ACCELERATING INDUSTRIES' CLIMATE RESPONSE SRI LANKA

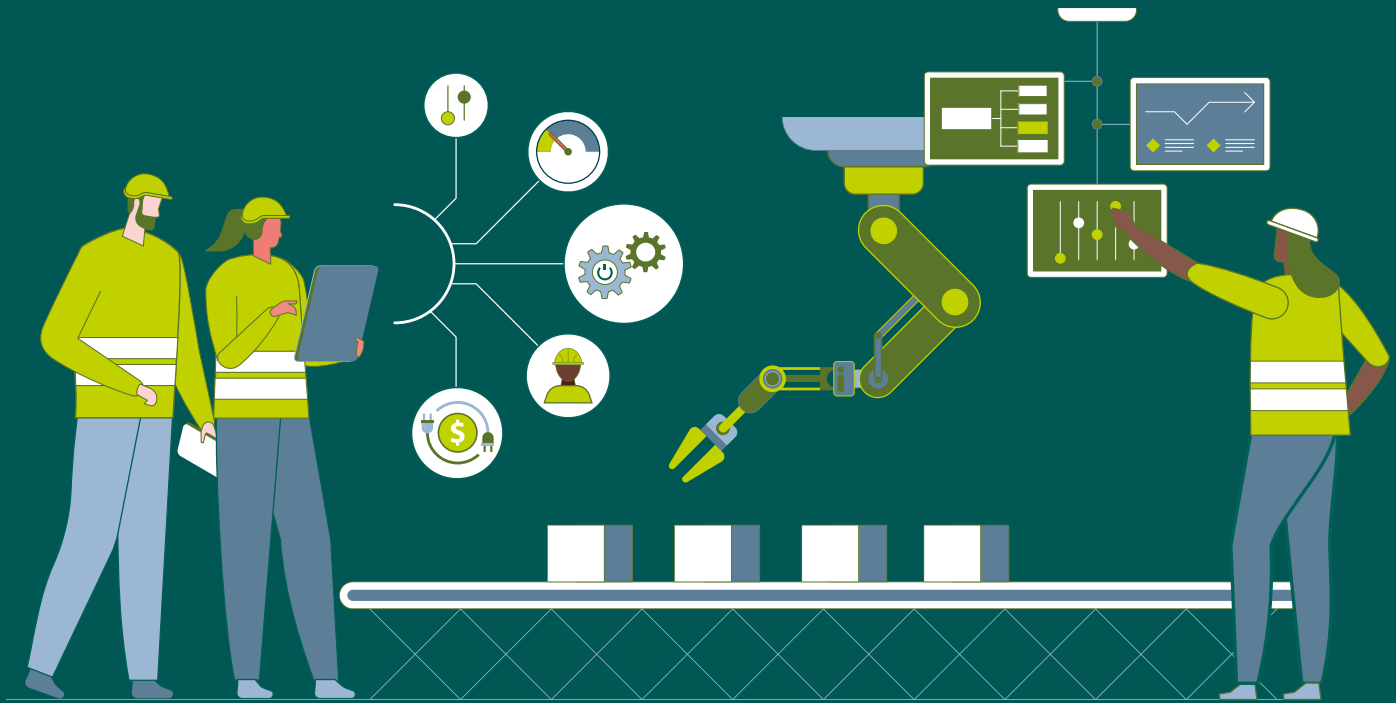
ENERGY MANAGEMENT SYSTEM

ISO 50001 COMPLIANT

BROCHURE

Energy Management System (EnMS)

Energy Efficiency Solutions for Sri Lanka



Accelerating Industries' Climate Response in Sri Lanka is a project funded by the European Union and implemented by the United Nations Industrial Development Organization with the Ministry of Industry, the Ministry of Environment and the Ministry of Power and Energy.

