Northport (Malaysia) Bhd Submission for: International Association of Ports and Harbors (IAPH) 2024 Sustainability Award

THE CIRCLE OF LIFE COMMUNITY GARDEN
Introduction & Background
The Needs Statement
The Concept of Northport’s Circle of Life
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The End Game
Port Klang

Northport is strategically located at the Straits of Malacca and it is surrounded by natural islands which protect the port from natural disaster.

There are 3 Ports in Port Klang which are Northport and Southpoint (formerly known as Port Swettenham) which is managed by Northport (Malaysia) Bhd and Westports which is managed by Westports Holdings Berhad.

Port Klang Cruise Terminal (PKCT) is 50% owned by Northport through its subsidiary, Klang Port Management.

Northport is proposing the development of the Carey Island Port and Special Economic Zone (CIPSEZ).
INTRODUCTION TO NORTHPORT

Northport (Malaysia) Bhd, situated at Port Klang, Malaysia is a member of MMC Group, Malaysia’s leading utilities and infrastructure group with diversified businesses under three divisions: ports & logistics, energy & utilities and engineering & construction.
HISTORY OF 123 YEARS

1901
Official opening of Port Swettenham
Managed by Malayan Railway Administration (MRA).

1963 / 1964
Management of port handed over to Port Klang Authority (PKA) with the completion of 4 berths.

1973
The beginning of containerization at Northport. Maiden call by MV Tokyo Bay.

1986
Klang Container Terminal (KCT) became the first privatization exercise in Malaysia.

In 1992, the rest of Port Klang facilities were privatized to Klang Port Management (KPM).

2000
Restructuring exercise by PNB – the birth of Northport (Malaysia) Bhd under NCB Holdings through the merger of KCT & KPM.

2016
MMC completes takeover of NCB Holdings.

MMC Corporation Berhad is a leading utilities and infrastructure Group with diversified businesses under four divisions, namely Ports & Logistics, Energy & Utilities, Engineering and Industrial Development.
NORTHPORT OPERATIONAL PERFORMANCE

**CONTAINER TOTAL THROUGHPUT (TEUs, millions)**

<table>
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<th>T/ship</th>
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<td>2023</td>
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**CONVENTIONAL TOTAL THROUGHPUT (FWTs, millions)**

<table>
<thead>
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<td>2022</td>
<td>11.12</td>
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<tr>
<td>2023</td>
<td>11.41</td>
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</tbody>
</table>

Record-breaking year in 2021 for container cargo segment: 3.32 mil TEUs

Record-breaking year in 2023 for conventional cargo segment: 11.41 mil FWTs
In 2023, Northport initiated a pioneering project: Northport’s Circle of Life (CoL) Community Garden Project as part of its overall Environment, Social & Governance (ESG) policy initiatives. The CoL is a closed-loop and circular economy concept of sustainability that combines multiple ESG initiatives carried out in Northport that promotes port community building, sustainability and environmental preservation with the ultimate goal of achieving better and sustainable wellbeing of the community and environment. The following are the 7 pillars of Northport’s CoL:

1. 3R Recycling Program
2. Port Reception Facility
3. Rain Water Harvesting
4. Solar Panel
5. Landscaping Project
6. Aerobic Digestor
7. Vertical Farming (Incorporating CSR)

Having implemented the above pillars, our current main focus is on large scale vertical farming towards community building and empowerment. Via thorough planning and research, our experts explored techniques such as hydroponics and aeroponics to grow crops in stacked layers. Advanced technology is used to generate fertilizer from food waste through aerobic digestion, to utilize the existing rain water harvesting system which in turn uses solar powered pumps to water the plants and hence providing the required nutrients for optimal growth.

The impact was not just about food security, it changed how Northport community viewed the environment. The project participants embraced “farm-to-table” practices, connecting with local growers and reducing their carbon footprint.

Looking forward, Northport plans to expand vertical farming, partnering with the local council and elevate this idea at a larger scale. It marks the start of a thriving ecosystem, blending sustainability and innovation for the benefit of Port Klang, the world’s 12th busiest port.
Northport’s Circle of Life

The Need Statements

Recognizing the Need
Northport recognized the importance of implementing a Circle of Life (COL) project when the company embarked on its ESG journey through 3R recycling campaign back in 2018.

