards like financial incentives, recognition, and career development opportunities.	**Alignment with Organisational Goals:** Assess how well individual responsibilities align with broader organisational goals.

	Human Resources designs and implements the rewards scheme in collaboration with leadership and communicates and clarifies the scheme to employees.	**Regular Evaluation and Performance Measurement** • Conducting regular evaluations for relevance and achievable responsibilities. • Implementing Objective Key Results (OKRs) for performance measurement. • Establishing effective feedback mechanisms for continuous improvement. • Offering training opportunities for skill enhancement.	**Employee Satisfaction:** Gauge employee satisfaction with the rewards scheme through surveys. **Retention and Productivity:** Measure employee retention and productivity as indicators of the scheme's effectiveness. **Training Impact:** Evaluate the impact of training initiatives on employee skills and performance
	Project Implementation Staff take ownership of assigned responsibilities, strive for high performance, engage with performance evaluations, and contribute to a positive work culture.	**Transparent Communication** • Communicating the reward structure transparently to all employees.	**Employee Satisfaction:** Gauge employee satisfaction with the rewards scheme through surveys.
Indicators			
1. **Overall satisfaction level.** 2. **Task Completion Rate Indicator: Quantify the percentage of assigned tasks completed within a specified timeframe.**			

Level 3: Health and Safety Strategy

Developing a robust health and safety strategy is imperative to safeguard the well-being of employees, comply with regulations, and foster a secure work environment. This addresses the need to prevent accidents, mitigate risks, and promote a culture that prioritises the health and safety of every individual within the organisation.

Stakeholders	Participants	Proposed Actions	Expected Results
1. Funders	**Programme Managers** mandate and guide project implementers develop and implement H&S strategies.	**Provide Guidance and Templates:** Offer technical assistance and templates to help project implementers develop effective H&S strategies. **Monitor Strategy Implementation:** Include H&S strategy implementation and effectiveness as part of ongoing project monitoring and evaluation.	**Comprehensive H&S Strategies:** Project implementers develop and implement detailed H&S strategies that cover all aspects of their operations. **Strong Safety Culture:** Project implementers demonstrate a commitment to safety at all levels of the organisation, fostering a positive safety culture.
2. Regulators	**Policy and Advocacy Teams:** Offer guidance and feedback to project implementers on improving their H&S strategies.	**Monitor H&S Performance:** Conduct regular inspections and audits to assess the effectiveness of H&S strategies and identify areas for improvement.	**Continuous Improvement:** Project implementers demonstrate a commitment to ongoing improvement of their H&S strategies based on feedback and performance data.
3. EPCs, Developers, Manufacturers	**Leadership** drives the development and implementation of the health and safety strategy and communicates its importance throughout the organisation.	**Health and Safety Culture Improvement** • Fostering continuous improvement. • Demonstrating leadership commitment.	**Leadership Visibility:** Evaluate the visibility of leadership in promoting a health and safety culture.
	Health and Safety Professionals are key in designing and executing health and safety initiatives and regularly	**Regular Audits for Hazard Identification** • Conducting regular audits to identify and assess risks.	**Accident Rates:** Monitor and reduce workplace accident rates. **Compliance Scores:** Evaluate compliance with health and safety

	assess and report on workplace safety.	• Establishing mechanisms for timely reporting and addressing hazards.	regulations through scores. **Number of Reported Hazards:** Monitor the number of reported hazards as a sign of an active safety culture.
	Project Implementation Staff actively engage in safety training, adhere to health and safety guidelines, report potential hazards, and contribute to a culture of safety.	**Employee Involvement in Safety Initiatives** • Encouraging employee participation.	**Employee Feedback:** Gather employee feedback on the effectiveness of health and safety measures.
	Human Resources collaborate to implement health and safety training programmes and communicate health and safety policies to employees.	**Training Programmes Implementation** • Implement training programmes to educate employees on potential risks and safety measures.	**Employee Participation:** Track employee participation in safety programmes.
Indicator			
1. Monitoring the effectiveness of risk management strategies based on dashboard insights.			

C6. DO PHASE

The "Do" phase is where meticulous planning translates into concrete action. It encompasses implementing the health and safety strategies and procedures devised in the "Plan" phase. This phase is primarily driven by EPC, Developers, and Manufacturers, who are directly responsible for creating a safe and healthy work environment. Key activities during this phase include: implementing preventive measures, providing necessary resources, monitoring daily operations, and appropriately responding to emergencies. In essence, the "Do" phase is about operationalising safety. It's where the theoretical framework becomes a lived reality, safeguarding the well-being of workers and fostering a culture of safety within the workplace.

Level 1: Health and Safety Policy

Project implementers must establish a clear and comprehensive H&S policy that prioritises employee well-being. This policy serves as the foundation for creating a safe environment that prioritises employee well-being, complies with regulations, and promotes a safety culture. It requires clear guidelines, risk mitigation, and a shared commitment to a secure and healthy work environment.

Stakeholder	Participants	Proposed Actions	Expected Results
1. Funders	**Programme Managers:** Oversee funding programmes and ensure projects align with H&S requirements. **H&S Advisors/Specialists:** Provide technical expertise and guidance on H&S policy development.	**Review and Approve H&S Policies:** Assess proposed H&S policies from project implementers to ensure they meet the funder's expectations and comply with relevant regulations. **Provide Guidance and Templates:** Offer technical assistance and templates to support project implementers in developing effective H&S policies.	**Clear and Comprehensive H&S Policies:** Project implementers establish well-defined H&S policies that address potential risks and promote a safe working environment.
2. Regulators	**Inspectors and Auditors:** Assess project compliance with H&S regulations and standards.	**Conduct Inspections and Audits:** Regularly inspect project sites and operations to verify adherence to H&S policies and regulations.	**Regulatory Compliance:** Project implementers develop and implement H&S policies that adhere to all relevant regulations and standards.
	Leadership and Management are responsible for ensuring	**Policy Development Process**	**Health and safety policy**. Oversee the policy's conformity with the ever-

3. EPCs, Developers, Manufacturers	that the health and safety policy follows the objectives and values of the organisation, as well as for its formulation and communication.	• Ensuring regulatory compliance, guaranteeing that the health and safety policy is based on local and international regulations. • Integrating risk assessment results into the policy. • Engaging with stakeholders and employees to gather inputs throughout the policy formulation process.	changing regulations about health and safety.
	Health and Safety Professionals supervise the implementation and compliance with safety measures and provide input on the policy's development.	**Policy Adherence and Effectiveness Assessment** • Conducting regular audits to assess adherence to and effectiveness of policies. • Implementing a mechanism through which employees can offer their perspectives on the policy. • Policy revision and updating considering evolving regulatory frameworks or organisational demands.	**Audit Results:** Analyse audit results to assess the effectiveness of policy implementation.
	Project Implementation Staff actively engage in and comply with the protocols described in the policy.	**Safety Concern Reporting** • Employees are required to report any safety concerns they may have and to engage in training programmes actively.	**Knowledge of the policy:** Possess comprehensive knowledge of the company's policies and procedures, particularly their roles and responsibilities.
	Human Resources informs employees of the policy during onboarding and works with leadership to develop and execute the policy.	**Policy Communication and Accessibility** • Ensuring that the policy is effectively conveyed to every employee through clear communication.	**Training Completion Rates:** Monitor the rates at which health and safety training programmes are completed. **Employee Competency:** Evaluate employee

		• Developing and implementing training programmes to educate employees on policy guidelines. • Ensuring that policy documents are accessible to every employee.	understanding and competency in applying policy guidelines.
Indicator			
1. Number of employees who have been informed and trained.			

Level 1: Incidents Investigation

Project implementers ought to have established protocols for investigating incidents. A thorough incident investigation is crucial for understanding accident causes, preventing recurrence, improving safety protocols, and fostering a culture of continuous improvement in workplace incidents.