Introduction

Are you aware of how much energy is used by various systems at different stages throughout your production process? If you answered 'yes', then you are one step ahead of many industrial companies. More often than not, energy is accepted as a fixed cost in business, an unavoidable input that simply must be absorbed. The reality is that energy can be optimized and managed in a way that drastically improves the bottom line, reduces costs, increases productivity, boosts employee morale and contributes to global environmental targets.

There is no shortage of resources available for industrial managers looking to make their company more energy efficient. In fact, there is so much information it can often be difficult to know where to start or what is worth researching further. This Energy Management System (EnMS) brochure provides an overview for leadership teams on what an EnMS is and how implementing one can bring added value to your organization. In this brochure you will find insights from UNIDO's global experts as well as external links to recommended references, manuals and technical guides.

You can also find out more about the *Accelerating Industries' Climate Response in Sri Lanka* project, a 5-year initiative led by the Ministry of Environment, Ministry of Industries and Ministry of Power and Energy and the United Nations Industrial Development Organization (UNIDO) that is helping Sri Lankan industries get the training and technologies they need to become more energy efficient and harness the potential of renewable energy.

What is an EnMS?

An EnMS is a framework for energy consumers, including industrial, commercial and public sector organizations, to manage their energy use. It helps companies identify opportunities to adopt and improve energy-saving technologies, including those that do not necessarily require high capital investment. In most cases, the successful implementation of an EnMS requires specialised expertise and staff training.

Did you know?

Basic 'no-cost' energy saving management opportunities can help companies reduce their energy use and costs in some cases by up to 30 per cent.



ENERGY SAVERS
Introducing the UNIDO EnMS training course

Soaring production costs, market forces and the increasing effects of climate change means more and more Sri Lankan businesses are prioritizing energy management and energy efficiency. Sri Lanka's Energy Savers are industry leaders and energy practitioners who are determined to help the country slash energy waste and greenhouse gas emissions.

Energy Savers are participating in UNIDO's internationally recognized EnMS training course, on Energy Management Systems (EnMS), delivered in partnership with Sri Lanka's National Cleaner Production Centre. The free 12-month training programme takes participants beyond the classroom and guides them through a hands-on process of action planning, implementation and continuous energy saving improvements. By the end of the training, participants gain an energy management system that is uniquely tailored to their needs. This includes specialised tools developed by UNIDO, a dedicated energy policy as well as baseline metrics and data, which helps energy management teams stay on track and ultimately achieve their energy saving targets long into the future.

For more on the EnMS training programme, see page 8 and 9.

You can also find out more at www.industriesclimateresponse.com/energy-savers.

"Every transformational story needs people who will take on a challenge, run with it and make change happen. Sri Lanka's Energy Savers are exactly that: courageous industry leaders and energy practitioners determined to help the country slash industries' energy waste and greenhouse gas emissions. I look forward to seeing more Energy Savers emerge as the initiative progresses."



Nicholas Dehod, Project Manager at UNIDO

"I work closely with our Sustainability Department to educate staff on the importance and benefits of closing any gaps in energy management and cleaner production. I believe 60 per cent of energy management is in our behaviour and practices. I am also in the process of creating an internal team that will carry the lessons even further. Commitment is high and I am keen to keep building on it. My goal is to build an army of energy savers."



