PRESI
Pathways to Resource Efficiency in Santa Cruz Industries

PRESI 2
Industrial Symbiosis

Screening Report

Conducted by Viegand Maagøe, Kalundborg Symbiosis, Kalundborg Utility & Clean in collaboration with AEDIN, Santa Cruz Industrial district, Brazil

Funded by: Danish Energy Agency

July 2025

Content

Background

The project "Pathways to Resource Efficiency in Santa Cruz Industries" (PRESI) aims to help industrial stakeholders in the AEDIN industrial cluster find value in waste streams by creating new partnerships and opportunities.
The main activities in the PRESI project involve providing training and capacity-building activities on industrial symbiosis for members of the AEDIN Industrial Cluster, the State of Rio de Janeiro, and other relevant stakeholders in Rio de Janeiro.
The primary focus of this project is that the partners gain knowledge and strengthen their belief in the potential and power of industrial symbiosis partnerships.

The project seeks to help industrial stakeholders in the AEDIN industrial cluster identify new business opportunities from waste streams in their production, and to forge new business-to-business relations creating new value from resources that used to be seen as waste.

This report is based on PRESI 2 activities during an Industrial Symbiosis Week which took place in May 2025 and is building on the findings in PRESI 1 which took place in 2024

The PRESI-project is funded by the Danish Energy Agency

Purpose

The purpose of this report is to uncover the potential for symbiosis collaborations between companies in the AEDIN Cluster, as well as to support the partners in implementing and anchoring the industrial symbiosis partnership in AEDIN and other areas of the State of Rio.

The main focus of this report is the industrial symbiosis visits, or screenings, conducted during the delegation tour and Symbiosis Week in May 2025. The full program of the week is provided on the next page. As you will see, there were also many activities related to the governance of an industrial symbiosis partnership. Therefore, this has resulted in a dedicated chapter on governance in the report.

This report is produced as a deliverable in the PRESI 2 project, and the target group is the internal project partners. But externals can also benefit from the insights presented here.

Programme

12/05/2025 (seg/mon)

10:00 - 13:00	15:00 - 16:00	16:00 - 18:00
Workshop: Construção do Guia de Facilitação da Simbiose Industrial	**Apresentação: Kick-off da semana - De onde viemos para onde queremos ir**	**Coquetel**
Workshop: Building the Industrial Symbiosis Facilitation Guide	*Presentation: Kick-off of the week - Where we came from to where we want to go*	*Cocktail*

13/05/2025 (ter/tue)

09:00 - 12:00	14:00 - 16:00
Visita Técnica de Mapeamento - Fábrica Carioca de Catalisadores (FCC)	**Reunião: Facilitando a Governança da AEDIN**
Technical Screening - Fábrica Carioca de Catalisadores (FCC)	*Meeting: Facilitating AEDIN Governance*

14/05/2025 (qua/wed)

09:00 - 12:00
Visita Técnica de Mapeamento - Casa da Moeda
Technical Screening - Casa da Moeda

14/05/2025 (qua/wed)

14:00 - 16:00	14:30 - 15:30
Tour: Análise da Infraestrutura de Água do Distrito	**Atividade externa: Painel "Sucesso colaborativo: construindo relações simbióticas na indústria", no Fórum Mundial de Economia Circular 2025.**
Tour: Analysis of the District's Water Infrastructure	*External activity: Panel "Collaborative success: building symbiotic relationships in industry", at the World Circular Economy Forum 2025.*

15/05/2025 (qui/thu)

