SMEP | Sustainable Manufacturing and Environmental Pollution

UK International Development
Partnership | Progress | Prosperity

From Compliance on Paper to Systems in Practice: A Case Study from Savar Tannery Estate

Ethical Trading Initiative Bangladesh

Bangladesh Labour Foundation

Mondiaal FNV

Ethical Trading Initiative

Setting the context

The relocation of tanneries in 2017 to the Savar Tannery Estate was envisioned as a transformative step for Bangladesh's leather sector, aimed at addressing the systemic root causes to longstanding environmental pollution, weak regulatory oversight, and poor labour conditions associated with the earlier cluster in Hazaribagh. By establishing a centralised industrial zone equipped with shared infrastructure, including a common effluent treatment plant (CETP), the estate sought to create a controlled environment in which national regulations and international standards could be more effectively met and enforced. In particular, alignment with the Leather Working Group (LWG) framework has emerged as a key benchmark for environmental and social performance within the sector and access to international markets. Despite this structural shift, the outcomes across individual tanneries reveal significant variation in how these expectations have been interpreted and implemented. This case study adopts an Outcome Harvesting approach to identify observable changes in systems, practices, and behaviours across selected tanneries within the estate. Rather than assessing compliance against predefined indicators, the analysis captures the extent to which systems are functioning in practice and the degree to which they reflect LWG-aligned performance.

To present this variation more clearly, the case study uses three levels of compliance and management maturity: Early, Moderate and Advanced. The Early level reflects factories where basic procedures exist, but remain inconsistent, reactive and only partly documented. At this level, some gender-sensitive elements may be present, but they are not yet fully embedded within workplace systems. The Moderate level reflects factories where systems are more structured and consistently applied, with stronger documentation, monitoring, committee formation and gender-responsive practices. The Advanced level reflects the highest form of practice currently observed within the estate, where certification-aligned systems, buyer requirements, internal monitoring mechanisms, traceability, chemical control, worker welfare and continuous improvement are more embedded in daily operations.

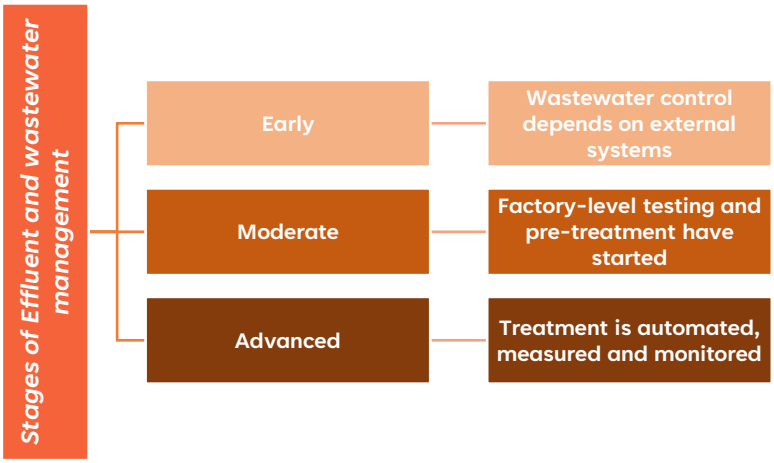
The following sections show how some practices have begun to move beyond paper-based compliance, while others still require stronger systems, clearer ownership and continued support.

Compliance and management stages

Across the estate, the most visible change is the gradual movement from permit-based compliance towards system-based compliance. At the Advanced level, compliance is not limited to holding permits or preparing documents for external review. It is connected with buyer expectations, LWG certification, internal monitoring, traceability, chemical control, worker welfare and regular verification. These factories are able to show not only that systems exist, but also that they are being used. At the Moderate level, factories have begun to move in the same direction. Current permits, improved documentation, ISO-related processes, environmental controls and stronger management attention show that compliance is becoming more structured. These changes indicate that project support and certification ambition can contribute to a more organised approach. At the Early level, statutory permits may exist, but the internal systems needed to sustain compliance remain weak. Procedures are often incomplete, worker-level awareness is limited and monitoring is not yet part of daily practice. This shows that compliance maturity depends not only on meeting legal requirements, but also on building systems that can be understood, followed and improved over time.