Indika Perera, Group Facilities Manager at DIMO, EnMS training participant

Future proofing Sri Lanka's industrial sector

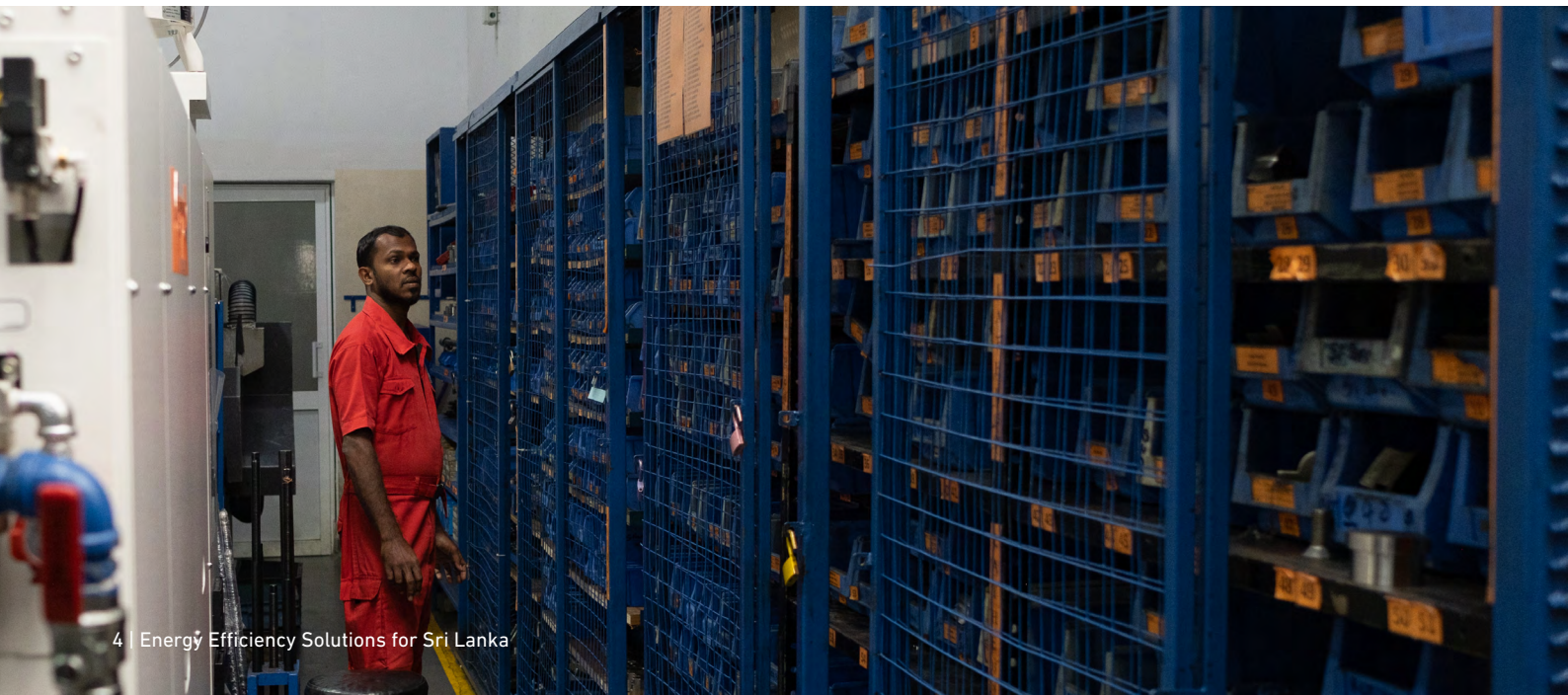
Sri Lanka has committed to reduce its carbon emissions by **14.5 per cent by 2030.** As Sri Lankan industry is one of the biggest consumers of fossil fuels, 7 per cent of these reductions are due to come from the sector.

The Accelerating Industries' Climate Response in Sri Lanka project will enable the industrial sector to reach this target by 2030 by focusing on energy efficiency and renewable energy. The five-year initiative will focus on trialling technology and training for people working in industry, government and the energy sector. It will also enhance the system for monitoring greenhouse gas emissions and emissions reduction across the sector, and create a policy environment that supports industrial decarbonization (the move away from harmful fossil fuels).

This will enable Sri Lanka to build a modern economy based on sustainable fuels. It will also build energy security, create new jobs and ensure Sri Lankan industries can compete in the global market.

> "Leading Sri Lankan industrialists are already taking action to decarbonize and become more energy-efficient. They know that switching to greener, more efficient technologies is a win-win move – generating savings and enhancing predictability of operations, while supporting economic growth and green jobs. Sri Lanka's industrial sector needs to be put on a trajectory of green recovery to ensure a more resilient and shock resistant economy. With a concerted effort from all those who have a stake, the decarbonization of Sri Lanka's industrial sector will deliver dividends for the economy, the environment and the planet."