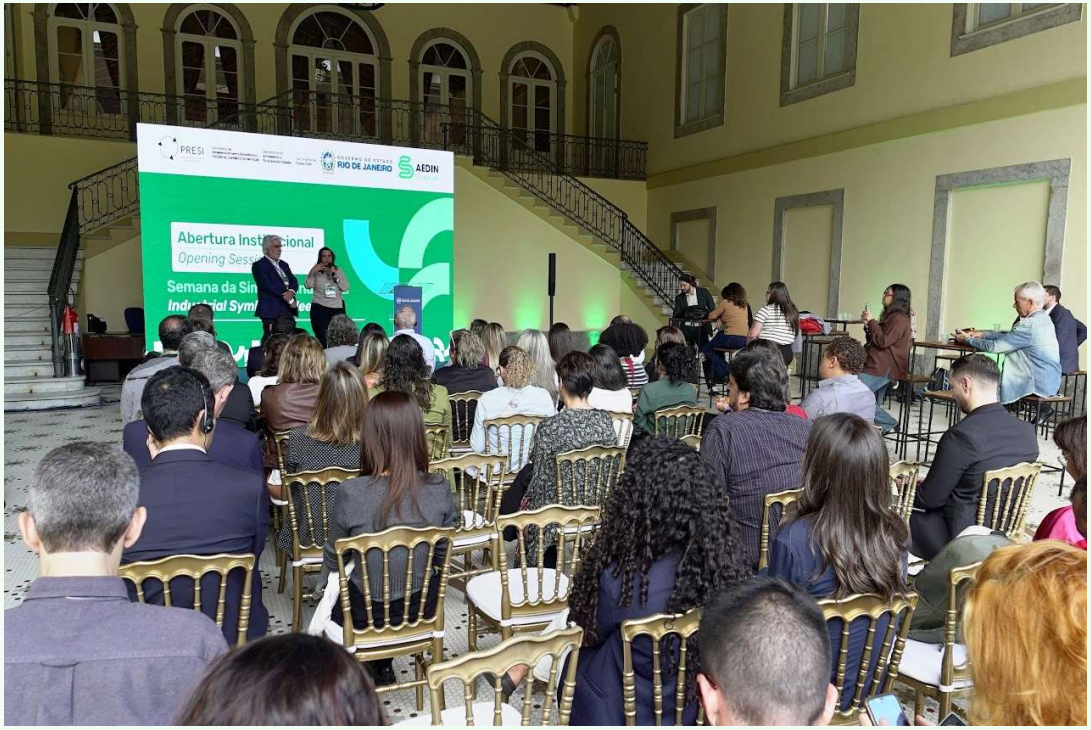
9:00 - 12:00
Workshop: Construindo estratégias para o engajamento de atores locais - Projeto de Água
Workshop: Building strategies for engaging local actors - Water Project

15/05/2025 (qui/thu)

14:00 - 17:00
Workshop: Consolidando os aprendizados de Santa Cruz para expansão para Novas Áreas Industriais
Workshop: Consolidating the learnings from Santa Cruz for expansion to New Industrial Areas

16/05/2025 (sex/fri)

9:00 - 12:00	14:00 - 16:00
Workshop: Sessão de Aceleração (WCEF 2025)	**Apresentação: Próximos Passos**
Workshop: Acceleration Session (WCEF 2025)	*Presentation: Next Steps*



Format of the screenings

The company screenings was conducted by Kalundborg Symbiosis, experts in industrial symbiosis cooperation, Viegand Maagøe, experts in energy efficiency and industrial symbiosis and Kalundborg Utility, experts in water utility.
Work on governance was done by Kalundborg Symbiosis and Clean.

The screenings involved reviewing the company's consumption of materials, water and energy to identify opportunities for improved efficiency and collaboration, both within the company and with neighboring businesses. This process helps to illustrate how residual fractions can be effectively utilized internally or through cooperation with other companies, promoting greater circularity and reducing the use of virgin materials and resources.

Production manager and/or other relevant employees from the company participated in the screenings with employees from AEDIN, Viegand Maagøe, Kalundborg Symbiosis and Kalundborg Utility and supported by Greennova.

This report covering the screenings on companies including an overview of potential cooperation projects will be delivered to the AEDIN Cluster. This information will be used in the future facilitating work in the partnership.