Innovative Solution
Northport has employed creative and innovative solutions in its ESG initiatives to beautify and minimize the carbon footprint within the terminal. In addition to repurposing recycled materials for terminal landscaping, Northport has adopted vertical farming as an effective solution to address the port’s limited land resources.

Closed-Loop System
Starting with modest resources, Northport developed its own vertical farming model by reusing resources collected from 3R campaign through the Port Reception Facility, integrating rainwater harvesting, solar power for irrigation, and an aerobic digester to convert food waste into bioorganic compost. This closed-loop system, known as Northport’s Circle of Life, epitomizes sustainability.

Community Engagement
This initiative extended to community engagement through CSR programs with nearby schools, fostering education and involvement.

Broader Impact
Recognizing the potential for broader impact, Northport partnered with the Klang Royal City Council (KRCC) to promote sustainable urban agriculture through Circle of Life initiatives. Together, they identified and repurposed an abandoned piece of land into a Community Garden.

Stakeholder Support
This project embodies Northport’s commitment to community welfare and enjoys support from various stakeholders including industries and NGOs.
The Concept of Northport’s Circle of Life
Northport’s Circle of Life

The Idea and Concept

The idea came during Northport's Hari Raya Open House (Eid al-Fitr Open House) on May 12, 2023, themed "Hijaukan Raya Anda" or "Green Your Eid." Approximately 3,000 guests, including staff, customers, authorities, partners, and port users, had a first hand look at Northport’s ESG initiatives.

Booths featuring eco-friendly services and products were set up. With a zero-waste goal, organizers ensured all utensils and packaging were environmentally friendly, and any food waste was to be composted using aerobic digesters. The event achieved its objectives successfully.

This Open House sparked the “Circle of Life” idea incorporating 3R initiatives, vertical farming, renewable energy, water conservation, aerobic digestion, recycling and giving back to the community.

Since then, Northport has been steadfastly working towards realizing this vision, and expanding it to a higher level.
Northport’s Circle of Life
Integrating Community-Building and Circular Economy Concept

Our current main focus for CoL implementation and vision Leading to Community Building

PORT RECEPTION FACILITY

MARINE WATER PROTECTION

VERTICAL FARMING

PORT COMMUNITY

ENVIRONMENTAL & COMMUNITY WELL-BEING

3R RECYCLING PROGRAM

Wastes & Sludges

Recycle, Reduce & Reuse

Food Waste from canteen

AEROBIC DIGESTOR

Fertilizer

LANDSCAPING PROJECTS

RECYCLING PROGRAM

Food Waste

Recycle, Reduce & Reuse

SOLAR PANEL

RAINWATER HARVESTING

Port Beautification

PORT COMMUNITY

Food Waste

Recycle, Reduce & Reuse

Port Community

Vegetables / Fruits

Port Beautification

Port Community

leading to Community Building

Leading to Community Building
Program Objectives
Program Objectives
Pioneering CoL for Sustainability

Objective 1
Community Building & Empowerment: Northport aims to foster community engagement and empowerment through its CoL initiative.

Objective 2
Environmental Stewardship: to promote environmental sustainability and stewardship.

Objective 3
Employee Well-being: By providing employees access to fresh, nutritious produce.

Objective 4
Innovation and Collaboration: As a pioneer in vertical farming, Northport aims to drive innovation and knowledge sharing as well as attracting new partners in sustainable agriculture.

