

Script for EGB101 Group Q's Presentation

Project Context (Krystian)

The Brisbane City Council has introduced a new sustainability initiative aligned with four key United Nations sustainable development goals. Central to this is the WALI project, aimed at promoting waste awareness and lifecycle innovation.

The project's focus is on recycling, shifting from a linear economy with high waste and dwindling resources to a circular economy that connects waste back to production, fostering sustainability.

The automated waste sorting system developed in response to this project will increase recycling efficiency and contribute to a sustainable future. It aligns with Goal 7 by boosting renewability, Goal 12 by reducing reliance on natural resources, Goal 13 by cutting pollution, and Goal 11 by being integrated within Brisbane. Here are Alex Wen and Lucas to give you some more information about this implementation

Location and Users

Eagle Farm is a strategically chosen location for our automated waste segregation prototype due to its unique blend of industrial capability, accessibility, and environmental opportunity. Situated just 15 minutes from the Brisbane CBD and closely connected to major highways and freight terminals, the area supports high logistical flow—making it a hotspot for scalable infrastructure trials.

The suburb is also undergoing continuous development, with Brisbane City Council encouraging sustainable upgrades in preparation for the 2032 Olympics. This makes it an ideal testing ground for urban environmental solutions like our system.

One of the key reasons Eagle Farm stands out is because of its existing infrastructure. The suburb's landscape is dominated by modern warehouses and corporate industrial units with large-scale waste output.

These facilities already use centralized waste disposal and loading dock systems, making our prototype easy to integrate with minimal disruption. The units often include shared collection points, high-clearance storage, and flat flooring—perfect for installing transportable waste sorting devices.

This means we're not starting from scratch—we're enhancing a system that's already functioning. With consistent bin placement and predictable waste flow, we can test efficiency and contamination reduction with reliable metrics.

Eagle Farm has a population of approximately 2,000 people with Job roles such as pick packers, warehouse labourers, and machine operators being commonly found in the area, therefore, factory industrial waste is more common to be found.

The design Prioritize functionality, safety, and ease of navigation. Eagle Farm workers often work early mornings, night shifts, and weekends, this means the design should be usable 24/7. The design needs to use sound-dampening materials where possible, considering the users living around the area.

Design Features

Maintaining the Engineers Australia competency 3.1, the design will output minimal noise pollution, requiring the numerical decrease of moving components to increase mechanical efficiency and the chance of injury (Engineers Australia, n.d.).

Furthermore, accounting for Australia's 2018 National waste policy – focusing on recycling more waste (Australian Government, 2018) – WALI will focus on faster, broader sorting methods, using simpler methods like mechanical lever arms to scale WALI's ability to sort unconventional materials.

Additionally, in accordance with Australia's Net Zero plan – aiming to achieve net zero emissions – the design will use a clean energy system to power the facility to reach the 82% renewable energy target (Australian Government Department of Climate Change, Energy, the Environment and Water, n.d.). Therefore, energy efficiency is paramount for WALI, meaning the system will use microprocessors and crushing and unbaling machines to reduce energy consumption (ACAINDUSTRY, n.d.).

Community Impacts

Introducing WALI requires careful thought about community impacts.

Focusing on the positive, WALI will reduce pollution and landfill waste by sorting materials for efficient recycling. This implementation will provide a real step towards a cleaner future.

It also improves the public's health within Eagle Farm by lowering health risks from unmanaged waste such as a decrease in illness and diseases.

However, it's not just about cleaner surroundings. WALI will encourage people to participate in sustainable practices by raising environmental awareness and encouraging a culture of responsibility.

Like every other major initiative, it is likely to come with challenges. For instance, setting up infrastructure requires investment, and the initial cost may be high.

Furthermore, few residents may resist the WALI initiative, as they can be unfamiliar at first. But, with support and education, the transition can be smoother for the Eagle Farm community.

Another negative factor is the potential for noise and traffic from the sorting facility.

Finally, Matthew will summarize the key points of this initiative.

Conclusion

To sum up, the WALI project explores the need for improved sustainable processes, through proper waste management and recycling techniques. This solution being engineered to be used in major infrastructural areas like Eagle Farm to manage leftover waste to be properly disposed of or recycled.

The solution accounts for Engineers Australia competencies, with the need for efficient quick sorting techniques to sort higher amounts of materials. This aims to meet Australia Net Zero plan, while positively impacting users by having considerations surrounding its energy consumption, emissions and noise pollution in its design.

The design overall positively impacts the community allowing job opportunities while improving pollution, public health, and encouraging the use of sustainable processes.