

Workshop Summary: Sustainability in Prisons



About

The Sustainability in Prisons Workshop, held on 24-25 September 2024 in York, England was organised by EuroPris, supported by the EuroPris' Real Estate and Logistics Expert Group, and hosted by the Ministry of Justice UK.

The workshop brought together prison service members, sustainability experts, researchers and other stakeholders to explore sustainable practices within correctional facilities, focusing on energy efficiency, climate adaptation, and biodiversity.

This summary outlines the key discussions and recommendations for participants and the wider prison service community and highlights some of the many excellent presentations.



Lee Edney & Justina Dzienko (Workshop moderators).

Opening Remarks and the Need for Action



Picture from Sara Harrison presentation "Setting the Scene - Climate Change and the Need for Action."

Gustav Tallving, EuroPris Executive Director, opened the workshop by welcoming **nearly 100 participants** from across Europe, setting the stage for in-depth discussions on sustainability within the prison sector.

Sara Harrison, Programme Director for Sustainability at the Ministry of Justice, UK, delivered a presentation on the urgent need for climate action, focusing on the triple planetary crisis of climate change, biodiversity loss, and pollution. She shared key facts, including:

- **Summer 2024** was the hottest on record
- **1 million animal and plant species** are currently threatened with extinction
- Greenhouse gas emissions from **single-use plastics** in 2021 were estimated at 450 million tonnes of CO₂—exceeding the total emissions of the UK.

SESSION 1: Starting the Sustainable Journey

Northern Ireland's Sustainability Initiatives: Over the past decade the Northern Ireland Prison Service have pursued a range of initiatives to progress the organisations sustainable credentials (energy and water management, addressing biodiversity loss, waste management, renewable energy schemes and social value) which have helped to position the prison service as one of the leading organisations in government on addressing Sustainability. Since 2016 the NI prison service has **reduced its carbon emissions** by an impressive **44%** which equates to an annual reduction of over 4,350 tonnes of CO² per annum from entering the atmosphere.

Global Green Initiatives in Prisons: A global perspective from **Prison Insider / France** showcased how prisons worldwide are adopting green policies, implementing architectural changes, and providing sustainable job training for prisoners. Despite these advancements, challenges such as inconsistent agendas and inadequate training remain, but the session emphasised the potential for prisons to play a critical role in addressing climate change and promoting social value.



SESSION 2: Effective Energy Management

A notable presentation in this session was by **Lee Edney, EuroPris Real Estate Expert, UK**, who introduced the concept of **Digital Twins**—an innovative technology that creates virtual models of prison facilities to optimize energy use and reduce carbon emissions. This approach allows for more precise energy management, helping prison systems **achieve sustainability goals while lowering operational costs**. Edney shared practical examples of how Digital Twins have been successfully implemented to improve energy efficiency in correctional facilities across Europe.

This presentation highlighted the importance of adopting advanced technologies in the sector, alongside existing frameworks like the **Monitoring & Targeting Systems in Northern Ireland** and **ESCO energy contracts in Austria**.



Picture from Lee Edney's presentation "Digital Twins: the Path to Decarbonisation."

SESSION 3: Adapting Prisons to a Warming Climate



Professor Rajat Gupta from Oxford Brookes University highlighted the rising issue of overheating in prison cells, where elevated temperatures and CO2 levels overnight are exacerbated by poor ventilation and heat retention, particularly in older facilities.

Key Recommendations:

- **Improved Insulation and Ventilation:** Enhance building insulation and install secure night-time ventilation systems.
- **Overheating Detection:** Implement systems for monitoring temperature and CO2 levels to gather data on overheating incidents.
- **Address Overcrowding:** Tackle overcrowding, a significant contributor to heat accumulation.
- **Outdoor Solutions:** Create shaded areas and use light-coloured paving to reduce heat exposure.

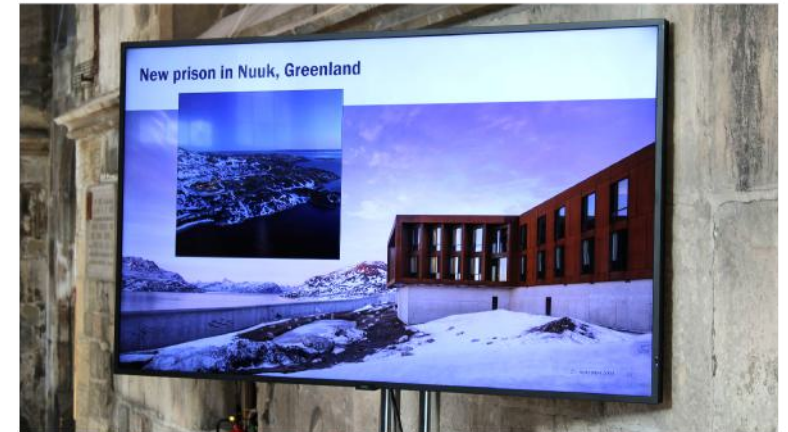
These strategies aim to foster a more comfortable environment for staff and inmates while promoting energy efficiency and health monitoring.