Objective 5
Food Security: reliable supply of locally grown produce, reducing reliance on external sources.
Road Map & Key Deliverables
# Northport’s Circle of Life

## Gantt Chart

<table>
<thead>
<tr>
<th>Circle of Life Element</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
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<th>2022</th>
<th>2023</th>
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<td>Port Reception Facility</td>
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<td>Aerobic Digestor</td>
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| Project implemented            |      |      |      |      |      |      |      |      |

**Northport’s Circle of Life Establishment**

**Beyond Northport Circle of Life - Schools**

**Beyond Northport Circle of Life - Community**

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*18*
Northport’s Circle of Life

Road Map & Key Deliverables

2018-2023
Initial Stage (Within Northport)
• Assessment and Planning
• Pilot Project Launch
• Monitoring and Evaluation

2024
Beyond Northport – Schools
• Community Engagement and Empowering Educational Institutions

2025
Beyond Northport - Community Building
• Focusing on Community Building at a Larger Scale

Northport’s Circle of Life Road Map & Key Deliverables
Northport’s Circle of Life
Road Map & Key Deliverables

2018-2023
Initial Stage (Within Northport)

• Assessment and Planning
  • Conduct gap assessment and feasibility studies to identify suitable locations and potential areas for implementation.
  • Assess existing infrastructure, resources, and regulatory requirements.
  • Develop a comprehensive project plan, including budgeting, timeline, and key performance indicators (KPIs).

• Pilot Project Launch
  • Select a pilot site and community partner.
  • Design and set up vertical farming infrastructure, including hydroponic/aeroponic systems, lighting, and climate control.
  • Train team members, including agricultural experts, technicians, and community liaisons.
  • Launch the pilot with high-demand crops for employees and the local community.

• Monitoring and Evaluation
  • Implement systems to monitor crop growth, resource usage, and community engagement.
  • Collect data on yield, quality, and cost-effectiveness.
  • Gather feedback from employees and community members.
  • Regularly evaluate project performance against KPIs.
Northport’s Circle of Life
Road Map & Key Deliverables

2018-2023
Initial Stage
(Within Northport)

2024
Beyond Northport – Schools

• Community Engagement and Empowering Education Institutes
  • Expand community outreach by engaging community and educational institutions such as schools and universities.
  • Leverage CSR program as a platform to empower community and educational institutions for the project such as students and teachers.
  • Ongoing collaborations with local schools to develop educational initiatives, workshops, and events especially for students to instil sustainability awareness and mindset.
Northport’s Circle of Life
Road Map & Key Deliverables

2018-2023
Initial Stage (Within Northport)

2024
Beyond Northport – Schools

2025
Beyond Northport - Community Building

- Focusing on Community Building at a Larger Scale
  - Fine-tune the operations based on data-driven insights and lessons learned for bigger project setup.
  - Engaging city council as land owner and project co-champion, to identify suitable potential area for community-sized CoL project.
  - Identifying resources and stakeholders needed for project implementation.
  - Establishing project timeline and Terms of References (TOR) for project governance.
  - Official launch of the community CoL project.
  - Stakeholders to collaboratively maintain and sustain the CoL project.

Northport’s Circle of Life
Road Map & Key Deliverables

A Member of MMC Group
# Sustainable Circle of Life Key Deliverables

<table>
<thead>
<tr>
<th>Carbon Reduction</th>
<th>Renewable Energy Integration</th>
<th>Local Food Production</th>
<th>Economic Viability</th>
<th>Community Engagement</th>
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<tbody>
<tr>
<td>Employing methods to reduce greenhouse gas emissions associated with food production, transportation, and operation of vertical farming.</td>
<td>Incorporating renewable energy sources such as solar panels or to power vertical farming operations reduces reliance on non-renewable energy sources and minimizes the carbon footprint.</td>
<td>Providing fresh produce locally reduces carbon emissions from transportation and storage. Vertical farms in Northport can supply fresh produce to the community, enhancing food security and lowering the environmental impact of long-distance transport.</td>
<td>Demonstrating that CoL could generate sustainable income through a closed-loop ESG initiative system. Sustainable vertical farming is economically viable in the long term by optimizing operational efficiency, reducing production costs through RE integration and aerobic digester. Partnerships with local restaurants and retailers will give ample supply of food waste that eventually reduces the need of buying fertilizer to fertilize the farm and gardens.</td>
<td>Fostering strong community engagement through the pillars of CoL that promote environmental stewardship and social responsibility. These activities not only enhance the local environment but also build a sense of unity and purpose which reinforces the commitment to creating a positive, lasting impact and nurturing a collaborative spirit for a greener, more sustainable future.</td>
</tr>
</tbody>
</table>
Gap Assessment
A GAP assessment involves identifying the variance between the current state of a system or process and its desired state or best practices.