Joint statement from **Dr Anil Jasinghe,** Secretary of the Ministry of Environment and **H E Denis Chaibi,** the EU Ambassador to Sri Lanka and the Maldives



Six signs you need an EnMS



1. You are regularly surprised or disappointed by your monthly energy bill
2. You suspect high amounts of energy is used after hours
3. You lack data for compliance and sustainability programmes
4. You are uncertain who monitors energy use in your company
5. You can't remember the last time you reviewed your organization's energy policy
6. Your top management believe the company lacks financial resources to assess energy use



ADDITIONAL RESOURCES

What is an EnMS?

WATCH

Energy management systems explained

DOWNLOAD

- UNIDO'S practical guide for implementing an energy management system
- 13 ways industrial businesses can be more energy efficient

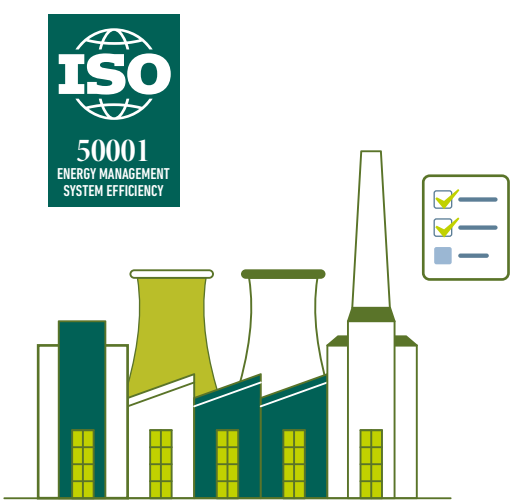
READ

How energy efficient is your industrial company?

ISO 50001
The international EnMS standard

Established in 2011 by the International Organization for Standardization in coordination with UNIDO, ISO 50001 is a globally regarded framework for organizations to efficiently manage their energy. Applicable to all types and sizes of organizations and sectors, ISO 50001 is based on the core concept of continuously improving energy performance. System components include the creation of an energy policy, objectives for improving the efficient use of energy, a timeline with target dates for meeting objectives and an action plan that specifies exactly how the organization's objectives will be met.

ISO 50001 certifications are granted by an accredited third-party agency. It is recommended that organizations interested in acquiring ISO 50001 certification contact and interview several accredited agencies before committing to one. Certification from independent experts gives external recognition that your EnMS conforms with all of the ISO 50001 requirements.



The benefits
There is a lot to gain from implementing an EnMS

Save energy
For companies new to energy management, energy savings during the first two years range from 10 to 20 per cent. This can be achieved with little or no capital investment. In industrial production as a whole, energy savings of 25 to 30 per cent are possible in the medium term.

Reduce your environmental footprint
Industrial energy consumption is one of the biggest drivers of carbon emissions worldwide. Improvements in industrial energy efficiency have been found to be one of the most important and cost-effective means of mitigating industrial greenhouse emissions. Globally, energy efficiency represents around 40 per cent of the greenhouse gas reduction potential that can be realized at a cost of less than 60 Euros per metric ton of carbon dioxide equivalent. [1]

Reduce costs and find a competitive advantage
Energy costs can account for as much as one fifth of an industrial business' expenditure. Investing in energy efficiency can help to drastically reduce variable costs and lead to gains in competitive advantages, including product price and the availability of capital for innovation.

1 McKinsey&Company, 'Energy efficiency: A compelling global resource,' p 2, 2010.

Increase ROI on machinery

Monitoring through an EnMS helps to identify and minimize machinery faults. This also helps to increase the lifespan of machinery through strategic and regular maintenance.