Stakeholder	Participants	Proposed Actions	Expected Results
1. Funders	**Programme Managers:** Individuals overseeing funding programmes and monitoring project performance. **H&S Advisors/Specialists:** Experts providing technical guidance on incident investigation procedures and best practices.	**Mandate Incident Investigation Protocols:** Require project implementers to establish clear and comprehensive incident investigation protocols that align with industry standards and best practices.	**Continuous Improvement:** Lessons learned from incident investigations are used to improve H&S policies, procedures, and practices continuously and across programmes.
2. Regulators	**Incident Investigation Specialists:** Experts who may be called upon to assist in complex or high-impact incident investigations.	**Provide Guidance and Support:** Offer technical assistance and guidance to project implementers on conducting effective incident investigations.	**Effective Corrective Actions:** Investigation findings lead to the implementation of appropriate corrective and preventive actions to prevent recurrence across the sector
3. EPCs, Developers, Manufacturers	**Leadership and Management** endorses the importance of incident investigations.	**Ensuring Effective Investigations** • Allocating the necessary resources for investigations. • Endorsing and supporting incident investigations.	**Feedback Utilisation:** Use feedback from incident investigations for continuous improvement.
	Incident Investigation Team comprises safety-specialised personnel, representatives from pertinent departments, and potentially external consultants.	**Collaboration Throughout Investigations** • Utilising root cause analysis. • Conducting interviews. • Reconstructing timelines.	**Reduction in Similar Incidents:** Measure a reduction in incidents like the one under investigation. **3. Timely Regulatory Reporting:** Measure the timeliness and accuracy

			of regulatory incident reporting.
	Project Implementation Staff cooperate with investigators throughout the investigation process and provide firsthand accounts.	**Contributing Insights and Improvement Suggestions** • Providing firsthand accounts. • Cooperating with investigators. • Suggesting improvements.	**Employee Awareness:** Evaluate employee awareness regarding incident causes and preventive measures.
	Health and Safety professionals spearhead or partake in incident investigations based on their expertise.	**Identification of Corrective Actions.** • Leading or participating in investigations. • Providing safety expertise.	**Updates to Procedures:** Update safety procedures based on lessons learned from incident investigations. **6. Effectiveness of Corrective Actions:** Assess the effectiveness of implemented corrective and preventive actions.
Indicator			
1. Total number of completed investigations.			

Level 1: Risk Management

Project implementers must adopt a robust risk management strategy. A robust risk management process is essential for identifying, assessing, and mitigating potential threats to an organisation's objectives, minimising uncertainties, protecting assets, and ensuring operational continuity amidst various risks.

Stakeholders	Participants	Proposed Actions	Expected Results
1. Funders	**Programme Managers:** Individuals overseeing funding programmes and monitoring project performance.	**Provide Guidance and Training:** Offer technical assistance and training resources to project implementers on risk management methodologies and tools. **Monitor Risk Management Performance:** Include risk	**Improved Decision-Making:** Risk management information informs decision-making at all levels of the project, leading to more informed and strategic choices.

		management performance as part of the ongoing project monitoring and evaluation process.	
2. Regulators	**Risk Management Experts:** Specialists who can provide guidance on risk assessment and mitigation strategies specific to the sector.	**Establish Risk Management Guidelines:** Develop and disseminate guidelines and best practices for risk management	**Industry-wide Learning:** Lessons learned from risk management practices and incidents are shared across the energy access sector to promote continuous improvement.
3. EPCs, Developers, Manufacturers	**Leadership:** is responsible for overseeing the development and implementation of the risk management process.	**Risk Management Strategy** • Setting the risk tolerance and communicating all risk-related expectations. • Adapting the risk management strategy continuously based on lessons learned and changing organisational dynamics.	**Adaptation to Change:** Assess the capacity of the organisation to modify its risk management strategy in light of internal or external developments. **Learning from Incidents:** Implement changes based on insights gained from past incidents or risk events.
	Health and Safety Professionals and other professionals comprised of individuals with expertise in different areas to collectively assess risks and collaborate with other departments to ensure comprehensive risk coverage.	**Risk Management** • Analysing historical data for recurring patterns. • Using risk management software for systematic identification. • Analysing potential impact and likelihood of identified risks. • Implementing a risk matrix for prioritising risks. • Conducting scenario analyses to understand outcomes. • Developing mitigation strategies. • Creating contingency plans for high-impact risks. • Securing insurance coverage for specific risks.	**Reduction in High-Impact Incidents:** Measure a reduction in incidents with significant impact. **Successful Contingency Execution:** Assess contingency plans' effectiveness in real-life or simulated crises. **Insurance Claim Analysis:** Assessment of insurance coverage effectiveness and utilisation. **Timely Identification:** Prompt risk identification to prevent escalation. Regularly update the risk matrix to account for evolving risk profiles.
	Project Implementation Staff adhere to established protocols to mitigate	**Workshops and Brainstorming:**	**Employee Involvement:** Assess the level of employee involvement in

	risks associated with their respective roles and actively participate in risk identification and reporting.	• Conducting workshops involving relevant stakeholders to identify potential risks.	the risk management process.
Indicator			
1. Risk Matrix Update Frequency			

Level 2: Staff Training

Project implementers must provide continuous H&S education to staff**.** Comprehensive safety and health training is crucial for a secure work environment, promoting well-being, ensuring compliance with regulations, and empowering staff to identify and prevent workplace hazards.

Stakeholders	Participants	Proposed Actions	Expected Results
2. Regulators	**Capacity Building Specialists:** In charge of developing and disseminating resources and organising trainings	**Offer Training Resources and Support:** Provide access to training materials, resources, and expertise to assist project implementers in developing and delivering high-quality training programmes. **Support Competency Development:** Organise specialised safety-related skills development for their employees or encourage project implementers to invest in them.	**Enhanced Sector Competence:** All different participants demonstrate a high level of H&S knowledge and skills, enabling them to perform their tasks safely and contribute to a proactive safety culture as well as increase regulatory compliance.
3. EPCs, Developers, Manufacturers	**Leadership and Management** endorses the execution of safety and health training and effectively communicates the organisation's commitment to the welfare of its employees.	**Needs Assessment** • Identifying safety and health training needs.	**Audit Results:** Evaluate audit results related to safety and health compliance.
	Health and Safety Professionals conduct training sessions based on their expertise and continuously revise training materials to align with ever-changing safety regulations.	**Training Module Development** • Developing tailored training to the organisation's industry and risks. • Maintaining comprehensive documentation of training sessions for compliance. • Updating training contents to reflect regulatory changes.	**Quiz and Assessment Scores:** Assess staff comprehension through quiz and assessment scores. **Observation Checklists:** Use observation checklists to evaluate the application of safety practices in the workplace. **Documented Training Records:** Maintain

			accurate and up-to-date records of staff training.
	Project Implementation Staff actively participate in training sessions to augment their awareness and skills and apply the knowledge gained to contribute to a safer work environment.	**Skill Development for Staff** • Offering specialised safety-related skills development.	**Feedback Mechanism:** Implement a feedback mechanism to gather insights for continuous improvement.
Indicator			
1. Participation Rates: Measure the participation rates in training sessions.			

Level 2: Emergency Preparedness

Project implementers must proactively prepare for potential emergencies to safeguard individuals, minimise property damage, and ensure operational continuity. This involves developing and implementing comprehensive emergency response plans, conducting regular drills and training, and establishing clear communication protocols.

Stakeholders	Participants	Proposed Actions	Expected Results
3. EPCs, Developers, Manufacturers	**Leadership and Management:** develops and communicates emergency preparedness policies and procedures, allocates resources for preparedness initiatives, and leads emergency response planning.	**Emergency Communication and Resource Management** • Establishing clear communication channels and protocols. • Ensuring the availability of necessary resources. • Allocating budgets, overseeing inventory, and maintaining resources.	**Regular audits** of resource inventory, quick access during drills, and minimal downtime in resource replenishment.
	Health and Safety Professionals is equipped with the knowledge and skills necessary to ensure the safety of employees, conduct regular drills, and implement emergency response plans.	**Emergency Response Planning Process** • Develop comprehensive plans, including evacuation procedures and communication protocols. • Involving leadership in the planning process. • Conducting regular reviews and updates. • Conducting training sessions and drills. • Defining communication strategies and implementing plans.	**Timely evacuation**, proper use of emergency resources, and adherence to communication protocols. **Timely dissemination of information**, clarity in communication channels, and proper use of communication tools.
	Project Implementation Staff actively participate in emergency preparedness training, follow established procedures during emergencies, and contribute to a culture of safety awareness.	**Emergency Response Practices** • Participating actively in drills. • Adhering to evacuation procedures. • Providing continuous feedback for improvement.	**Training participation rates**, adherence to evacuation procedures, and employee feedback on emergency preparedness.

	Human Resources communicates emergency procedures to employees, coordinates training programmes, and ensures that personnel records are up to date for emergency contact.	**Training Coordination** • Coordinating training, emergency response teams, and employees.	**Evaluate the impact of training programmes** on staff's ability to respond to emergencies. Improved response times, increased knowledge of procedures, and enhanced drill coordination.
Indicator			
1. Number of drills conducted per year for the project.			

Level 2: Workplace Safety Programmes

Project implementers should establish proactive workplace safety programmes to cultivate a safety-conscious culture and minimise workplace hazards. This involves going beyond basic compliance and actively engaging all employees in safety initiatives such as identifying preventive measures, introducing a safety committee, comprehensive training, and a cultural commitment to safety.