Assess current space use and explore vertical farming, while evaluating water and nutrient management for improvements.

Assess current renewable energy use in vertical farming and identify ways to increase and integrate it more effectively.

Evaluate waste management and identify opportunities for closed-loop systems and waste repurposing within farming or local collaborations.

Assess current water usage and irrigation practices, aiming to reduce consumption through more efficient techniques or water recycling systems.

Evaluate current community engagement efforts, aiming to expand through education programs, outreach events, or local partnerships.
Success Criteria Measures

1. Increase Community Engagement and Awareness
   Measure involvement, assess awareness, and track participation.

2. Reduction in Environmental Impact
   Quantify carbon footprint reduction and measure water usage decrease.

3. Enhance Food Security and Accessibility
   Quantify access increase, measure food insecurity reduction, and monitor business involvement.

4. Optimize Infrastructure and Technological Advancement
   Measure production efficiency, assess technology integration, and track infrastructure maintenance.

5. Increase Collaboration and Partnerships
   Quantify collaborative initiatives, assess partnership impact, and track community network strength.
The Implementation
The CoL Implementation

3R Recycling Program

- Northport’s annual 3R Recycling Program is a key sustainability initiative focusing on reducing, reusing, and recycling waste among all the Divisions and Departments in the port.

- The program has significantly reduced waste output and boosted recycling rates, reflecting the dedication of participants, driving towards a cleaner, greener, and more sustainable future.

![Image of recycling program participants and materials]

<table>
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<tr>
<th>Division / Dept Participated Each Year</th>
<th>Total Tonnage Waste Collected</th>
<th>Tonnes Garbages collected</th>
<th>RM 75k Total 3R sales proceeds collected</th>
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<tr>
<td></td>
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![Graph showing total tonnage waste collected from 2018 to 2023]
The CoL Implementation

The Port Reception Facility

In December 2020, Northport and its Partner, Alam Flora Environmental Solutions Sdn. Bhd. (AFES) set a significant milestone with the establishment of the first integrated Port Reception Facilities (“PRF”) in Malaysia to manage scheduled and non-scheduled waste in compliance with the International Convention for the Prevention of Pollution from Ships (“MARPOL”) standard.

Port Reception Facilities (PRF) is one of the most important facilities that every marine port must provide to collect residues, oily mixtures, and garbage generated from seagoing vessels. The arrangements must be such that the receiving operation can be performed as fast as possible to avoid undue delay of the ship.

The merchant fleet of ships in the shipping industry is generally divided into two main categories - Dry ships, which carry dry cargo in bulk & Wet ships, which carries liquid cargo in bulk. Both types of ships generate oily residue mixture and garbage during their normal shipping and cargo carrying operation at ship and at port.
Northport’s Rainwater Harvesting Initiative focuses on water usage reduction within the office and warehouse facilities.

Northport has installed 3 rainwater collection systems at NDSB Warehouse D6, Operational office building Block A and B with a total capacity of 1050 gallons (4,000 litres).

Collected rainwater is utilized for landscaping, irrigation system for vertical farming, yard and containers cleaning, and other non-potable uses.
The CoL Implementation

Solar Panel Initiatives

In 2021, Northport emphasized its commitment towards sustainability and renewable energy by installing solar panels at NDSB Warehouses D6 and D7.

With a total area of 200,000 sqft, and capacity of 1.8 MWp, it can generate in total of 2 GWh energy annually.

Solar panels are also used to power up the motor pump for the irrigation system of Northport’s Vertical Farming initiatives.

These initiatives have successfully reduced the port’s electric consumption by 10%.
The CoL Implementation

Landscaping Competition

• In 2021, Northport hosted a Landscaping Competition among its divisions and departments.

• Each division or department designed and implemented innovative garden and landscaping projects inside the port terminal, emphasizing the usage of 3Rs concept: Reduce, Reuse, and Recycle.

• Participants creatively used recycled materials and sustainable elements, including native plants, to enhance their gardens.