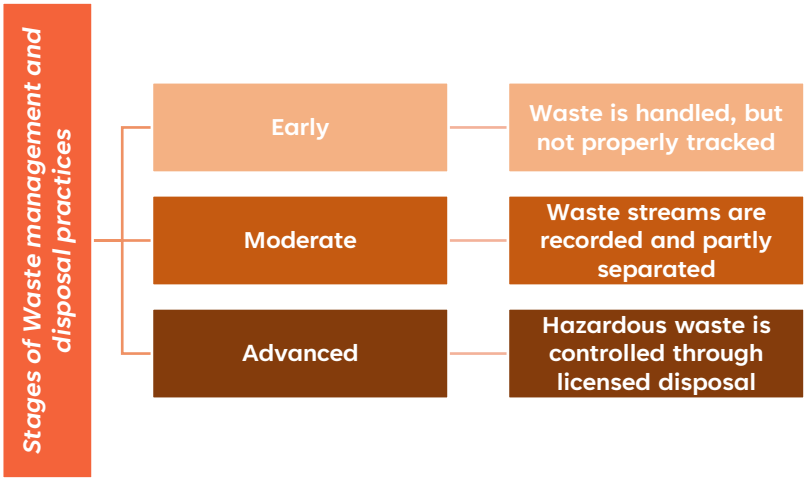
Effluent treatment and wastewater control

Effluent management is one of the clearest areas where the difference between the three levels becomes visible. At the Advanced level, wastewater treatment is managed through a fully automated ETP with biological treatment, chemical dosing, Fenton reaction and tertiary treatment. Inflow and outflow are measured and reconciled, showing that effluent management has become a controlled technical process rather than a simple discharge activity. At the Moderate level, progress is visible in more practical ways. Separate drainage lines for chrome-bearing effluent and general wastewater have been maintained. Mesh-based pre-treatment has been introduced, and in-house pH and TDS testing is carried out. These changes show that factory-level control has started to improve. They also show that even without reaching the highest standard, meaningful change can occur when technical support, management follow-up and routine testing are brought together. However, the journey is not complete. Formal SOPs for pre-treatment operation and sediment tank maintenance are still needed. Even at the Advanced level, factories remain connected to the estate-level CETP, which means that full effluent performance is partly shaped by shared infrastructure. At the Early level, reliance on CETP measurements remains high, while in-house testing, SOPs and record archiving are still absent or weak. This makes any improvement more fragile, because the factory cannot yet monitor and sustain change independently.