Stakeholders	Participants	Proposed Actions	Expected Results
3. EPCs, Developers, Manufacturers	**Leadership and Management** and a dedicated group representing various departments, oversee and implement workplace safety initiatives.	**Safety Committee Role** • Organising training sessions involving safety officers. • Implementing various training methods. • Ensuring clear communication. • Reinforcing safety messages within teams. **Safety Culture** • Prioritising safety in communications • Integrating safety into the team's values.	**Compliance audit results**, completion of safety training, and inspection findings. **Employee feedback,** participation in safety initiatives, and visible commitment from leadership.
	Health and Safety professionals who possess expertise in safety procedures play a direct role in enforcing safety protocols and conducting inspections.	**Risk Assessment and Inspection Process** • Regular risk assessments. • Employee involvement in hazard identification. • Implementation of corrective measures. • Regular inspections involving employees and collaborating with managers.	**Safety and Health Manual:** central participatory repository of information and guidance for maintaining a safe and healthy work environment
	Project Implementation Staff actively engage in safety practices and adhere to established safety guidelines.	**Safety Training for Employees** • Reporting of hazards and unsafe conditions. • Implementing learned safety practices in daily tasks.	**Employee involvement in safety committees**, suggestion box submissions, and active participation in training.
Indicator			
1. Incident reports, injury rates, and near-miss occurrences.			

Level 3: Documentation Record-Keeping

At this advanced level, project implementers establish meticulous documentation and record-keeping practices to ensure thorough traceability and accountability in H&S management. This involves maintaining detailed records of all safety-related activities, including training and competency records, equipment and maintenance logs, incident reports and investigations, and safety audits and inspections. By implementing robust documentation and record-keeping practices, project implementers can demonstrate their commitment to H&S, facilitate audits and inspections, and support continuous improvement efforts.

Stakeholders	Participants	Proposed Actions	Expected Results
2. Regulators	**Inspectors and Auditors: Individuals** responsible for assessing project compliance with H&S regulations and standards.	**Establish Documentation Requirements:** Define clear and specific documentation and record-keeping requirements for project implementers, outlining the types of records that must be maintained and their retention periods.	**Transparency and Accountability:** Robust record-keeping practices promote transparency and accountability, allowing regulators to track project performance, audit more efficiently and identify areas for intervention.
3. EPCs, Developers, Manufacturers	**Leadership and Management** are responsible for disseminating and adhering to health and safety policies and overseeing safety-related activity documentation within their teams.	**Promoting Safety Culture** • Demonstrating commitment to safety. • Conducting regular safety meetings. • Communicating safety information. • Addressing safety concerns. Encouraging open dialogue for continuous improvement.	**Audit results**, regulatory compliance, and documentation of corrective actions. **Equipment maintenance logs**, inspection records, and minimal downtime due to equipment issues.
	Health and Safety Professionals oversee health and safety compliance, conduct inspections, and manage documentation.	**Equipment Tracking and Training Management** • Tracking equipment inspections and issues. • Ensuring timely maintenance. • Maintaining training records and keeping the team up to date.	
	Project Implementation Staff actively participate	**Workplace Safety Reporting Environment**	

	in implementing safety protocols, incident reporting, and adherence to health and safety policies.	• Create an environment where reporting is seen as a proactive contribution to the overall safety of the workplace. • Provide feedback and suggest improvements. • Promptly notifying managers of safety-related issues.	
Indicator			
1. Percentage of Safety Incidents with Proper Documentation			

C7. CHECK PHASE

The "Check" phase embodies the vital role of community oversight and feedback in ensuring the effectiveness and sustainability of H&S practices in energy access projects. It's where the Local Community (direct and indirect end users, clients, appliance buyers, and the broader community), actively assesses and monitors the project's impact on their safety and well-being. This phase involves surveillance and feedback, active assessment, compliance advocacy, collaboration and communication. This inclusive approach enhances safety awareness, builds trust, strengthens the project's social license to operate, and promotes a sense of ownership within the community.

The community can identify potential health and safety risks and provide feedback on the effectiveness of preventive measures implemented by employers and relevant authorities. Additionally, the community can exert pressure to ensure compliance with health and safety regulations and advocate for safe and sustainable work practices that benefit all involved. Community engagement in the "Check" phase involves active assessment and ongoing collaboration to ensure a safe and healthy work environment.

Level 1: Feedback and Reporting

At this foundational level, project implementers prioritise establishing open and accessible channels for community feedback and reporting regarding health and safety concerns. This involves actively engaging with the local community, including direct and indirect end users, clients, appliance buyers, and other stakeholders, to ensure their voices are heard and their concerns are addressed.

Stakeholders	Participants	Proposed Actions	Expected Results
3. EPCs, Developers, Manufacturers	**Leadership and Management:** Oversee the implementation of community engagement and feedback processes.	**Community Engagement Programmes** • Organising meetings, forums, or outreach events for feedback and safety information sharing. • Creating feedback mechanisms such as dedicated hotlines, online portals, or liaison officers for timely feedback responses. • Reporting safety hazards directly to the workplace health and safety team.	**Attendance at community meetings**, participation in feedback surveys, and engagement with outreach events. **Community members'** understanding of health and safety principles, awareness of safety hazards, and knowledge of reporting procedures. **Time is taken to acknowledge and resolve community-reported** safety concerns and feedback on the effectiveness of response mechanisms.
4. Local Communities	**Community members and direct end users** impacted by the project's operations provide valuable insights and feedback concerning health and safety.		
Indicator			
1- Number of meetings with the community			

Level 2: Education and Awareness

Project implementers actively engage with the community to foster health and safety education and awareness. This goes beyond merely providing information; it aims to empower community members to understand, identify, and respond to potential H&S risks associated with the project.

<table>
<tr><th>Stakeholders</th><th>Participants</th><th>Proposed Actions</th><th>Expected Results</th></tr>
<tr><td>3. EPCs, Developers, Manufacturers</td><td>Health and Safety Professionals oversee education and awareness campaigns targeting community members</td><td rowspan="2">Health and Safety Practices
Regular training sessions inviting experts and conducting interactive activities to enhance understanding.
Using various communication channels, including posters, social media, and community events, to disseminate information on safety practices.
Conducting joint emergency response drills for active collaboration between the workplace and the community.</td><td rowspan="2">Pre- and post-assessment results, participation rates in education programmes, and feedback on knowledge gained.

Observations of safe practices, community involvement in safety initiatives, and increased reporting of safety concerns.

Success rates in joint safety drills, community feedback on emergency response readiness, and improvements in response times.</td></tr>
<tr><td>4. Local Communities</td><td>Community members and direct end users impacted by the project's operations provide valuable insights and feedback concerning health and safety.</td></tr>
<tr><th colspan="4">Indicator</th></tr>
<tr><td colspan="4">1- Number of participants in training sessions.
2- Number of campaigns organised for the community.</td></tr>
</table>

Level 3: Participation in Training Programmes

At this advanced level, project implementers actively involve the community in specialised health and safety training programmes. This empowers community members to take ownership of their safety and well-being, fostering a sense of shared responsibility for a secure and healthy environment

<table>
<tr><th>Stakeholders</th><th>Participants</th><th>Suggested actions</th><th>Expected results</th></tr>
<tr><td>3. EPCs, Developers, Manufacturers</td><td>Health and Safety Professionals Provide specialised knowledge on the project's technologies and associated risks, contributing to the development of relevant training content.</td><td rowspan="2">Community Training and Collaboration
Design and conduct targeted training sessions engaging community members in interactive learning experiences.
Organise workshops/seminars for collaborative learning.
Create user-friendly online modules/sessions for flexible participation.</td><td rowspan="2">Assessment results, participation rates, and feedback on the effectiveness of training programmes.

Increased involvement in safety initiatives, confident application of safety practices, and participation in collaborative projects.

Collaboration in training events, positive feedback on shared learning experiences, and increased trust and communication.</td></tr>
<tr><td>4. Local Communities</td><td>Community members and direct end users participate actively in specialised health and safety training programmes.</td></tr>
<tr><th colspan="4">Indicator</th></tr>
<tr><td colspan="4">1- Number of specialised people</td></tr>
</table>

C8. ACT PHASE

The "Act" phase represents the continuous improvement stage of the H&S framework. It's where all stakeholders, including funders, regulators, project implementers, and the community, collaborate to analyse findings from the previous phases and take corrective and preventive actions. This phase is crucial for ensuring that H&S practices evolve and adapt to address emerging challenges and lessons learned. Key activities during this phase include:

- Analysing Data and Feedback: Reviewing data from incident reports, inspections, audits, and community feedback to identify trends, root causes, and areas for improvement.
- Implementing Corrective and Preventive Actions: Taking concrete steps to address identified issues, such as updating policies, providing additional training, or modifying work processes.
- Revising and Updating H&S Plans: Continuously refining H&S strategies, policies, and procedures based on lessons learned and evolving best practices.
- Monitoring and Evaluation: Implementing ongoing monitoring and evaluation mechanisms to track the effectiveness of H&S initiatives and identify areas for further improvement.