Confidentiality between symbiosis partners

For a collaboration to truly flourish and evolve into a symbiotic relationship, it must be grounded in the ability to communicate openly in a confidential and trusting environment

Important note on PRESI 2 confidentiality:

All data is treated confidentially by **K**alundborg **S**ymbiosis, **V**iegand **M**aagøe, **K**alundborg **U**tility and AEDIN. Data from the screenings will only be shared between the individual company, KS, VM and KU. If needed KS, VM, KU and AEDIN will sign a NDA.

- Data will only be disseminated to 3.part in aggregated summary form

The auditor team

Bjørn Skjødt Sørensen,
Principal Advisor, Viegand Maagøe

Bjørn Skjødt Sørensen is an energy efficiency expert and principal advisor at Viegand Maagøe with extensive international experience. As an experienced advisor and technical expert, Bjørn works as a consultant on a wide range of projects, with primary focus on energy optimization in industrial production processes, reducing energy consumption, climate impact and utilization of surplus heat.

In Denmark and internationally Bjørn has performed detailed energy reviews for a range of industrial plants, especially within the food and beverage industry. Often reviews are followed up with detailed project business cases, preparation of technical project tender material and eventually project implementation management.

Bjørn has in-depth knowledge on energy audits, the ISO 50001 Energy Management System, and has been deeply involved in implementing EMS at a range of production sites in the food, dairy, agriculture, plastics and oil processing industry from screening through to final certification.

Furthermore, he has been involved in integration of decentralized industrial waste heat sources from different processes into a centralized district heating system from several different industries, as a consultant, facilitator and trusted partner between private companies and public district heating networks.

Viegand Maagøe (VM) is a Danish consultancy in the front line of sustainability. The company was established in 2006 with core competences within engineering on energy efficiency, supplemented by advice on strategically and operationally areas within, sustainability, climate, environment, social sustainability and governance. VM has huge experience on working with private and public partners in Denmark, Mexico, US etc.

The auditor team

Sif Kjølby, Senior Project Manager, Kalundborg Symbiosis

Sif facilitates and develops Industrial Symbiosis partnerships both locally and internationally. Sif has a strong interest in and experience with projects related to Biosolutions, PtX, and Carbon Capture and Utilization and is leading projects with external partners where circular value chains are turned into business opportunities.
Sif has 20+ years of experience in project management and product development, ranging from R&D to industrial process and product implementation. She has worked on the establishment of production, laboratory and pilot facilities from concept through design to execution and commissioning. Sif possesses extensive knowledge in material characterization and processing, as well as in the technical requirements and needs across various industrial sectors.

Mette Wendel, Symbiosis facilitator, Kalundborg Symbiosis

Mette is an experienced Symbiosis Facilitator, specializing in governance, stakeholder engagement, and the facilitation of cross-sector partnerships. She has experience in both local and international settings, working across public and private sectors. With a background in teaching, Mette brings interdisciplinary knowledge spanning both the sciences and the humanities. Her work has a strong focus on capacity building for establishing and supporting industrial symbiosis partnerships. Mette serves as a speaker internationally, most recently at the WECF in São Paulo.

A key area of focus for Mette is capacity building, where she draws on her understanding of governance models, stakeholder involvement, communication, and policy development to support long-term, systemic collaboration.

Kalundborg Symbiosis, a non-profit association, is a world leading industrial symbiosis with 50 years of experience in generating surplus through a circular approach to production. Kalundborg Symbiosis focuses on how companies, through collaboration, can benefit economically and sustainably, and at the same time cause benefits for the local community. We work across the entire value chain. This includes energy and material optimization within individual companies, the flows between companies, strategies, and large future-oriented solutions that are ambitious and groundbreaking.

The auditor team

Hasse Milter, Head of Innovation,
Kalundborg Utility

Hasse Milter is a water expert and Head of Innovation at Kalundborg Utility with international experience. As a project manager and technical expert, Hasse has experience from a wide range of projects, with primary focus on water for municipal and industrial production processes related to water treatment, politics, stakeholder engagement, environmental assessments, legislation, groundwater remediation and industrial symbiosis related to water.