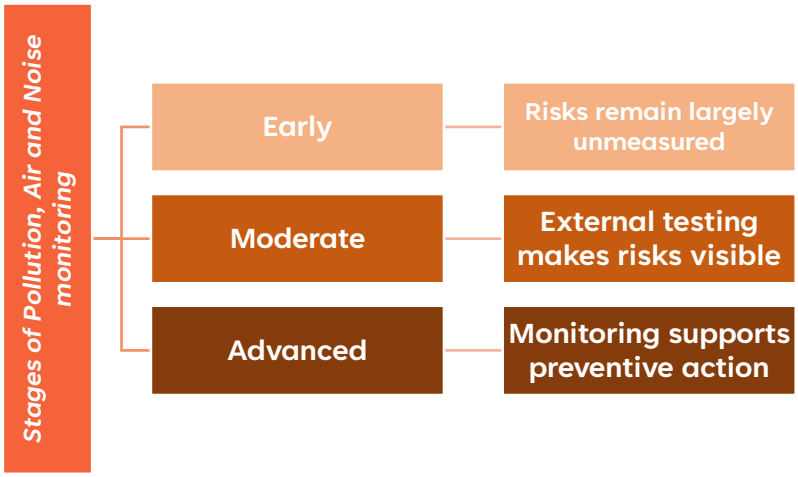
Waste management and disposal practices

Waste management tells a slightly different story. It shows how factories gradually begin to move from disposal towards responsibility. At the Advanced level, hazardous and non-hazardous wastes are separated, and hazardous waste is handed over to licensed third-party contractors with documentation. This indicates that waste is understood as an environmental and compliance risk that must be controlled. At the Moderate level, waste measurement has started. Different waste streams, including fleshings, shavings and packaging, are recorded, and designated dumping zones are used. These steps may appear basic, but they are important. A factory cannot reduce waste unless it first knows what is being generated and where it is going. The remaining gaps show where the next layer of maturity is needed. Hazardous and non-hazardous waste may still be mixed at the point of production, and formal waste minimisation plans are not yet in place. At the Early level, waste is only partly separated and not consistently weighed or recorded. SOPs for handling, segregation, recycling and by-product recovery remain absent. Even for stronger factories, the shortage of licensed hazardous waste operators in Bangladesh remains a wider structural challenge. This means that waste management cannot be solved by factories alone; it also requires sector-level solutions.



Pollution, Air and Noise

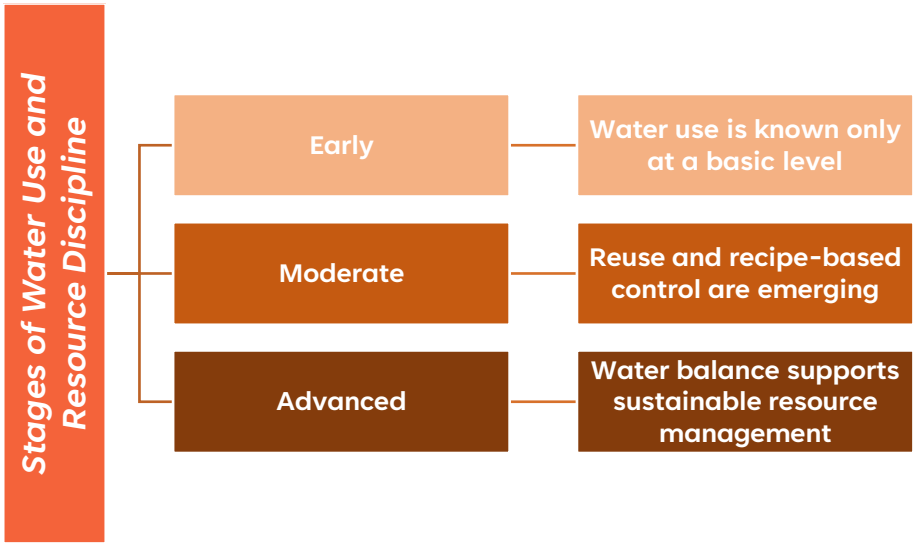
Pollution monitoring is beginning to emerge as an area of attention. At the Moderate level, third-party ambient air quality testing is conducted every six months. This has helped identify risks such as H2S and NH3 in high-risk areas. This is an important outcome because it makes invisible risks visible. Once a risk is measured, it becomes easier for management to recognise the need for action. However, the gap between identifying a risk and managing it remains significant. Gas detection devices are still absent in high-risk areas. In-house noise monitoring is not yet conducted, and regular internal SOPs for air and sound-level inspection are still missing. At the Early level, there is no internal air quality or noise monitoring, no gas detection device and no system for routine inspection. This part of the story shows that the estate is still moving from occasional testing towards preventive risk management. The next step is not only to know when pollution risks exist, but to build systems that can detect, respond to and reduce those risks continuously.



Water Use and Resource Discipline

Water use shows how measurement can slowly change behaviour. At the Advanced level, water balance calculations are maintained, with separate metering for inflow and treated effluent outflow. This allows the factory to understand the relationship between water use, production and discharge. At the Moderate level, water intake is monitored through an inlet meter. Rainwater harvesting, reuse of vacuum plate machine water and production recipes

that define water limits show that water is gradually being treated as a managed resource. These practices indicate an emerging culture of resource discipline. Still, process-level visibility remains limited. Individual production units are not fully sub-metered, and open hose pipe cleaning continues to cause avoidable wastage. Water intensity is also not consistently benchmarked against production output. At the Early level, factories may have inlet and outlet meters, but no process-level monitoring, no structured reuse and no regular evaluation of water consumption against production. This shows that water management has started, but efficiency-based control is still early.