In essence, the "Act" phase is about learning and adapting. It's where the H&S framework becomes a dynamic tool for continuous improvement, ensuring that safety remains a top priority throughout the project lifecycle.

<table>
<tr><th>Stakeholders</th><th>Participants</th><th>Interventions</th><th>Outcome</th></tr>
<tr><td>1. Funders</td><td>Financial Officers: responsible for resource allocation for the project.</td><td>Allocate resources for corrective actions: Provide additional funding or adjust existing budgets to support the implementation of corrective and preventive actions identified in the "Check" phase.

Incentivise H&S improvements: Offer financial incentives or rewards to project implementers who demonstrate a commitment to continuous H&S improvement.</td><td rowspan="3">Continuous Improvement: The "Act" phase drives ongoing improvement in H&S performance, ensuring that projects adapt to new challenges and lessons learned.

Enhanced Safety Culture: Regular reviews and corrective actions reinforce a proactive safety culture where all stakeholders are committed to continuous improvement.

Sustainable H&S Practices: Financial support and performance reviews contribute to the long-term sustainability of H&S initiatives, ensuring their effectiveness</td></tr>
<tr><td>2. Regulators</td><td rowspan="2">All different levels of participants should be involved</td><td rowspan="2">Conduct regular reviews: Establish a system for periodic reviews of H&S performance, involving all stakeholders to assess</td></tr>
<tr><td>3. EPCs, Developers, Manufacturers</td></tr>
</table>

4. Local Communities		progress, identify challenges, and share lessons learned. **Evaluate effectiveness of interventions**: Analyse data and feedback to determine the effectiveness of implemented H&S measures and identify areas for adjustment. **Update roles and responsibilities:** Revise roles and responsibilities as needed to ensure clear accountability and effective H&S management.	throughout the project lifecycle.

C9. H&S INDICATORS GUIDE

To facilitate effective monitoring and evaluation of H&S performance, this framework incorporates a set of key indicators tailored to each activity and implementation level. These indicators serve as benchmarks to track progress, identify areas for improvement, and ensure that H&S objectives are being met. The following table provides an overview of these proposed indicators and their suggested periodicity. It is important to note that these indicators are adaptable and can be further refined or customised to align with the specific context of each project, considering factors such as the project's scale, complexity, and the specific risks involved.

INDICATORS FOR HEALTH AND SAFETY				
Activities	Level	Indicator	Periodicity	Remarks
Funders				
Compliance with Local and International Standards	**1**	Number of complaints or instances of non-compliance identified during government audits or follow-ups.	Quarterly	
Safety Mindset, Engagement, Motivation	**1**	Participation rate in safety training sessions.	Monthly	
	1	Completion of Training Programmes.	Annually	
	1	Staff turnover rate.	Annually	
Responsibilities and Performance-Based Reward Scheme	**2**	Overall satisfaction level.	Annually	
	2	Task Completion Rate Indicator.	Monthly	
Health and Safety Strategy	**3**	Monitoring the effectiveness of risk management strategies based on dashboard insights.	Monthly	
EPC, Developer, Manufacturer				
Health and Safety Policy	**1**	Number of employees who have been informed and trained.	Monthly	
Incident Investigation	**1**	Total number of completed investigations.	Quarterly	
Risk Management	**1**	Risk Matrix Update Frequency.	Annually	
Staff Trainings	**2**	Participation Rates.	Monthly	
Emergency Preparedness	**2**	Several drills are conducted per year for the project.	Annually	
Workplace Safety Programs	**2**	Incident reports, injury rates, and near-miss occurrences.	Monthly	
Documentation Record-Keeping	**3**	Percentage of Safety Incidents with Proper Documentation.	Quarterly	
Local Community				
Feedback and Reporting	**1**	Number of meetings with the community.	Monthly	
Education and Awareness	**2**	Number of participants in training sessions.	Quarterly	
	2	Several campaigns were organised for the community.	Quarterly	

Participation in Training Programmes	**3**	Number of specialised people.	Quarterly	

C10. H&S ACCOUNTABILITY RACI

The following RACI (Responsible, Accountable, Consulted, Informed, Driver) diagram provides a clear overview of the roles and responsibilities of various stakeholders in implementing the specific tasks outlined in this framework. It clarifies who is **Accountable** for completing each task, who is **Responsible** for executing it, who should be **Consulted** for input, who needs to be Informed of progress, and who will **Drive** or lead the task to completion. This table builds on the core responsibilities presented in the introductory section.

Responsibilities	Funders	Regulators	Leadership and Managers	Human Resources	Compliance and Legal Team	H&S professionals	Project Implementation Staff	Entity main Leader	Local Community	External Stakeholders
Level 1										
Compliance with Local and International Standards	A	C	R		S	C		I		
Risk Management		C	A			R	I	S		
Incidents Investigations		R			S	R	D	A		
H&S Policy	A	I		S		S	I	R		
Education and Awareness		I	A			R			D	D
Feedback and Reporting	I		I			A			R	R
Level 2										
Responsibilities and Performance-Based Rewards Scheme	C		A	R			I	C		
Workplace Safety Programmes		I	R	R		R	S	A		
Emergency Preparedness		C	A	S	S	R	I	S		
Staff Training		C				R	I	S		
Level 3										
H&S Strategy	I	I	A	S		R	I	D		
Participation in Training		C				A			R	R
Documentation Record-keeping	I	I	R			C	D	A		
Other aspects to be considered										
Social Safeguards	A	C	R	R			I	R	I	I
Environmental Safeguards	A	C	R			R		I	D	D

D	Driver	Assists those who are responsible for a task.
R	Responsible	Assigned to complete the task or deliverable.
A	Accountable	Has final decision-making authority and accountability for completion.
S	Support	Provides support during implementation.
C	Consulted	An adviser, stakeholder, or subject matter expert who is consulted before a decision or action.
I	Informed	Must be informed after a decision or action.

D. Decision Trees

These Decision Trees have been developed to facilitate the effective utilisation of this framework, considering key inputs specific to the technologies under consideration. The primary objective of these decision trees is to guide stakeholders, notably funders and developers, in identifying the appropriate stage of the framework for integrating health and safety protocols and practices across the spectrum of seven energy access technologies identified as part of the TEA programme, that can nevertheless be implemented in any energy access project. These technologies encompass clean cooking, energy networks and systems, productive uses, E-mobility, mini-grids, appliances, energy storage and batteries. The subsequent figures illustrate the decision trees tailored to each technology.

D1. Clean Cooking

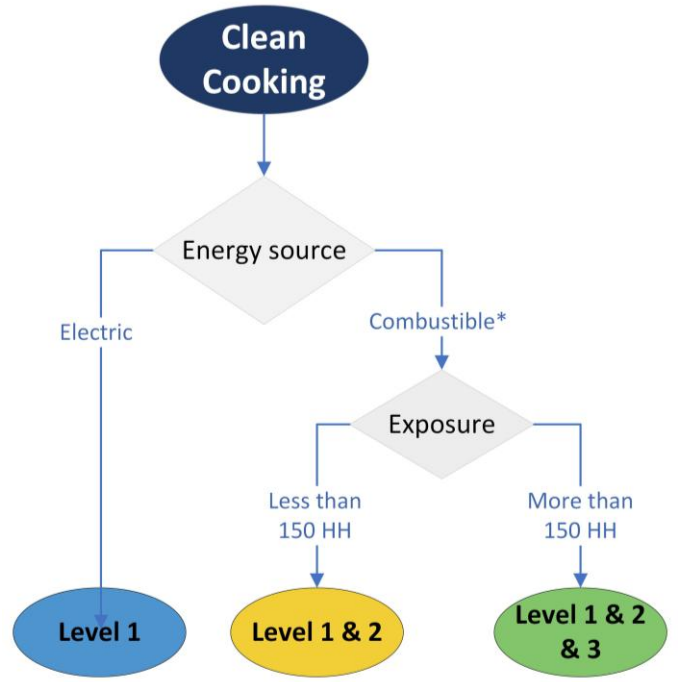

Figure 4. Decision Tree for Clean Cooking

* Combustible: Biofuels, Biomass, LPG, etc.