• The competition fostered teamwork, promoted green practices, and at the same time beautified the port facilities.

• Winners received recognition and prizes, reinforcing Northport’s commitment to environmental stewardship and a vibrant, eco-friendly workplace.
The CoL Implementation

Zero Waste Raya Celebration

• On the 12th of May 2023, Northport held its annual Hari Raya Open House under the theme "Hijaukan Syawal Anda" or "Green Your Eid". This event spotlighted the significance of ESG (Environmental, Social, and Governance) principles, showcasing a myriad of ESG initiatives from Northport.

• The ambitious goal of achieving Zero Waste at this event aimed not only to heighten awareness but also to promote the use of eco-friendly materials by all vendors, alongside the strategic placement of recycling bins. This effort underscores Northport's commitment to sustainability and community engagement.
The CoL Implementation

Composting Machine

- On 21st November 2023, the MAEKO Food Composting Machine was installed at Northport’s Canteen.

- Canteen staff and HSE personnel received comprehensive training on operating and maintaining the machine.

- This initiative will help the canteen convert food waste into compost, thereby minimizing waste and supporting environmental sustainability efforts.
The CoL Implementation

Vertical Farming

• Northport installed its first Vertical Farming System made from recycled materials on 7th September 2023.

• This sustainable setup produces a variety of crops, including salad, water spinach, spinach, and leaf mustard, which are sold directly to Northport staff and Northport’s canteen operators, promoting local consumption and reducing environmental impact.

• This initiative not only provides fresh produce but also supports environmental sustainability, community engagement, and economic value for Northport.

• To date a total of 24.0 kg vegetables have been harvested and sold to staff and canteen operators from this initiative. Northport has also given the vegetables as charity to port communities totaling 4.5 kg to date.
The CoL Implementation

Vertical Farming

- Vertical Farming (VF) is a type of agriculture system where crops are grown in vertically stacked layers in a controlled environment.
- The concept allows farmers/operators to grow plants with less monitoring and little water usage (closed system with recycled water), and less land area required.
- The VF is flexible and can be placed anywhere including in busy, land-locked ports. It also can help to improve air in areas where smog and dusk are highly concentrated.

The implementation of the vertical farming will support to achieve several SDGs.

Food Waste from Canteen

Rainwater Harvesting + Vertical Farming + Aerobic Digester + Renewable Energy
Why Vertical Farming?

- According to research conducted by OneFarm based in the Netherlands, VF can potentially emit 70% less CO2 compared to open field agriculture, with additional benefits of 95% less land used and 80 to 90% less water use.
- Moreover, vertical farming can substantially reduce the amount of food waste.

![KgCO2eq emissions per ton of harvested lettuce](image)

*Figure 1: Mean CO2 emissions per kg of lettuce for Green Vertical Farming, Conventional Vertical Farming, Advanced Greenhouse, Conventional Greenhouse and Open Field Agriculture.*
Distribution of CO2 emissions in different agricultural systems per ton of lettuce

Figure 2: Distribution of CO2 emissions per ton of lettuce for Green Vertical Farming, Conventional Vertical Farming, Advanced Greenhouse, Conventional Greenhouse and Open Field Agriculture.
The CoL Implementation

Northport’s Vertical Farming Market

• Northport held a Vertical Farming Market on 28th May 2024.

• A total of 19.5 kg (65 packs) of organic vegetables were sold at RM175.00 and 13.5 kg of organic compost were sold at RM216.00 to the port community.
The CoL Implementation

CSR at School & Community

Northport held CSR programs with local schools prior to the Deepavali, Chinese New Year festivities, and Hari Raya Aidilfitri celebrations in 2023 and 2024. These initiatives introduced pillars of CoL which focusing on vertical hydroponic farming to students, fostering environmental awareness and sustainability. Through installations and educational sessions, Northport engaged students in hands-on experience, promoting responsible environmental practices aligned with the company's ESG framework.