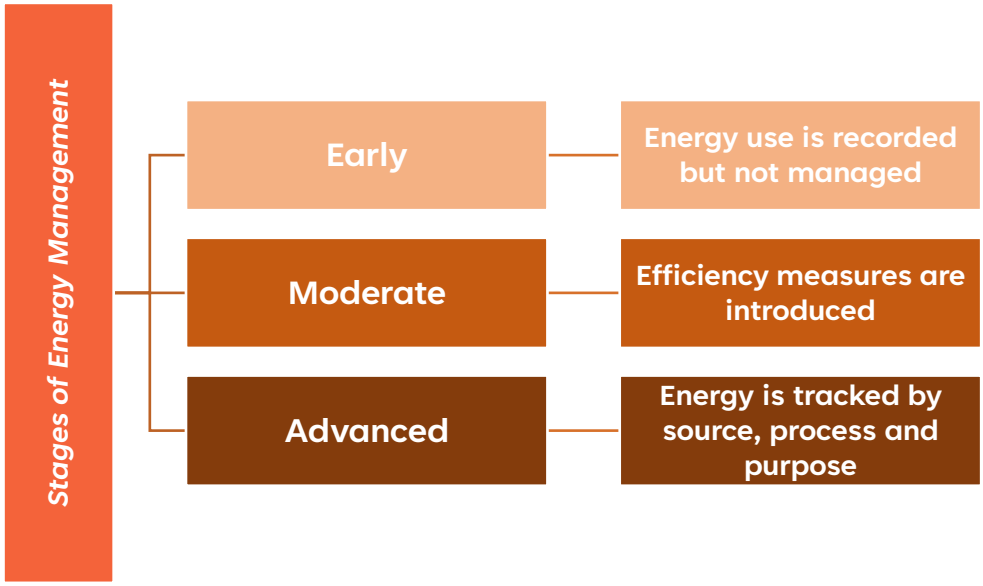


Energy Management and Efficiency

Energy management follows a similar pathway. At the Advanced level, electricity, fuel and gas are tracked separately and further broken down by boilers, production areas and support functions. This level of detail helps management understand where energy is being used and where efficiency gains may be possible.

At the Moderate level, several practical energy-saving measures are visible. Solar energy, energy-saving lighting, daylight use, insulated boiler steam lines, condensate recovery, inverter-driven exhaust fans and soft starters show that energy efficiency is entering factory practice. These changes reflect an important shift from passive consumption towards active