D2. ENERGY NETWORKS & SYSTEMS

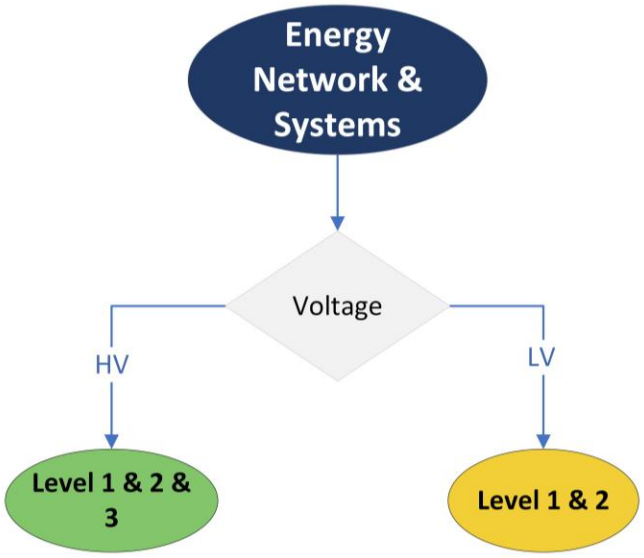

Figure 5. Decision Tree for Energy Networks & Systems

D3. E-MOBILITY

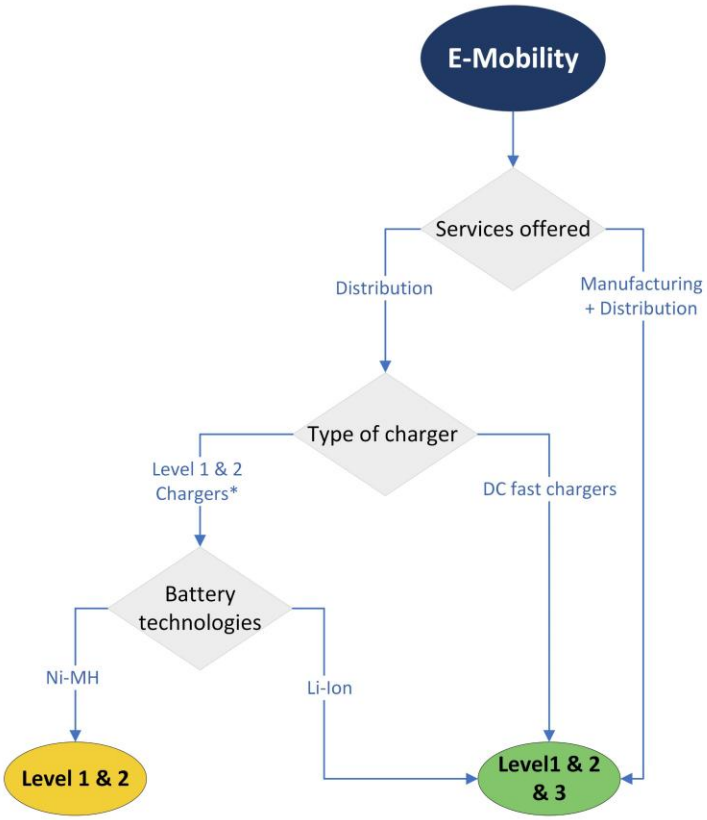

Figure 6. Decision Tree for E-Mobility

* Level 1 charger: Power output up to 3.7 kW.
Level 2 charger: Power output ranges from 3.7 to 22 kW.
DC fast charger: Power output more than 22kW. [1]

[1] Based on the U.S. Department of Transportation classification of Electrical Chargers: https://www.transportation.gov/urban-e-mobility-toolkit/e-mobility-basics/charging-speeds

D4. MINI-GRIDS

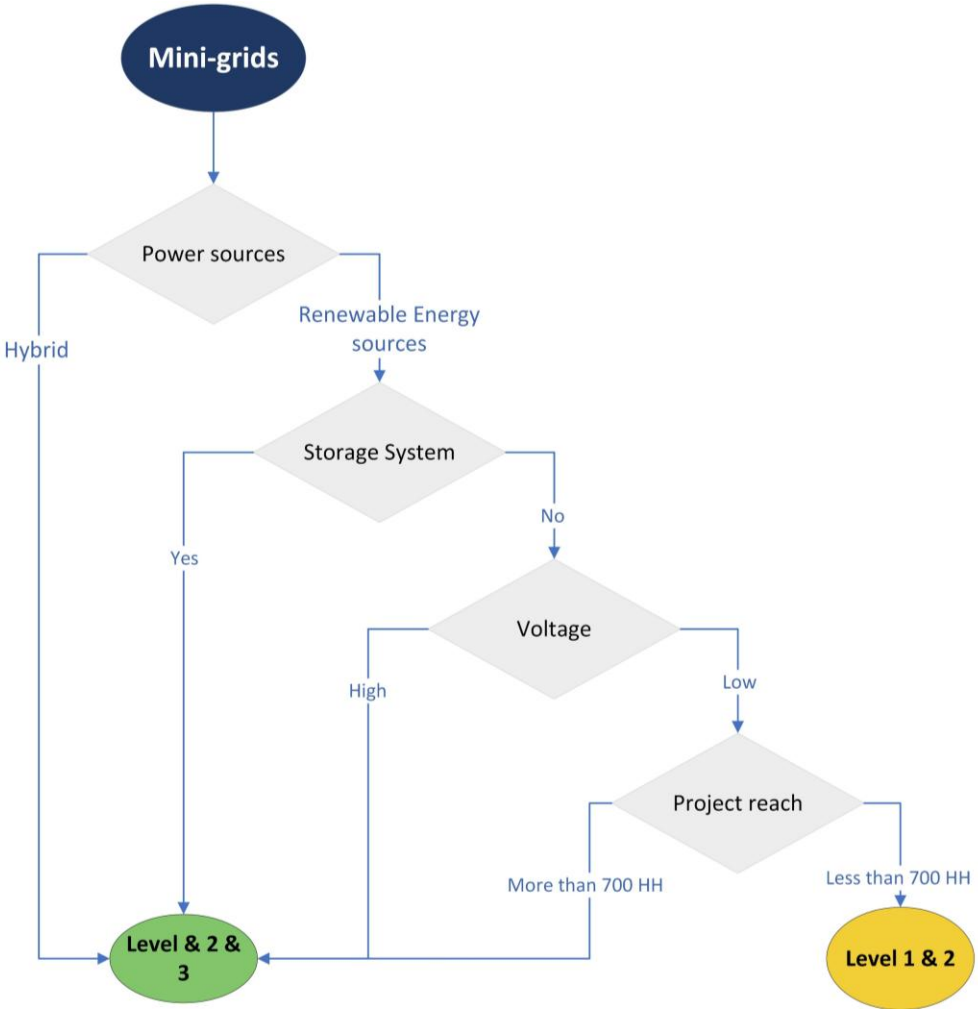

Figure 7. Decision Tree for Mini-grids

Hybrids encompass any combination of fossil fuels and renewable energy sources or different renewable energy sources.