Create new employment opportunities

Employment programmes which promote energy efficiency and the renewable energy sector have a tendency to create more jobs than investments in the traditional energy sector.[2] A net increase in jobs from energy efficiency, for the most part, is the result of two major changes: 1) an initial expenditure or effort that drives energy bill savings, 2) the subsequent adjustment in spending patterns brought about by that initial expenditure or effort.[3]

Mitigate risks

When taking new approaches to improve energy efficiency, energy managers can also highlight underlying associated risks. Furthermore, as a direct result of reduced energy demand, a company's exposure to market volatility is also reduced as their fossil fuel consumption wanes. Therefore, energy efficiency proves to be an effective management tool to mitigate financial risk and energy shortages.

Improve bankability of company projects with better data

Capturing data via an EnMS helps to ensure better post-investment project performance. In many cases, financial institutions report there is a shortage of bankable projects. A wider application of energy management systems could help to increase the pool of bankable projects available for investment.



ADDITIONAL RESOURCES

ISO 50001:The international EnMS standard

READ
More about ISO 50001

How it works

READ
UNIDO's EnMS e-guide

DOWNLOAD
Summary of UNIDO's EnMS training programme for companies and experts

The benefits

WATCH
Nurzat Myrsalieva on the benefits of industrial energy efficiency

READ
→ Energy management systems— the five most frequently asked questions
→ Industrial energy efficiency, the invisible climate solution

2 Garrett-Peltier, H, "Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy, and fossil fuels using an input-output model," Economic Modeling, pp. 439-47, 2017.

3 American Council for an Energy Efficient Economy, "How Does Energy Efficiency Create Jobs?," fact sheet < https://www.aceee.org/files/pdf/fact-sheet/ee-job-creation.pdf>

What resources are required?

INVESTMENT

Start with no-cost and low cost solutions

During the initial phase of an EnMS implementation, the key principle is to begin with achievable no and low-cost energy performance improvements.

As the EnMS matures and improves over a number of years, no-cost and low-cost opportunities to save energy progressively diminish in favour of more capital demanding measures. This can include electric motor and machinery replacement, investments in economizers to capture residual heat in boiler systems, and installation of variable speed drives. In an ideal scenario, the additional investment required for the replacement of equipment, major upgrades and/or software is covered by the cost savings made in the initial no-cost and low-cost phase of the EnMS.

> “Although high-efficiency equipment and renewable energy generation requires a greater initial investment, the long-term cost savings resulting from reduced energy consumption ultimately justifies the expense. By improving efficiency, we expect a 20 to 30 per cent saving in energy consumption.”



Jayanath Rupasinghe, Energy Manager at Dipped Products and EnMS training participant



PERSONNEL

At least one dedicated energy manager and support from a designated team

It is recommended that a dedicated energy manager, who reports to top management, is appointed to monitor the continuous progress of the EnMS. It is also recommended that numerous personnel involved in an 'energy team' are able to commit at least two weeks on EnMS development, implementation and certification on an annual basis.





"Understanding how we use our energy and making changes is something we can all do from within, and this is extremely timely for Sri Lanka. Saving energy means saving rupees and reducing our carbon footprint."



Siraj Williams, UNIDO expert

"We need to educate industries on the actual challenges that they face, and if they do not convert their businesses to a greener side there will be a bigger threat in the future. But, similarly, if they can do this faster, there are opportunities in the world market."



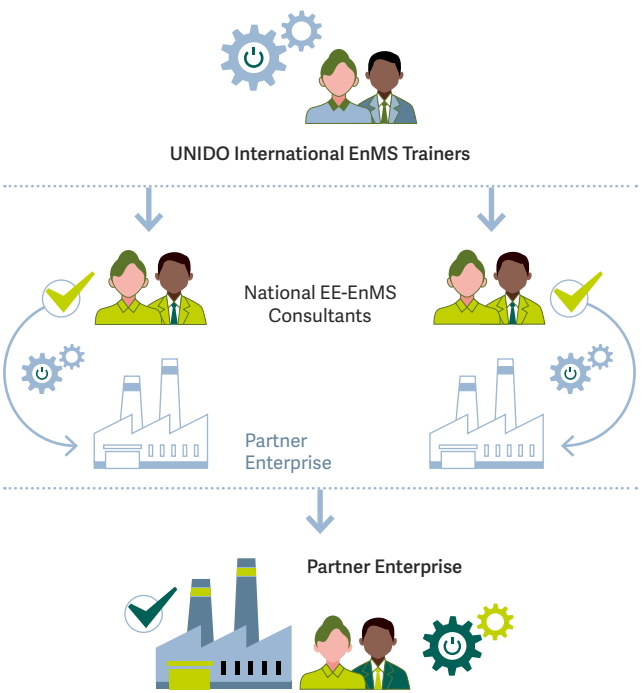
Keerthi Gunawardane, president of the Federation of Chambers of Commerce and Industries in Sri Lanka