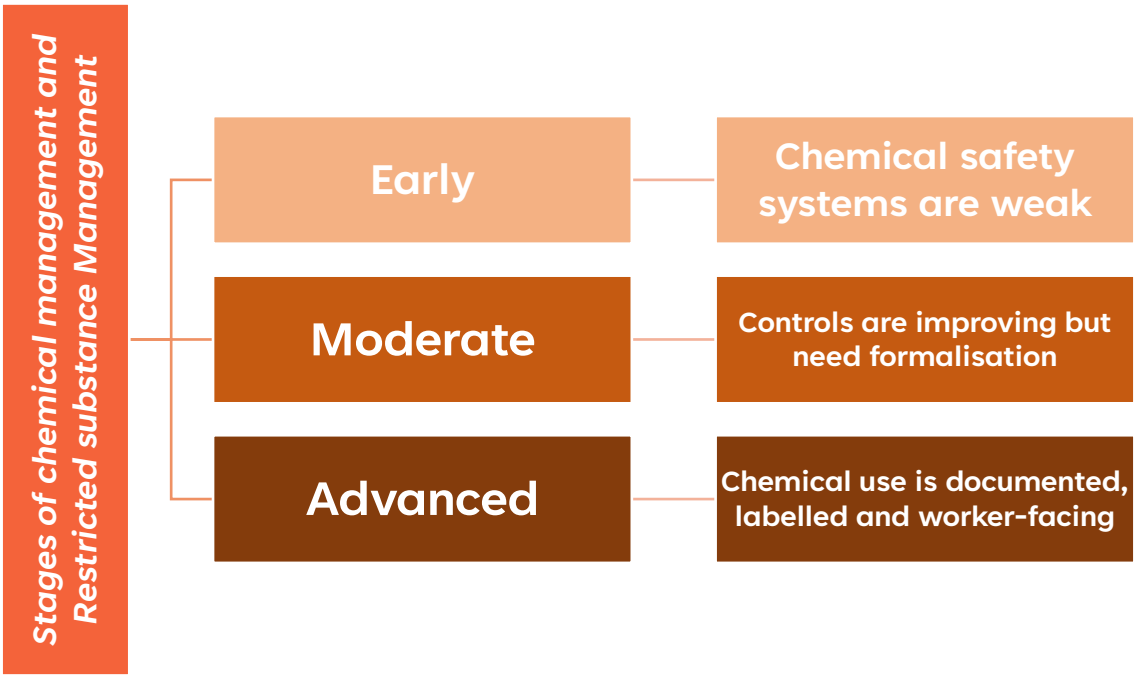
management. However, energy intensity per unit of leather produced is not yet standard practice across the estate. Some technical efficiency issues, including current imbalance and compressed air-related losses, still need attention. At the Early level, renewable energy use remains very limited, and although process-area energy meters may have been installed, there is no energy efficiency SOP, target or reporting system. The evidence suggests that measurement has begun in some places, but the use of data for continuous energy improvement is still at an early stage.



Chemical and restricted substance management

Chemical management is one of the areas where environmental compliance and worker safety meet most directly. At the Advanced level, chemicals are managed through a structured system. Hazard pictograms are used, compatibility charts guide safe storage, spill kits are available, and simplified Bangla safety sheets help workers understand health risks, PPE requirements and exposure effects. This shows an important shift. Chemical management is not treated only as a storage issue. It is connected with production control, worker awareness and traceability. Chemical movement from the main store to the sub-store and then to production is documented. Recipe records are maintained, which supports

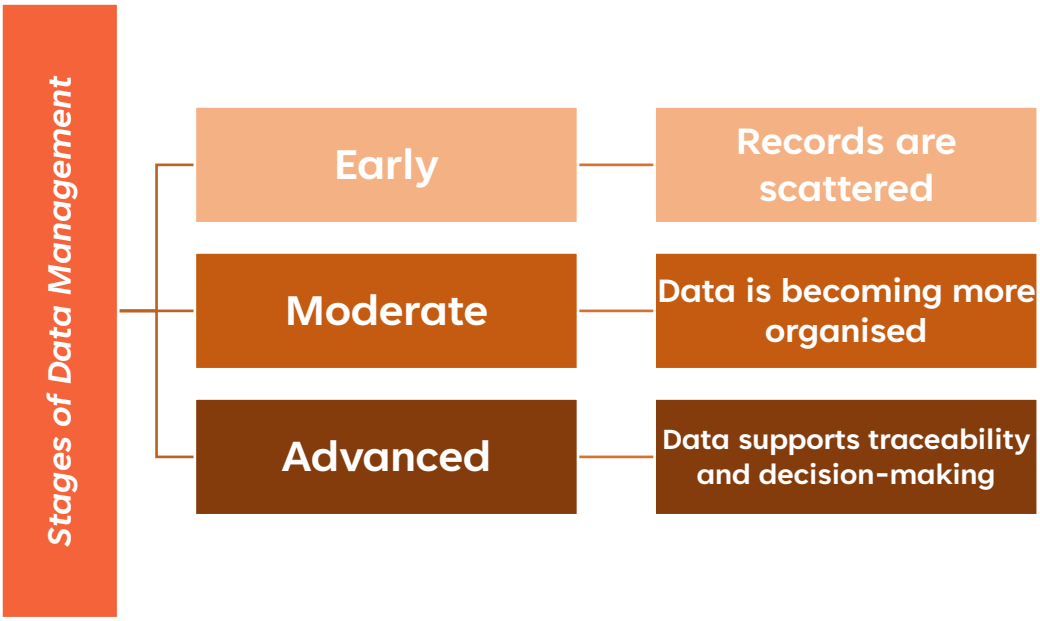
both consistency and accountability. At the Moderate level, chemical management has improved, but further formalisation is needed. A restricted substance policy, routine in-house RS testing and stronger worker-level understanding are still areas for development. At the Early level, chemical systems remain weak. Formal RS policies and SOPs are absent, MSDS or SDS are not available in Bangla or English, ventilation is poor and chemical storage remains disorganised. This shows that chemical safety cannot depend only on management records; it must also be accessible to the workers who handle chemicals every day.