D5. APPLIANCES

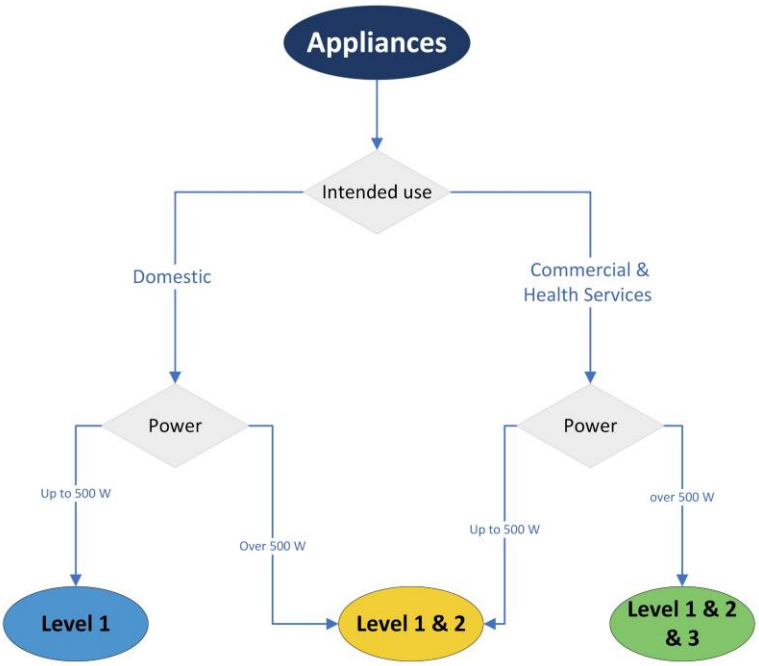

Figure 8. Decision Tree for Appliances

D6. PRODUCTIVE USES OF ENERGY

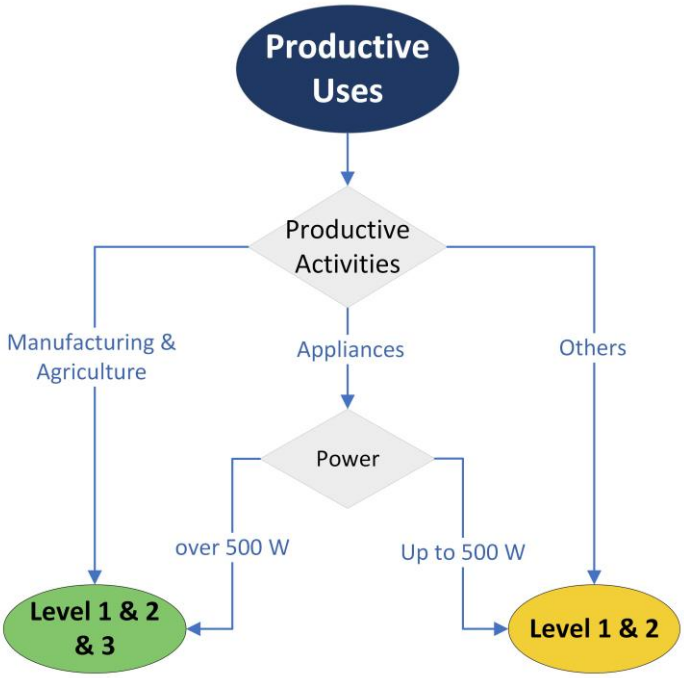

Figure 9. Decision Tree for Productive Uses

D7. ENERGY STORAGE AND BATTERIES

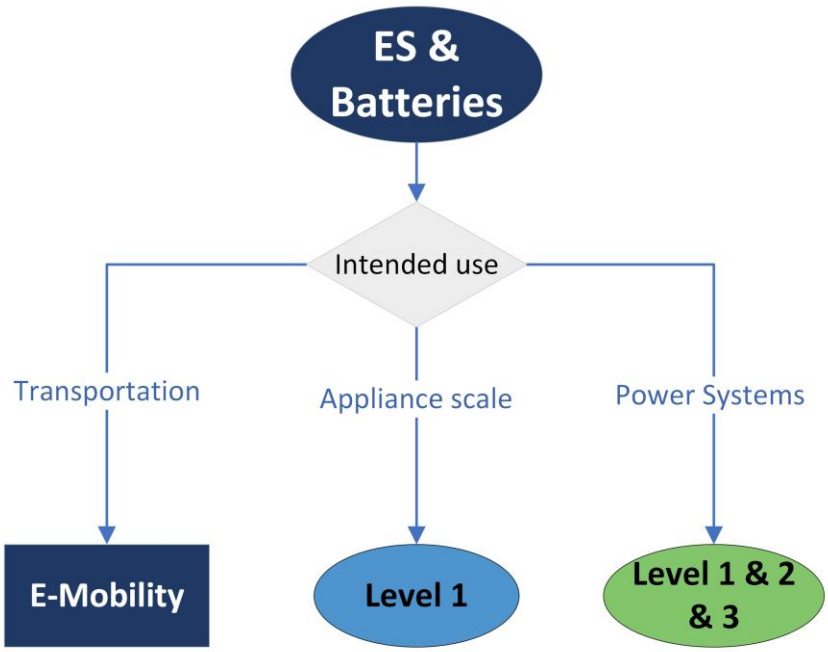

Figure 10. Decision Tree for Energy Storage and Batteries

E. H&S RISK HEAT MAP

Recognising that effective risk management is fundamental to ensuring the safety and success of energy access projects, this framework incorporates a practical visual tool known as the H&S Risk Heat Map. This heat map serves as a practical aid for identifying, assessing, and prioritising potential safety hazards associated with the analysed energy access technologies. Furthermore, it proposes a classification of risks that could be adapted to any project.

Understanding the Heat Map

A risk heat map is a straightforward visual tool that uses colours to represent different levels of risk associated with various aspects of a project or environment. The darker shades (reds) indicate higher risks, while lighter shades (yellows) represent lower risks. The primary aim of a risk heat map is to provide a clear and easy-to-understand illustration of the risks present in the project or environment. This enables project stakeholders to prioritise and manage identified risks effectively, allowing them to make informed decisions to mitigate them adequately.

In summary, the risk heat map is crucial for several reasons:

1- Hazard identification: They allow for identifying and understanding potential hazards that may affect an organisation, project, or activity.
2- Risk prioritisation: Risk heat maps are efficient tools that help prioritise risks according to their probability and consequence, enabling resources to be focused on areas of higher risk.
3- Informed decision-making: Risk heat maps are not just data visualisations. They are decision-making tools that provide key information for making informed decisions about managing identified risks effectively and efficiently.
4- Regulatory compliance: They help comply with legal and regulatory requirements related to risk management by ensuring that potential risks are identified and addressed appropriately.

Risk mapping is essential for proactively managing risks, ensuring safety, business continuity, and meeting organisational objectives. To create a risk heat map, factors such as the likelihood of a risk event occurring and the potential consequences of such an event are evaluated. These factors are weighted and combined to calculate an overall level of risk for each element, area, or situation, which is then visualised on the heat map.

Several factors are considered to provide a comprehensive assessment of risk levels in different energy access sectors:

1- Stakeholder Information: Information from relevant stakeholders, such as local communities, governmental organisations, and energy sector companies, is collected and analysed. This information helps understand stakeholders' concerns and perspectives on the risks associated with energy access projects.

2- Bibliographic and Official Risk Analysis in Sectors: Previous risk analyses conducted by experts and official organisations in relevant energy sectors are reviewed and studied. These analyses provide insights into historical and potential risks associated with energy access activities.
3- Expert Evaluator Experience and Knowledge: Expert evaluators' expertise and knowledge in energy and risk management are leveraged. These experts bring technical and practical perspectives that help identify and assess risks associated with energy access projects.
4- Field Visits to Key Energy Activities: Field visits to major energy-related activities, such as power plants, distribution infrastructure, and energy development zones, are conducted. These visits allow for a direct assessment of risks on the ground and provide detailed information for heat map development.

Various factors are meticulously evaluated and integrated to create a comprehensive heat map that indicates the risk levels across different energy access sectors. This heat map can be an effective tool for making informed decisions and proactively managing risks. The assessment of risk involves the evaluation of both the probability and consequence associated with a particular hazard. The following graphic illustrates the type of risk evaluation involved in the process:

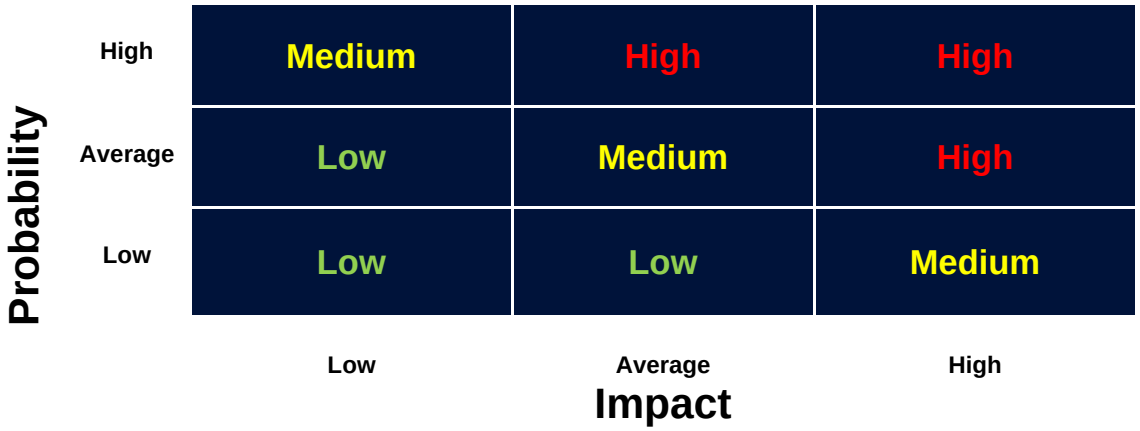

Figure 11 Probability vs impact in risk assessment

The probability consequence method is used in risk assessment to determine the severity of an event and its likelihood of occurrence. This method involves assessing the probability of an event occurring and the consequences that would result if that event were to happen. Then, the probability is multiplied by the consequences to calculate a risk level.

For example, if there is a high probability of an event occurring but the consequences are relatively minor, the risk may be considered moderate. On the other hand, if the consequences are severe but the probability of the event occurring is low, the risk may also be moderate.

This approach has been widely used in health and safety due to its simplicity and ability to address workplace hazards effectively. It has proven to be a valuable tool for assessing and managing risks in the workplace, providing a clear and practical methodology for improving worker safety and health.

Development and Methodology

The identification and assessment of risks presented in the heat map below are grounded in a multi-faceted approach, drawing upon insights from stakeholder interviews, extensive literature review, expert knowledge, and field visits.