CSR at Sekolah Jenis Kebangsaan (Tamil) Taman Sentosa, Klang on 7th November 2023

CSR at Sekolah Jenis Kebangsaan (Cina) Pandamaran Jaya, Port Klang on 5th February 2024

CSR at Sekolah Kebangsaan Rantau Panjang, Klang on 1st April 2024
The Vision
Northport’s Circle of Life

The Vision : In a Nutshell

FROM... small-scale initiative i.e. Planting vegetables for canteen consumption using fertilizer from food waste using aerobic digester (circular economy concept)

TO... carrying out CSR programme with schools, contributing vertical farming equipment and teaching hydroponic farming to the students

AND ULTIMATELY...

Objective:

Community-
Contribution Concept of Larger Scale of CoL:

Northport, Universiti Utara Malaysia and Klang Royal City Council (KRCC) together with industry players to come together in an effort to empower local community towards self-sufficiency in fruits and vegetables and landscape enhancement within Port Klang by utilizing “abandoned land/area” for this purpose.

AND ULTIMATELY...

Proposed land by KRCC in Bandar Sultan Suleiman (near Masjid As-Saadah, Bandar Sultan Suleiman) measuring approximately 1.8 acres as the large scale vertical farming project site (Circle of Life Community Garden)

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1) SK Rantau Panjang
2) SJK (T) Taman Sentosa, Klang
3) SJK (C) Pandamaran A, Port Klang

COMMUNITY CONTRIBUTION CONCEPT OF LARGER SCALE OF CoL:

- Northport, Universiti Utara Malaysia and Klang Royal City Council (KRCC) together with industry players to come together in an effort to empower local community towards self-sufficiency in fruits and vegetables and landscape enhancement within Port Klang by utilizing “abandoned land/area” for this purpose.

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Community Circle of Life
Integrating Community-Building and Circular Economy Concept

3R RECYCLING PROGRAM
Recyclable Wastes
Recycle, Reduce & Reuse
Food Waste
AEROBIC DIGESTOR
Food Waste from Food Courts
Fertilizer
LANDSCAPING PROJECTS
Recycle, Reduce & Reuse

SMART 3R FACILITY
VERTICAL & CONVENTIONAL FARMING
Vegetables
Community

SOLAR PANEL
RAINWATER HARVESTING
Waste Reduction

ENVIRONMENTAL & COMMUNITY WELL-BEING
Beautification of Port Klang

Our current main focus for CoL implementation and vision
Food Waste from Food Courts
Recycle, Reduce & Reuse
Fertilizer

Community Building
Leading to

44
Vertical Farming In a Bigger Scale

To further elevate this initiative at a larger scale, Northport has collaborated with Klang Royal City Council (KRCC) to extend this ambitious CSR initiative focusing on vertical farming. This initiative aims to not only promote sustainable urban agriculture but also foster community engagement and integrate circular economy principles. A meeting was held on 17th May 2024 where the KRCC Mayor emphasized the significance of community involvement and sustainability in the maintenance of the proposed urban farm, suggesting a collaborative effort between various stakeholders including schools, mosques, and nearby housing areas. The meeting delved into location considerations, support from expertise, and the incorporation of recycling elements to enhance the project's impact.

A Letter of Intent (LOI) was signed on 28th May 2024, whereby the focus of the collaboration are as follows:

a) **Community-focused CSR Initiative:** The Mayor emphasized the importance of a community-centric approach to the CSR initiative, particularly highlighting the maintenance and sustainability of the "urban farm." It was proposed that interested community members, including schools, mosques, and nearby low-cost housing areas should be trusted for the upkeep of the vertical farm. Caretakers of the farm would maintain direct communication with Northport's Facilities team for support and guidance. To address concerns about potential challenges in accessing Subject Matter Experts, Northport assured that adequate support would be provided, drawing from past experiences in supporting schools under previous CSR programs. Additionally, the Mayor also suggested implementing an interview process for selecting caretakers.
b) **Mayor Support and Anticipation:** The Mayor expressed strong support and enthusiasm for the project, citing her prior involvement in similar urban farming projects in Subang. She noted her satisfaction with Northport's initiative in spearheading this project in Klang, where urban farming initiatives had not yet been explored.