1: Stages of chemical management and Restricted substance Management

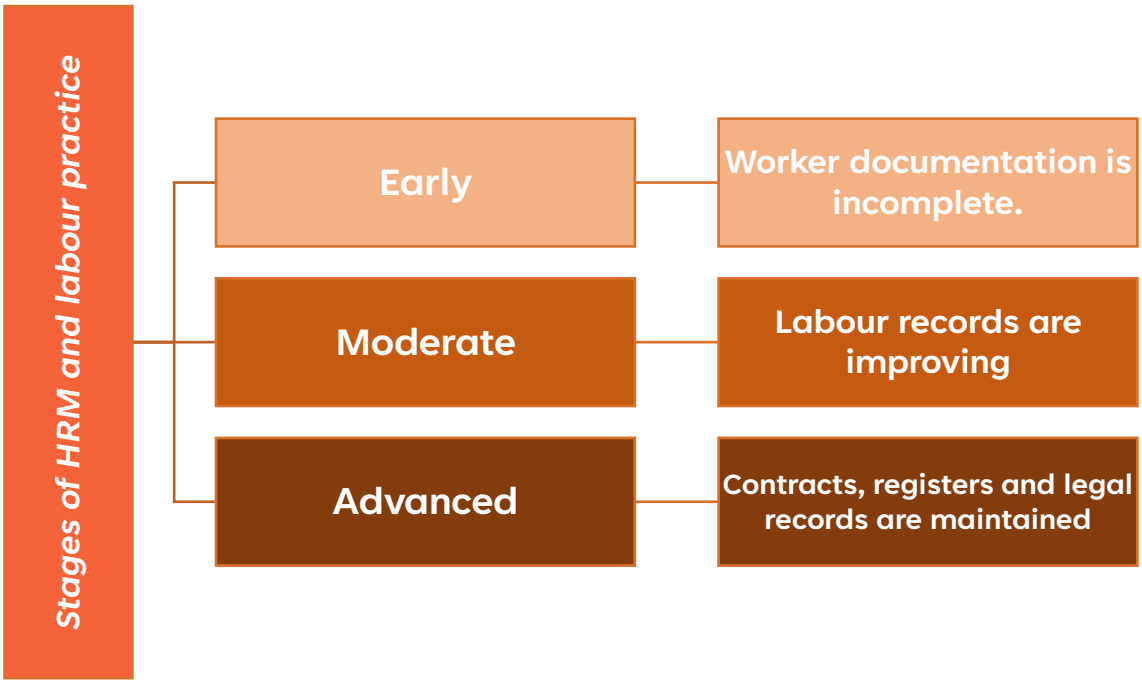
Data management as the backbone of change

Across all themes, data management appears as the quiet backbone of compliance. At the Advanced level, data is not kept only for audit purposes. It is used to demonstrate traceability from raw material origin to final shipment, track energy by type and use, maintain water balance records and retain production recipe histories. This helps the factory respond to buyer expectations and manage its own performance. At the Moderate level, data systems are beginning to take shape through supplier coding, utility records and improved documentation. This is an important emerging outcome because it shows movement from scattered paper-based records towards more structured evidence. At the Early level, records remain basic and fragmented. Electricity bills, gate passes, invoices and partial waste records may exist, but they are not integrated into a system that supports decision-making. No factory in the estate has yet Moderate a fully integrated digital Environmental and Social Management System that connects water, energy, waste, effluent, chemicals, labour and production data in real time. Without this, factories may collect information, but still struggle to use it for planning, risk management and continuous improvement.