A total of 47 risks were evaluated across the seven selected technologies and three key activities, each classified as Low (Green), Medium (Yellow), or High (Red), to understand their level of impact. Over 320 risks were assessed considering all technologies, with more than 135 identified as medium risks, 12 as high risks, and the remaining categorised as low risks.

It's important to recognise that the H&S Risk Heat Map is a flexible tool, not a one-size-fits-all solution; it seeks to serve only as a guide. It should be adapted and customised to reflect the specific geographical location, technology used, and unique characteristics of each project. By tailoring the heat map to the project's context, stakeholders can ensure that it accurately reflects their specific risks and guides them towards effective risk management strategies.

Recommended Resources for Risk Management

The following references provide a deeper dive into the concepts and methodologies underpinning this Health and Safety framework. They offer valuable insights for those seeking to further explore the complexities of health and safety management, risk assessment, and stakeholder engagement within the energy access sector.

- Reese, C. D. Occupational Health and Safety Management: A Practical Approach (3rd ed.). CRC Press, 2018"Risk Management: Concepts and Guidance" by Carl L. Pritchard
- Institution of Civil Engineers and the Actuarial Profession. Risk Analysis and Management for Projects. ICE Publishing, 2005.
- Ayyub, Bilal M. Risk Analysis in Engineering and Economics (2nd ed.). Chapman and Hall/CRC, 2014.
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E1. H&S Risk Heat Map Table

HEALTH AND SAFETY RISK HEAT MAP										
TECHNOLOGY ▶ / RISK ▼	Clean Cooking	Energy	Mini-Grids	Energy Storage and Batteries	Productive Uses	E-mobility	Electrical Appliances	Construction	Logistics	Transport
CHEMICAL HAZARDS										
Acute Toxicity										
Inorganic Powders										
Organic Powders										
Fibers										
Metal Fumes										
Liquids (Mists y Vapors)										
Fumes and Vapors										
PHYSICAL HAZARDS										
Lighting										

HEALTH AND SAFETY RISK HEAT MAP

TECHNOLOGY ▶ / RISK ▼	Clean Cooking	Energy	Mini-Grids	Energy Storage and Batteries	Productive Uses	E-mobility	Electrical Appliances	Construction	Logistics	Transport
Thermal discomfort due to heat										
Noise										
Vibrations										
Ionizing Radiation										
No Ionizing Radiation										
BIOHAZARDS										
Contact with microorganisms										
Exposure to insect or animal bites										
Exposure to fluids or excrement										

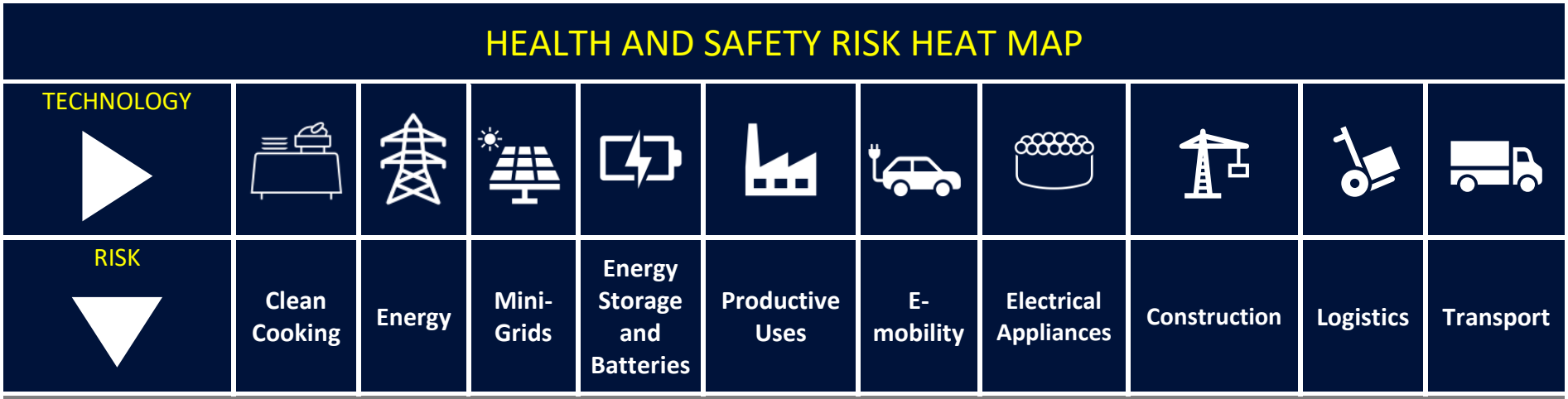
HEALTH AND SAFETY RISK HEAT MAP

TECHNOLOGY ▶ / RISK ▼	Clean Cooking	Energy	Mini-Grids	Energy Storage and Batteries	Productive Uses	E-mobility	Electrical Appliances	Construction	Logistics	Transport
CONTENT AND ORGANISATION OF WORK										
Labor demand										
Social Relationships										
Control over work										
Work Shifts										
ERGONOMICS										
Awkward postures										
Extreme strength										
Repetitive movements										
Manual handling of loads										

HEALTH AND SAFETY RISK HEAT MAP

TECHNOLOGY ▶ / RISK ▼	Clean Cooking	Energy	Mini-Grids	Energy Storage and Batteries	Productive Uses	E-mobility	Electrical Appliances	Construction	Logistics	Transport
LOCATIVE AND STRUCTURAL										
Ground instability										
Structure instability										
Overcrowding										
Space distribution										
Confined spaces										
Human safety and its components										
Falls from different levels										
Order and cleanliness										

HEALTH AND SAFETY RISK HEAT MAP



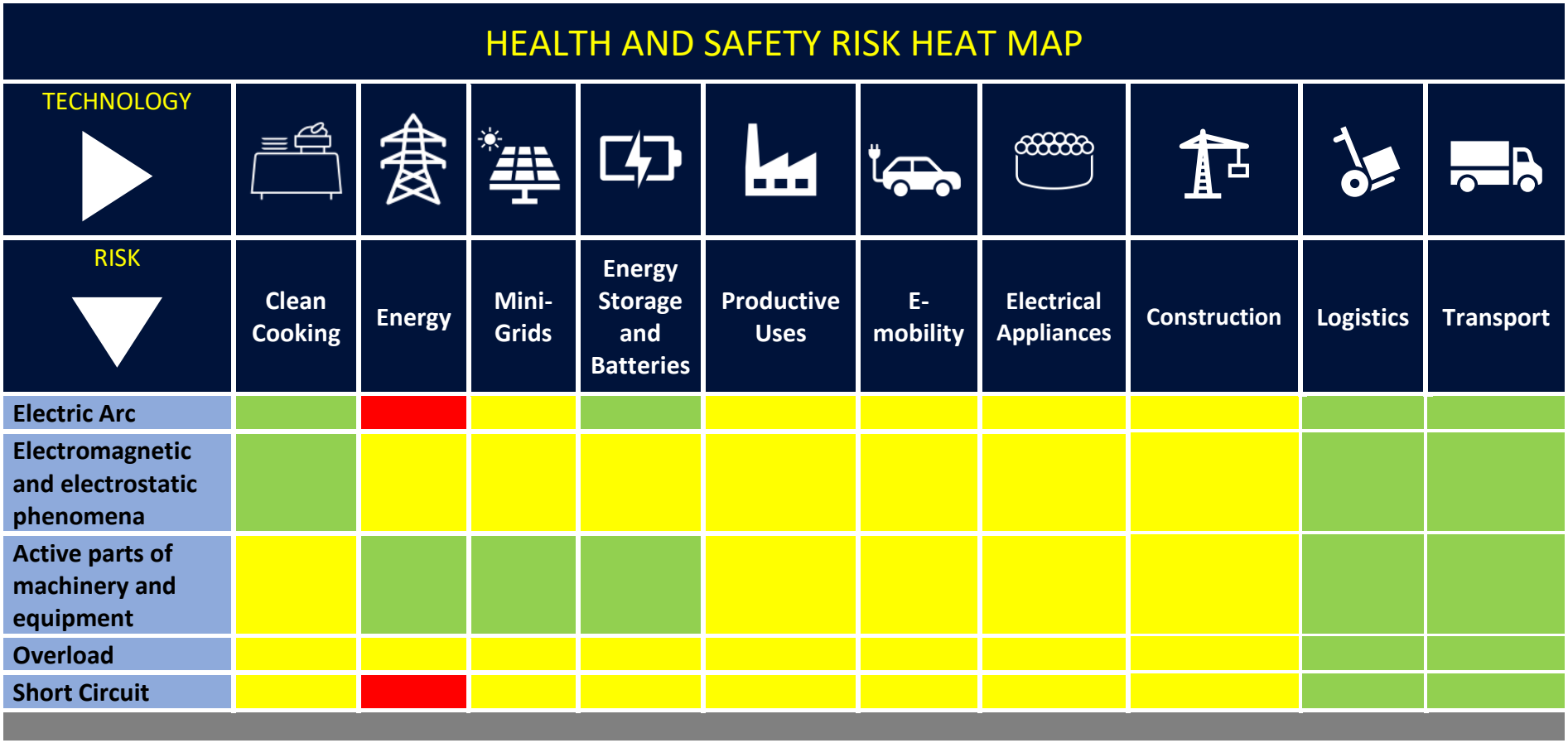


Figure 12 H&S Risk Heat map

F. BIBLIOGRAPHY

The development of this Health and Safety framework was informed and enriched by insights gleaned from a range of authoritative sources. The following bibliography comprises key references that were instrumental in shaping the framework's structure, content, and recommendations. It also serves as a valuable resource for those seeking to delve deeper into the multifaceted aspects of health and safety within the energy access sector.