Hasse has +20 years of experience in water related problematics and related innovation. Industrial reuse of wastewater from ground water remediation systems, policy and negotiation within this area in political organisations.

Kalundborg Utility is a public owned multiutility company located in Kalundborg, Denmark, specializing in the supply of drinking water, technical water, district heating, ditrict cooling and wastewater treatment for households and industries in the region. In addition, the company plays a central role in Kalundborg Symbiosis, a pioneering network that promotes the reuse of resources among local companies — such as energy, water, and industrial by-products — aiming for environmental and economic efficiency

The auditor team

Kasper Havemann, Emissions & CCUS lead, Senior Project Manager, Clean the Danish Water & Environmental Cluster

Kasper leads CLEAN's work on emissions reduction and carbon capture, with a strong focus on integrating Industrial Symbiosis concepts and methods. He firmly believes in the potential of reducing industrial emissions through smarter resource sharing and more sustainable production practices.

With a background in anthropology, Kasper brings a user-centered and curious approach to innovation, focusing on how new technologies and methods can be applied effectively in real-world settings. He has extensive experience in coordinating and facilitating international innovation projects across regions and cultures.
A central focus of Kasper's work is to identify and advance pathways for reducing greenhouse gas emissions—whether through industrial solutions, circular economy strategies, nature-based approaches, or social transformation.

Lais Valenca, Project Manager, Clean the Danish Water & Environmental Cluster

Lais is Project Manager at Clean and leads the organization's Latin America focus area. She is responsible for facilitating the exchange of innovation, sustainable solutions, and partnerships between Denmark and Latin America, with a strong emphasis on circular economy and biodiversity.

With a background in International Affairs, she brings a deep understanding of regional governance and cultural contexts, helping bridge collaboration between Latin American stakeholders and Danish entities.

Lais is a strong advocate for cross-sectoral and international cooperation as a driver of the green transition. Her current work focuses on closing the circularity gap, promoting nature-based solutions, and advancing cleantech collaboration between Latin America and Europe

Clean is The Danish Water and Environment Cluster, connecting companies, utilities, academia, and public sector for market-driven green innovation. We drive growth, cleantech, and internationalization in water, air, soil, and climate adaptation sectors. We foster collaboration for innovation, competitiveness, and a greener future.

The concept of Industrial Symbiosis

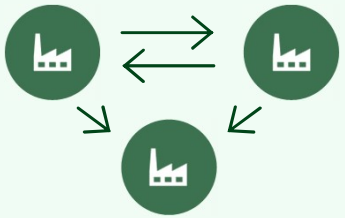
The fundamental concept behind Industrial Symbiosis involves the exchange of materials, energy, and water among two or more companies, effectively transforming waste into valuable resources.

Industrial symbiotic relationships are commonly established in close geographical proximity and may manifest as larger collaborative projects with shared funding.

6 reasons for Industrial Symbiosis:

- Financial savings
- Increased sustainability performance
- Higher productivity efficiency
- Resource reduction – cutting waste & raw material usage
- Better company reputation
- Community strengthening impact

Waste becomes ressource



The concept of Screening

Purpose of on-site tours

The purpose of the screening and mapping work is to uncover the potentials for symbiosis collaborations between companies in the AEDIN Cluster. The screening process will take place both in a meeting during dialogue and through screening of the process in the company's production (site tour).

Content of the visit:

- an introduction to the company's processes
- an introduction to/examples of industrial symbiosis
- brainstorming on symbiosis potentials/opportunities
- A review of the company's consumption of materials, water, and energy

The aim is to get an overview of future potentials for efficiency and cooperation, within the company or together with surrounding companies.

This is, for example, how residual fractions can be utilized in collaboration with other companies, so that greater circularity and less use of 'new'/virgin materials or resources are achieved.

The concept of Screening

Interview guide for screening activities

The following interview guide was sent to the companies in advance, to be the starting point for the symbiosis screening on site.

1) What are the main resources going into the company (water, energy, raw materials). If possible, the volume of these flows, as well as seasonal variation over the year.