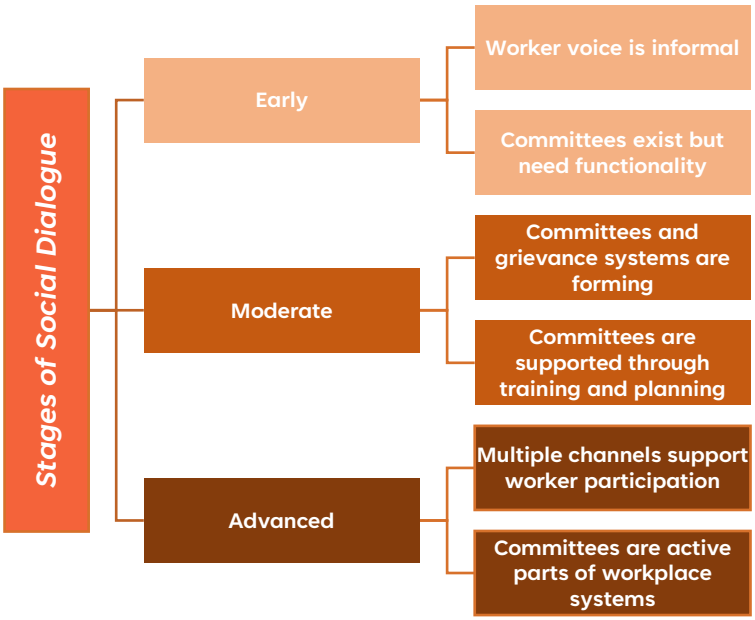
Human Resource Management, legal compliance and labour practice

The social side of compliance shows how workers experience systems in daily life. At the Advanced level, workers receive formal employment contracts and legal documentation. Labour registers are maintained, and systems are in place to support wage records, leave records and other legal requirements. No child labour or forced labour was confirmed, and night work for women is restricted in line with national law. At the Moderate level, factories show progress in labour administration, but some systems still require stronger follow-up. Records may exist, but digital integration between attendance, working hours, overtime and payroll is not yet confirmed. This limits transparency and makes it harder to verify labour practices in a systematic way. At the Early level, the gaps are more basic. Appointment letters and identity cards may not be issued, service books may not be maintained, and wage and overtime records may be incomplete. This means that workers do not always have full documentation of their employment relationship. In practical terms, the absence of documentation weakens workers' access to protection, benefits and accountability.



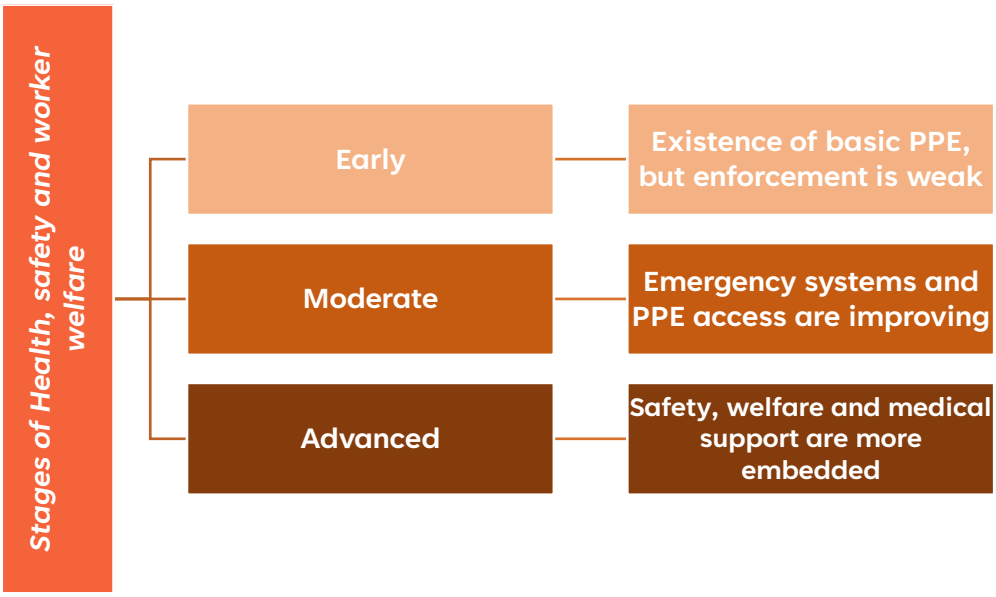
Social dialogue, AHC and Safety Committee