c) **Location Suggestion:** The Mayor proposed a 1.8-acre land near Bandar Sultan Sulaiman, Port Klang as a suitable location for the initiative. This location was chosen due to its proximity to low-cost housing areas, food stalls, shops, a community hall, and a mosque. Although initially planned for a morning market ('Pasar Pagi'), the land remained unused. The Mayor suggested repurposing it for both a morning and night market while integrating the circular economy concept. This would involve utilizing an aerobic digester, collecting food waste from nearby stalls/shops and selling vegetables to market merchants.

d) **Greenery Replacement and Naming:** The Mayor stressed the importance of environmental sustainability by replacing existing trees/bushes with plants, specifically the vertical farm. Additionally, Northport was tasked with proposing a catchy name for this initiative.

e) **Recycling Element Integration:** Northport proposed incorporating recycling elements (3R) into the project, such as reusing port waste such as interlocking blocks, used tires, and gutters for project development.

f) **Collaboration with Industry Players:** The discussion also highlighted the importance of collaborating with industry players to enhance the project’s impact and sustainability.
Meeting with Mayor of KRCC
A meeting was held with KRCC to discuss project details and community involvement on 17th May 2024.

Land Allocation Finalized
A 1.8-acre site near Masjid Bandar Sultan Sultan Suleiman (Bandar Sultan Suleiman Suleiman Mosque) has been identified and finalized for the project, chosen for its strategic location near key community areas on 17th May 2024.

Letter of Intent (LOI)
Northport and KRCC has agreed on LOI to formalize the collaboration on 31st May 2024 (letter dated 28th May 2024).

Potential Sponsors and Collaborations
Discussions with identified potential sponsors and collaborations with industry players to enhance the project’s impact.
CoL Beyond Northport

The Ultimate Goal: Sustainable Community Building

1. Morning/Night Market
   - Empowering local and small business owners.

2. Food Waste Collection
   - Reducing waste and promoting sustainability.

3. Industry Sponsorship
   - Securing support from local businesses.

4. Community Collaboration
   - Working with community leaders and resident associations.

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**Student Empowerment**
- Empower school students and small scale businesses and entrepreneurs.

**Community Building**
- Fostering a strong, supportive local community.

**Industry Partnerships**
- Partnership with industry players.
CoL Beyond Northport
BSS Circle of Life Community Garden

Location:
Bandar Sultan Suleiman (BSS),
Port Klang, Selangor, Malaysia
CoL Beyond Northport
BSS Circle of Life Community Garden

- Solar & RWH System
- Vertical Garden
- 3R Center & Aerobic Digester
- Parking Area
- Hydroponic Garden
- Market Place
CoL In a Bigger Scale

Expected Outcomes

**Current State:**
Northport CoL - Vertical Farming Project & CSR Programme

As of now, in total, Northport vertical farming including the CSR programme for schools has utilised a total of 1,200 pots. This has resulted in

300 packs
of harvested crops (per season is approximately 1 month).

With that, to convert in terms of revenue¹, per season is

RM600.00
at RM2.00/pack

At estimation, 20 kg of valuable compost per season (every 1 month) produced by aerobic digester (converted from about 100 kg of food waste). Hence, preventing ~1,200 kg of food waste from ending up in landfill per year. This is equivalent to 2,280 kgCO₂-e emissions avoided (source: Food Waste Greenhouse Gas calculator by watchmywaste.com.au).

**Future State:**
Large Scale CoL of Vertical Farming Project

At ~1 acre, 42,000 pots² would result in

10,500 packs
of harvested crops.

With that, to convert in terms of “revenue¹”, per season is

RM21,000.00
at RM2.00/pack

At estimation, 150 kg of valuable compost per season (every 1 month) produced by aerobic digester (converted from about 750 kg of food waste). Hence, preventing ~9,000 kg of food waste from ending up in landfill per year. This is equivalent to 17,100 kgCO₂-e emissions avoided (source: Food Waste Greenhouse Gas calculator by watchmywaste.com.au).

Notes ¹: the actual total collection is RM175.00 for vegetables and RM216.00 for compost as of now due to the CSR programme and distribution as part of charity.