UNIDO's approach

UNIDO has a long history of delivering technical advice and practical support for the implementation of EnMS worldwide.

In **2010**, a team of two international energy experts conducted the very first energy management training programme for 60 industry managers, personnel and practitioners in South Africa.

Today, UNIDO experts, trainers and technicians help to implement the internationally regarded **International Organization of Standardization (ISO) 50001 EnMS in 20 countries, with plans to extend to over 30. The incredible results speak for themselves.** UNIDO's unique approach brings international experts together with national trainees and host companies, creating a ripple effect of knowledge sharing, simultaneously fostering demand and supply in a new national market for energy efficiency services.



"When we initially designed the EnMS programme, we knew we had to go beyond the classroom and provide trainees with a hands on experience of implementation. Enterprises need to be convinced of the benefits by reaping them in real time within their own work. Our challenge now is to scale-up and expand what we started 10-years ago."



Marco Matteini, UNIDO Programme Manager

ADDITIONAL RESOURCES

UNIDO's approach

WATCH

Morocco accelerates its energy transition

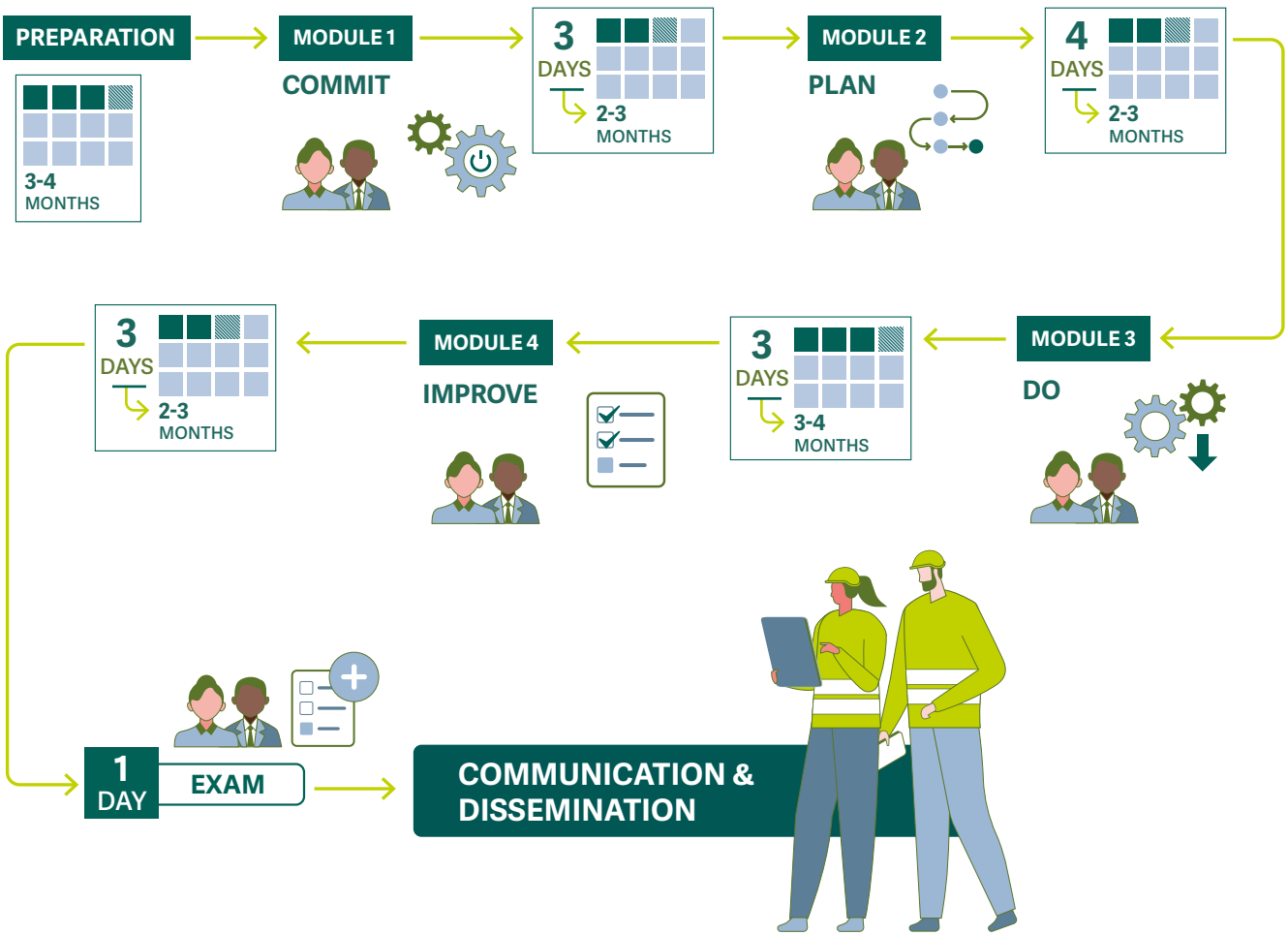
DOWNLOAD

- Morocco country project case study
- Practical guide for implementing an energy management system

Very few companies in Sri Lanka are certified by the globally regarded ISO 50001 energy management standard. Most Sri Lankan companies are unaware of the cost saving opportunities and environmental benefits that can be achieved through data driven energy management systems and relevant efficiency solutions. This lack of awareness and expertise are preventing companies from investing in energy efficiency or other renewable energy technologies.