2) What are the main challenges in terms of resources or the potential lack thereof?

3) Which kind of energy does the company / industry primarily use? How big is the consumption?

4) Does the company produce surplus heat, and if so, how much? Is there seasonal variation

5) Does the company need cooling? Quantity?

6) Name the most important residual streams by volume or expenses for getting rid of it, e.g. residual chemicals, cardboard, or wastewater from the company.

7) Which resources could potentially be provided from neighboring companies?

8) Has there previously been a dialogue with other local partners on resource collaborations?

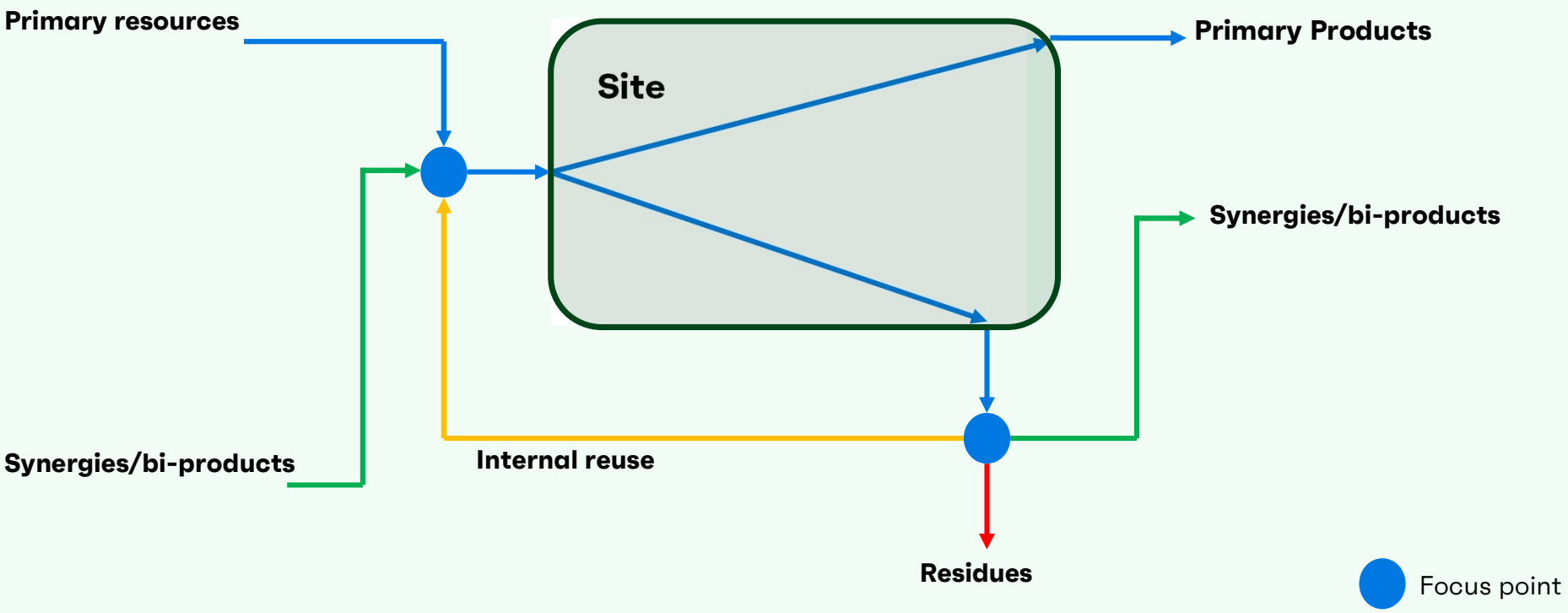
9?) Is sufficient infrastructure in place for infrastructure for supply on power, water, cooling, or heating?

10) Do you have residues that could be relevant for your neighbors?
Have you previously had a dialogue with other local partners on resource collaborations?