SESSION 4: Design of New Prisons & Retrofitting Existing Buildings

The parallel sessions explored innovative sustainable practices in prison design and retrofitting existing facilities. In **Croatia**, the **Women's Prison in Požega** transformed a former textile factory into a facility achieving significant energy savings across four buildings, including the closed and semi-open wards. Guided by the Energy Management Information System (EMIS), the project optimised energy use, cutting costs, thermal energy, and CO₂ emissions by over 50%. Enhanced insulation and efficient installations increased capacity and improved living conditions, setting a model for sustainable prison design that balances environmental goals with better prisoner facilities.

Another facility in **Norway**, covering over **3.6 million square metres**, integrates inmate employment programmes with sustainability measures, such as water recycling and a new wood chip boiler. This system boosts energy output by up to **800,000 kWh annually**, resulting in a **50% reduction in energy consumption**.

Additionally, the design of a new prison in **French Guiana** emphasised the use of local bio-materials and photovoltaic energy. In the meantime, projects in **Denmark** and **Greenland** focus on environmental assessments to protect local biodiversity during and after the construction of new prisons.



SESSION 5: Effective Waste, Water & Transport Management

Waste Management: The **Irish Prison Service** has launched an aerobic bio-digestion project, reducing organic waste by 75% and generating nutrient-rich bio-fertiliser for prison horticulture, resulting in €64,000 savings in 2023. The project has also provided work and training for prisoners who operate the systems, with no need for additional staffing. Plans are in place to expand the bio-digester program, creating a scalable sustainability model for the Irish Prison Service. In the **Netherlands**, sustainable waste management programmes in prisons reduce residual waste while offering detainees meaningful work and certification opportunities. **Germany** leads in single-use plastics management, recycling around 70% of its total waste.

Sustainable Practices in Water Management: Prisons in **Italy** have implemented measures to reduce water waste and secure the water supply, such as detecting leaks, raising staff awareness, harvesting rainwater, and using permeable pavements. Technical solutions include **water meters, pressure reducers, dual-flush toilets, and timed faucets**. To enhance energy efficiency in hot water production, solar collectors are installed on rooftops. These efforts support a circular economy by promoting the **reduction, reuse, refurbishment, and recycling of water resources**, boosting sustainability in prison facilities.

Transition to Sustainable Transport: Efforts to transition to **electric vehicles (EVs)** aim to reduce carbon emissions in the prison services in **Catalonia** and **Northern Ireland**. Alternative fuels like hydrogen and biomethane are being explored for vehicles unsuitable for electrification, emphasising the need for sustainable transport in prison services. Northern Ireland also shared their trial of **Hydro-treated Vegetable Oil (HVO)**, which, if successful, will reduce **CO₂ emissions by 85%** in their prison escort fleet.

SESSION 6: The Importance of Biodiversity

The significance of green spaces for **mental and physical well-being** is increasingly acknowledged, as showcased in a session focused on developing design guidance for external garden areas in UK prisons. Set for completion in 2025, this guidance aims to create **biodiverse garden spaces that enhance the well-being of both prisoners and staff.**

Biodiversity initiatives within operational prisons also play a key role, with the UK Ministry of Justice targeting a **+10% biodiversity net gain** in major projects through Nature Recovery Plans and a Biodiversity in Construction Policy.

In **Northern Ireland**, the prison service collaborates with environmental organisations to protect local flora and fauna. Notably, an initiative at **Maghaberry Prison** focuses on maintaining habitats for endangered lapwings, while another project at **Magilligan Prison** involves planting 40,000 native saplings, contributing to reforestation and increased carbon capture.

GREENSPACE IN PRISON

Starting points:

- Plenty of evidence of positive wellbeing effects from green space in other institutional settings (hospitals, schools)
- Increasing realisation that the same effect is probably present in prisons

BUT

- Prison evidence base is thin – decision makers need firm evidence
- Public opinion averse to prisons?
- Operational concerns: safety, contraband, risk, cost



Dominique Moran

UK's First All-Electric Prison and Site Visit to HMP Millsike

One of the workshop's highlights was **Raj Singh OBE's** presentation on **HMP Millsike**, the **UK's first all-electric prison**. Singh outlined the sustainable design and construction methods used to ensure that the prison meets net-zero targets. The facility uses renewable energy, efficient building designs, and sustainable materials to minimise its environmental impact while offering a more humane environment for prisoners.