Training and implementation programme for companies and experts

Combining expertise, skills development and results



OUR TARGETS

Our goal is to help cut greenhouse gas emissions in Sri Lanka's industrial sector by 7 per cent by 2030. We will do this by supporting Sri Lankan companies to improve the efficiency of industrial processes and move to renewable energy.

400
LOW COST/NO COST ENERGY EFFICIENCY SOLUTIONS IMPLEMENTED BY INDUSTRIES

200
ENERGY EFFICIENCY PROFESSIONALS TRAINED TO IMPLEMENT ENERGY EFFICIENCY MEASURES

100 INDUSTRIES IMPLEMENT ISO 50001 EnMS AND ESO MEASURES

50 ISO 001
STANDARD

100
SUPPLIERS TRAINED TO DESIGN AND INSTALL RENEWABLE ENERGY SYSTEMS

80
BANKABLE INVESTMENTS PROPOSALS GENERATED FOR FINANCING

50
GOVERNMENT OFFICIALS TRAINED IN GHG EMISSIONS ACCOUNTING, VERIFICATION AND REPORTING

10 CO_2
HIGH IMPACT LOW-CARBON TECHNOLOGY DEMONSTRATION PROJECTS IMPLEMENTED

CASE STUDIES PUBLISHED ON IMPLEMENTATION OF INDUSTRY DECARBONIZATION SOLUTIONS

70 CASE STUDIES

5
NATIONAL INSTITUTIONS INTEGRATE EnMS AND ESO IN THEIR TRAINING PROGRAMMES



> “[To become ISO 50001 registered] we have to do a lot of calculations and analysis. There are so many new techniques, technologies and improvements methods – with this programme we can learn a lot about these things.”

Asanka Kodithuwakku, Senior Executive on Sustainability at Convenience Foods Lanka and EnMS training participant

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www.industriesclimateresponse.com







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