Notes ²:
- 42,000 pots is based on 1 set requires 75 sq.ft and 1 acre is 43,560 sq.ft.
- At estimated 65% usage, it is 28,314 sq.ft.
- 28,314 sq.ft/75 sq.ft = 350 sets. 350 sets x 120 pots = 42,000 pots. 1 set is 120 pots.
CoL Beyond Northport Media Coverage

**The Malaysian Reserve**

**Northport, MBDK utilise vertical farming for Circle of Life Community Garden project**

Northport-MBDK utilise vertical farming for Circle of Life Community Garden project

**KOSMO**

**Northport, MBDK laksana projek pertanian bandar**

Northport, MBDK laksana projek pertanian bandar

**Sinar Harian**

**Northport-MBDK jalin kerjasama pertanian bandar**

Northport-MBDK jalin kerjasama pertanian bandar

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by ZAHRA ZAIN

**NORTHPORT** (M) Berhad and the Klang Royal City Council (MBDK) will collaborate on an initiative to foster sustainable urban agriculture through a large-scale vertical farming project.

The “Circle of Life Community Garden” project is an initiative to increase urban farming in the area, assisting community engagement and integrating principles of the circular economy.
## CoL Beyond Northport

### Indicative Project Timeline

<table>
<thead>
<tr>
<th>High-level Timeline</th>
<th>Agenda</th>
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<tr>
<td>May 2024</td>
<td>Signing of LOI and announcement of Circle of Life Community Garden project</td>
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<tr>
<td>Early July 2024</td>
<td>Engagement with stakeholders</td>
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<tr>
<td>Mid July to Mid September</td>
<td>Establishment of land to be used</td>
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<tr>
<td>Mid September to Mid November</td>
<td>Resource gathering, sourcing, preparation (land clearing, technology, equipment, manpower etc.)</td>
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<tr>
<td>End of December</td>
<td>Installation of equipment</td>
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<tr>
<td>January 2025</td>
<td>Official launch of the BSS COL Community Garden</td>
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</table>
City Rooftop Farm at Central i-City. CityFarm Malaysia transformed the roof space of Central i-City into an urban farm, which houses the first rooftop premium melon farming as core cultivation.

Kebun-kebun Bangsar’s “urban farm” a model community garden. The farm has received more than 100,000 visitors over the past five years.
The End Game
Stakeholder Engagement Strategy:
Engage stakeholders, including schools and religious centers, in the garden maintenance. Set up communication channels for ongoing support from Northport team.

Site Evaluation and Acquisition:
Assess the land near BSS Mosque for soil quality, accessibility, and compliance. Initiate dialogue with authorities and community leaders for necessary project approvals.

Specialized Expertise Integration:
Collaborate with the “garden engineer” of urban garden project for expertise in urban farming infrastructure. Partner with industry experts and research institutions to innovate and enhance sustainability practices.

Sustainable Development Framework:
Develop a sustainability framework with eco-friendly practices and explore circular economy initiatives to minimize impact and enhance resilience.

Strategic Partnerships and Communication Strategy:
Formalized through a Letter of Intent (LOI) to KRCC or Majlis Bandaraya Diraja Klang (MBDK) which was signed on the 28th May 2024, while cultivating relationships with stakeholders and influencers for project visibility.
The End Game

The Circle of Life project aims to achieve its end goal which is transforming Port Klang into a greener, more sustainable port city.

1. **Circle of Life Community Gardens**
   By having this community garden, it will be a one stop center that incorporates all ESG elements in one place which can be replicated throughout the city.

2. **Green Spaces**
   Green spaces in place of abandoned lands to offer residents and communities a break from the hectic urban life.

3. **Sustainable Development**
   The project's success will not only revitalize Port Klang but also set an example for sustainable development, demonstrating how cities can balance industrial growth with environmental stewardship.
Thank You

NORTHPORT

A Member of MMC Group

- Safer, Greener, Smarter, Better -

NORTHPORT (MALAYSIA) BHD
Jalan Pelabuhan, Pelabuhan Utara 42000
Pelabuhan Klang
Selangor

- Safer, Greener, Smarter, Better -