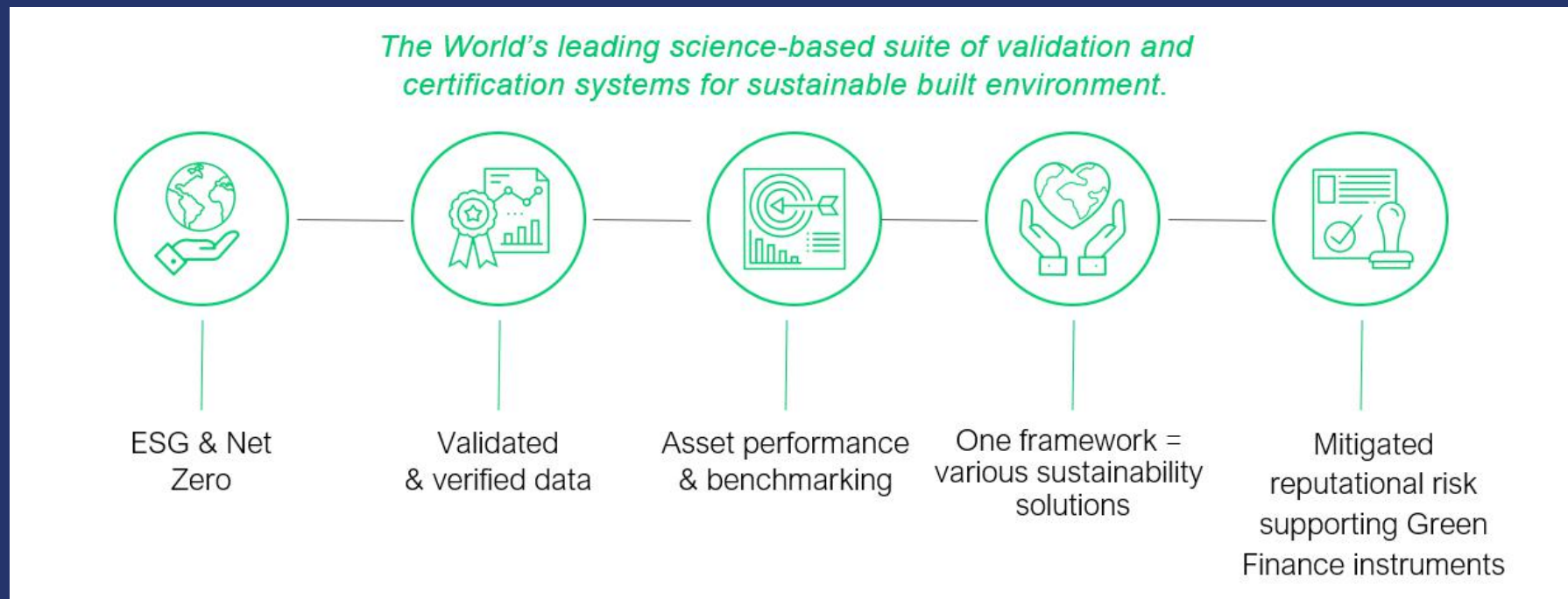
Following the presentation, participants had the opportunity to tour the HMP Millsike construction site, gaining insights into the real-world application of sustainable technologies in the prison environment. The visit provided a practical look at how prison facilities can incorporate sustainability from the ground up.



HMPP Millsike, September 2024.

BREEAM – The Building Research Establishment Environmental Assessment Method

James Fisher's BREEAM presentation highlighted its role as a leading system for **certifying sustainable built environments**, providing science-based data to benchmark asset performance. It addressed global challenges like the need for reliable data, better-performing assets, and support for ESG goals, net-zero targets, and sustainable finance. BREEAM certification increases asset value, reduces risks, and promotes healthier, more resilient buildings, with its positive impact seen in **CO2 savings** and adoption across **90+ countries**. The presentation also underscored BREEAM's collaboration with the UK's Ministry of Justice to adapt its criteria for prisons, ensuring security lighting takes precedence over concerns like night-time light pollution. This adaptation reflects the **balance between meeting strict security needs and maintaining sustainability goals within prison facilities**.



Picture from James Fisher's presentation "Introduction to BREEAM - Driving Sustainability in Real Assets".

Workplan of the EuroPris Real Estate Expert Group

The **EuroPris Real Estate Expert Group** aims to promote scalable solutions to common challenges facing the prison community across Europe. The group's work and areas for shared learning, including the current **sustainability initiative**, were outlined by chair **Tony McDonnell**. Previous work included guidance on designing **rehabilitative environments**, while their current focus is on **sustainability**. This includes developing an initial sustainability matrix and a series of leaflets to share specialist knowledge and best practices on various sustainability measures. **The Sustainability in Prisons workshop** is one outcome, highlighting the group's commitment to advancing sustainable practices in correctional facilities.