Social dialogue shows the difference between forming structures and making them meaningful. At the Advanced level, workers have several ways to raise concerns. These include committees, welfare officers, grievance systems and hotline mechanisms. Serious issues may involve joint review processes with management, workers, union members and sometimes external actors. This reflects a stronger culture of worker voice and institutional response. At the Moderate level, project-supported changes are visible. Anti-Harassment Committees have been formed, and training resource persons have been developed to support committee activities. These are important steps because they create a formal space for gender-sensitive and gender-responsive workplace concerns. However, the real outcome is not formation alone. The real outcome is whether workers know the committees, trust the process and feel safe to raise concerns. At the Early level, committees may still be newly formed or not fully functional. Grievance channels may depend mainly on direct supervisors, and worker voice mechanisms may remain limited. This shows that the estate is still moving from committee formation to committee effectiveness.



Health, safety and worker welfare

Health and safety outcomes are strongest where emergency preparedness, PPE access and worker welfare are connected. At the Advanced level, workers receive PPE free of cost, chemical-handling workers receive training, and welfare provisions such as doctors, nurses, clean drinking water, separate sanitation facilities and childcare support are available. At the Moderate level, emergency preparedness has improved. Evacuation plans, emergency response teams, emergency lighting, fire alarm systems, PA systems, exit signage and emergency PPE are in place. These systems show that health and safety has moved beyond a basic checklist in some factories. Still, the gaps are important. Gas detection devices are absent in high-risk areas, and PPE use remains inconsistent. This shows that safety is not only about availability of equipment. It is also about behaviour, supervision and regular follow-up. At the Early level, fire extinguishers and emergency contact numbers may be available, but formal emergency plans, evacuation teams, gas detection systems, first-aid facilities, medical support, accident compensation systems, maternity documentation and childcare support may be absent or unconfirmed. This reflects a stage where basic arrangements exist, but a full prevention system has not yet been built.



Sustaining change across the estate

The outcomes observed across the Savar Tannery Estate demonstrate that structured and certification-aligned systems are achievable, but their adoption remains uneven. The Advanced level shows what mature practice can look like when buyer requirements, LWG alignment, traceability, chemical control, environmental monitoring and worker welfare systems are connected. The Moderate level shows that project support can contribute to visible progress in documentation, effluent control, energy efficiency, committee formation and data systems. The Early level shows that many factories still need support to build basic, consistent and worker-sensitive systems before Advanced compliance can be sustained. Bridging this gap will require a shift from system establishment to system effectiveness. Future interventions should focus not only on whether systems exist, but also on whether they are used consistently, understood by workers and linked to daily decision-making. Compliance needs to move beyond documentation and become part of routine factory practice. Standardising baseline practices across the estate will be essential, particularly in environmental management, effluent control, chemical handling, waste management and labour compliance. At the same time, greater attention should be given to improving environmental performance beyond minimum compliance thresholds. This includes stronger resource efficiency, better waste segregation and disposal, pollution reduction, process-level water and energy monitoring, and more regular internal risk assessment. Strengthening worker engagement and ensuring the functionality of social dialogue mechanisms will also be critical. Committees, grievance channels and worker-management dialogue platforms should be supported as active systems rather than formal structures. Data systems will also need to evolve from record-keeping tools into management tools. A stronger digital ESMS can help factories connect water, energy, waste, effluent, chemical, production and labour data in a way that supports planning, monitoring and decision-making. Ultimately, the story of Savar Tannery Estate is a story of uneven but visible change. The next stage is to make compliance practical, participatory and evidence-based, so that emerging outcomes can grow into long-term sector-wide improvement.