Closing Loops & Becoming Resource Resilient

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Contents

• A little bit about us
• Our vision on circular economy (CE)
• What CE means for us
• How do we do it?
Our mission:

Connecting the Netherlands:

Connecting the Netherlands to the rest of the world in order to contribute to prosperity and well-being in this country and elsewhere;

Connecting to compete and to complete
Structure Royal Schiphol Group

Shareholders:
State of the Netherlands: 69.8%
Municipality of Amsterdam: 20.0%
Municipality of Rotterdam: 2.2%
Groupe ADP: 8.0%
Business area’s

**Aviation**
- Infrastructure and facilities for airlines, passengers, handling agents and logistic service providers at Schiphol
- Security and safety at Schiphol

**Real Estate**
- Operational and commercial real estate at Schiphol and other airports

**Consumer Products & Services**
- Products and services for travellers and businesses at Schiphol

**Alliances & Participations**
- Participating interests in airports in the Netherlands and abroad
- Other domestic and international activities

Business model Royal Schiphol Group
Some key figures...
Our job is to maintain and further develop Mainport Schiphol’s position as a multimodal hub. To do this, Schiphol Group must be successful across the board. Our strategy is embodied in five themes:

• Top Connectivity
• Excellent Visit Value
• Competitive Marketplace
• Development of the Group
• **Sustainable & Safe Performance**
FUTURE AVIATION SECTOR
AVIATION SECTOR WITH A CLEAN FUTURE
CLIMATE NEUTRAL: 2040

RESILIENT AIRPORTS
ADAPTIVE SELF-SUSTAINING AIRPORT
ZERO WASTE: 2030

WELL BEING COMMUNITIES
AIRPORTS & METROPOLE AREA’S GROW TOGETHER
HEALTHY WORK & LIVING

“OUR JOURNEY TOWARDS SUSTAINABLE CONNECTIONS” – CORPORATE RESPONSIBILITY STRATEGY – SCHIPHOL GROUP

SCHIPHOL GROUP STIMULATES THE AVIATION SECTOR IN THE TRANSITION TO CLEAN ENERGY AND ENLARGES AWARENESS TO FUEL CHANGE.

SCHIPHOL GROUP TAKES THE LEAD IN AIRPORTS SUSTAINABILITY DECLARATION IN ORDER TO STIMULATE COLLABORATION AMONG (INTER)NATIONAL AIRPORTS.

SCHIPHOL GROUP INCREASES ITS VALUE CREATION BY IMPACT MEASURING.

SDG 9
INNOVATION AND INFRASTRUCTURE

SDG 17
PARTNERSHIPS FOR THE GOALS

SDG 12
RESPONSIBLE CONSUMPTION AND PRODUCTION

SDG 13
CLIMATE ACTION

SDG 8
DECENT WORK AND ECONOMIC GROWTH

SDG 11
SUSTAINABLE CITIES AND COMMUNITIES
Circular Economy

Why circular economy?
Commodity price & GDP index 1975-2013

- **1975-2000**: For every 1% growth in GDP, commodity price index fell 0.5%
- **2000-2013**: For every 1% growth in GDP, commodity price index rose 1.9%

Why CE on Schiphol?

- Schiphol is against wasting and promotes cost savings
- Reduce our dependency on raw materials and
- Strengthen our capability to grow or adapt physically

→ Creating an airport with future
Strategic goals

1. (a) **Circular design and construction** of all new buildings and/or renovation of assets and (b) **circular procurement** of materials, products and services.

2. Achieving a **maximum return on resources** by “circulating” them for as long as possible in the use phase, in assets or products.

3. Capturing **maximum (economical) residual value** from residual flows that are released through all processes and activities, by reusing and/or recycling.
Creating & Conserving Asset Value

1. Circular Design & Resources:
   a) Design for dis- and re-assembly
   b) Apply materials that are eco, healthy, recycled, recyclable and or biobased
   c) Safeguard circularity in the future (material pass ports, supplier take back programs, reuse on site or surroundings etc)
   d) Use Pay-Per-Service solutions
   e) Ban the use of toxic substances

2. Maximize resource efficiency:
   a) Expand the lifetime of assets, products and materials on site through maintenance, repair/upgrade

3. Maximize Reuse, Recycling & Separation rates:
   a) Coordinate supply and demand of materials between (regional) projects
   b) Introduce residuals at the highest possible level in the waste hierarchy
   c) Eliminate waste leakage
**Zer0 Waste 2030 Programma**

**Ambition**

**Strategy**

**Initiatives/ measures**

- Develop & Procure Circular Real Estate & Assets
  - Design Principles & Specifications for the built environment
  - Pilot and implement Pay-per-Use solutions
  - Develop circular procurement capabilities

- Maximize Return On Resources
  - Strategic Resource Management models and toolings/ asset management
  - Independent order based registration system disposal of residual streams
  - MaterialsHub where supply and demand is coordinated and matched locally and regionally

- Capture Maximal Residual Value Rest Streams
  - Material passports & Demolition and reuse guidelines
  - Incentives for tenants and concession holders to produce less and separate more
  - Pilots and business development: convert residual streams into building materials
  - Strategic partnership: Suez

- Inspire, Motivate & Empower Employees & Business Partners
  - Inspiration sessions (Thomas Rau) and excursions to Park 20|20 and Liander
  - Helpdesk, consultancy & training
  - Taskforce Circular Economy + The Speedboat Concept
YES we can!
Schiphol – Ecor Circular Building Shots

- Simple design, easily disassembled
- Made from Elephant’s grass and tetra pack’s
- After use returned to supplier
- Returns as a new sheet to be used again
- **Procurement**: pilot through contract VolkerWessels Infra + Suez
- **Role of government**: none, issues regarding certification (fire safety)
Blueveyor - Vanderlande

- 99% Recyclable
- First circular baggage conveyor belt
- Cradle-to-Cradle certified
- 60% more energy efficient
- Free from toxic substances
- **Procurement:** pilot through contract with Vanderlande
- **Role government:** none, issues with fire safety
LaaS – Philips, Engie

- 50% reduction in energy use
- 75% longer lifespan
- Less maintenance
- Complete fixture can be reused
- **Procurement**: brought under the contract with Engie (Cofely)
- **Role government**: none (that i know of)
• Lessons learned:
  – Traditional request for proposal
  – Circularity was a small part of sustainability
  – Circularity was not taken into account from the beginning of the project
  – Criteria Sustainability did not get enough “weight” to make a difference
  – Market proposed same old solutions in a new packaging
  – Circularity not safeguarded enough after the use phase

• **Procurement:** EU tendering
• **Role government:** none
Speedboats?

Speedboats are planned projects of which the multi disciplinary team gets guidance and help from Turntoo in order to develop a circular asset or real estate:

• Right mind set
• Exploration of market and possibilities
• Design principles and guidelines
• Formulate the right questions for the market
• Evaluate participants during the tendering process
• Sparring partner/ consultancy

2017:
1. Renovation C-Pier
2. Renovation The Base A Tower
3. New Terminal
Tell me and I forget, teach me and I may remember, involve me and I learn.

— Benjamin Franklin —
We aim to create growth with positive impact.
53% of all material input at Schiphol: Kerosine (LTO)
Food passing through Schiphol per year: €217 million
Only €160 million is actually consumed!
= 32 million meals wasted, worth €57 million
98 tonnes per year
€2.6 million extractable value
Biggest Challenge Areas For Schiphol

- Business model depends on fossil fuels
- Building materials
- Food & Consumer products
- Electronic equipment
The PPT template: How does it work?
Questions?

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