- Ayyub, Bilal M. Risk Analysis in Engineering and Economics (2nd ed.). Chapman and Hall/CRC, 2014.
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- Reese, C. D. Occupational Health and Safety Management: A Practical Approach (3rd ed.). CRC Press, 2018.
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G. Annex 1: How to navigate the framework - Example

This example demonstrates how to successfully implement Health and Safety (H&S) measures presented in this Framework and effectively manage workforce well-being by following the provided guidance. It highlights the importance of integrating thorough H&S measures from planning through execution, ensuring that all stakeholders are protected throughout the project's lifecycle. Additionally, the case study showcases how issues, incidents, or accidents can be promptly addressed and managed as they arise in energy access.

Greeny, a leading enterprise in renewable energy solutions, has been commissioned to develop a hybrid diesel-solar mini-grid with a capacity of 585 kWp and integrated storage systems in a remote area of Sub-Saharan Africa. This project aims to provide sustainable energy access to underserved communities, fostering their economic development and enhancing their quality of life.

To implement Health & Safety (H&S) measures in this case, the previous flowchart will be utilised.

1

Identify the appropriate technology

- ***The objective is to provide sustainable energy access to underserved communities while ensuring their well-being and a quality outcome.***
- ***The technology involved is a renewable energy mini-grid***

Additionally, identify the key stakeholders, especially those who will be directly involved (vulnerable groups, responsible and accountable entities, etc.) in implementing the project.

- *Greeny's employees*
- *Local workers*
- *Community*

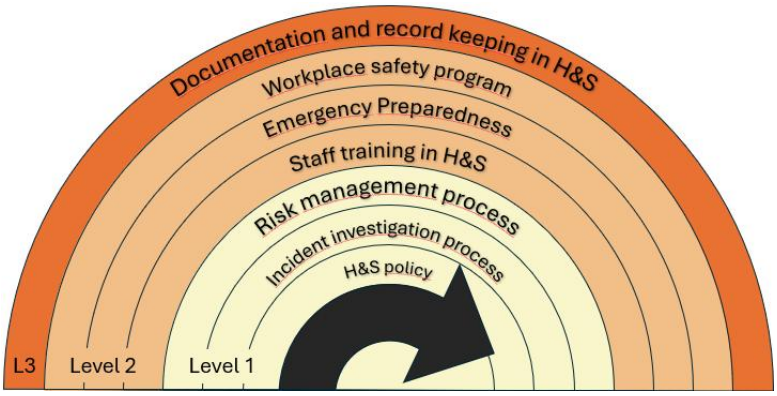
2

Utilise the decision trees designed for this framework to determine the appropriate level of H&S measures required, based on the potential risks associated with the technology being used.
For example, according to the decision trees *for Mini-grids, a hybrid solar system directly necessitates Level 3 H&S measures in the framework*

3

Based on the framework, identify the main activities for implementing H&S in an energy access project with a level 3 of H&S from the executant side, in this case, Greeny.

- For level 3 the activities to be undertaken are:



4

Pinpoint the individuals in the Greeny team who will be leading and taking accountability for each activity.

Activities	Responsible
H&S Policy	*Project Manager and H&S Expert*
Incident Investigation process	*H&S Expert*
Risk Management process	*H&S Expert*
Staff Training in Safety and Health	*Project Manager and H&S Expert*
Implementing Emergency Preparedness.	*Human resources, Project Manager and H&S Expert*
Workplace Safety Programme	*Project Manager, H&S Expert and workers contribution*
Documentation and Record-Keeping in Health and Safety	*H&S Expert*

5

To realise the main activities, adhere closely to the framework's detailed actions for each of them. The framework provides comprehensive instructions that serve as a roadmap, offering clear direction and reducing the likelihood of errors or deviations from the plan. For example, to "Develop H&S Policy", according to the forms in annexes Greeny will have to:

1. *Find answers to the specific questions for developing a health and safety policy highlighted in* ***Error! Reference source not found.***
2. *Establish a commitment to health and safety*
3. *Draft the policy to outline responsibilities for management, supervisors, and employees, ensuring compliance with local, national, and international regulations while defining clear health and safety goals and procedures.*
4. *Define and Communicate Roles and Responsibilities*
5. *Implement the Health and Safety Policy*
6. *Monitor and Review the Policy*

Potential issue (1)

At the current stage, Greeny is focused on establishing the solar plant, with workers transporting solar panels from the warehouse to the site on weekdays. Unfortunately, one worker reported severe lumbar pain and was absent on Friday, which was subsequently diagnosed as a herniated disc, likely due to excessive lifting during the week. Upon returning to work the following Monday, the worker notified his supervisor at Greeny about his medical condition and requested assistance with covering medical expenses.

As a short-term response the H&S expert of Greeny started by:

- Assessing the situation and gathering information using tools developed in the "Incident Investigation process" task:
  - Conduct a thorough investigation to understand the specifics of the worker's injury, including the tasks performed, the working conditions, and any contributing factors.
  - Interview the injured worker, their supervisor, and colleagues to gather firsthand accounts of the situation and the working conditions leading up to it.
- Provide support in covering medical expenses
- Ensure compliance and legal obligation for workplace injuries based in the locality.

After this investigation, the H&S expert provides the following table to indicate the potential reasons and what needs to be done behind the situation.

	Local Worker	**Developer**
H&S Gaps	Lack of awareness of potential risks associated with heavy lifting and improper lifting techniques, leading to herniated disc	Failure to implement proper lifting protocols, training and management workload, leading to worker injury
Responsibility	Participating in safety training provided by Greeny and adhering to the established protocols.	Providing comprehensive safety training and monitoring workloads to prevent injuries

Long-term actions

- Evaluate existing controls and safety protocols to assess their adequacy.
- Review and update:

    - H&S Policies: Revise existing health and safety policies to address identified gaps and incorporate new safety measures if necessary.
    - Risk assessment and hazard identification accordingly if necessary
    - Document the lessons learned
- Keep raising workers' awareness of potential risks and hazards and the H&S protocols and measures to apply.
- Keep detailed records of the incident, investigation, and corrective actions for future reference and compliance purposes.
- Continuous improvement of health and safety practices based on feedback, incident reports, and new regulations.

Potential issue (2)

During the construction phase, a tragic incident occurs when a local worker, possibly overwhelmed by the task at hand, fails to adhere to safety protocols. This oversight leads to a catastrophic accident in which a pole collapses and falls onto a nearby household. Fortunately, there are no human casualties; however, the material damage to the property is significant.

- Due to a well-defined **emergency preparedness plan**, Greeny's team was able to limit the damage and adopt the appropriate behaviour during this accident by:
    - Ensuring safety and secure the area
    - evacuating the site of all non-concerned (civil and workers)
    - Check secondary risks that may occur from this first accident
- They use the **Incident Investigation process** to assess the accident properly.
    - Take photo of the scene for the reports
    - Notify the authority of the community
    - Incident team with representatives from various departments and expertise areas to realise an evaluation of the damage (household and surrounding)
    - Prepare a detailed accident report.

As an outcome of this step, the following insights have been provided:

	Local Worker	**Developer**	**Local Community**
H&S Gaps	Neglecting to use appropriate tools and equipment during construction	Insufficient supervision and enforcement of safety measures on-site during construction	Limited participation in safety training and reporting of hazards

Responsibility	Proper use of tools and equipment, adherence to safety protocols during work activities	Providing adequate supervision, enforcing safety protocols, conducting regular safety inspections	Active participation in safety training, reporting safety hazards to project authorities

As the next steps, Greeny must address the situation legally and compensate the household appropriately. Moving forward, it is crucial for Greeny and other stakeholders involved to prioritise safety in all project activities to prevent similar incidents in the future. Furthermore, transparent communication and active engagement with the affected community are essential for rebuilding trust and fostering a safe working environment for everyone involved. Additionally, Greeny should continue implementing the long-term actions previously outlined to mitigate further issues and ensure a comprehensive resolution of the matter.