11) How is the business expected to change in the next 10 years?
Will you still produce the same type and quantity of products and use the same inputs for your production, or do you expect major changes in your energy and resource

The mapping process

Resource Mapping Model at factory level



Individual screenings and focus areas

Brazilian Mint, Casa da Moeda

FCC S.A.

Santa Cruz water tour and workshop

Individual screenings · Brazilian Mint, Casa da Moeda

Site visit

The screening was an open screening attended by employees from the PRESI 2 project partners and members of AEDIN.

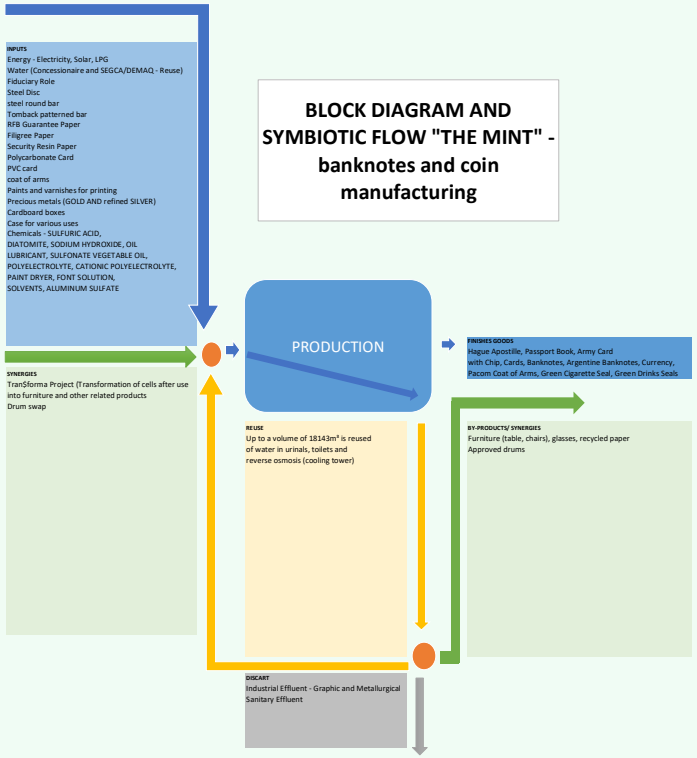
The three-hour visit included an introduction to Casa da Moeda, followed by a site tour focusing on the flows of water, energy and materials/waste in the production and waste management areas.

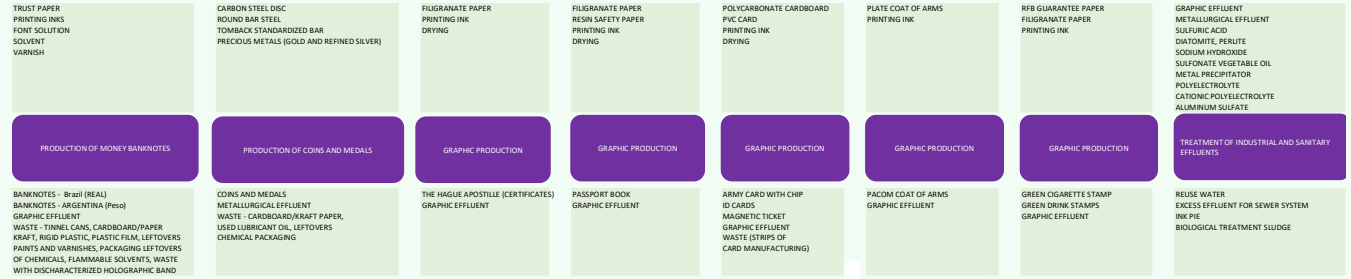
The aim was to explore possibilities for internal reuse and to identify opportunities for exchanging symbiotic flows between companies in the Santa Cruz Industrial District associated with AEDIN.

Individual screenings · Brazilian Mint, Casa da Moeda

Resource mapping

First steps, as prepared by AEDIN 2024





Industry Profile

Industry manufacturing banknotes, coins, medals, passports and cards, Arm cards with chip, Green cigarette end drink seals

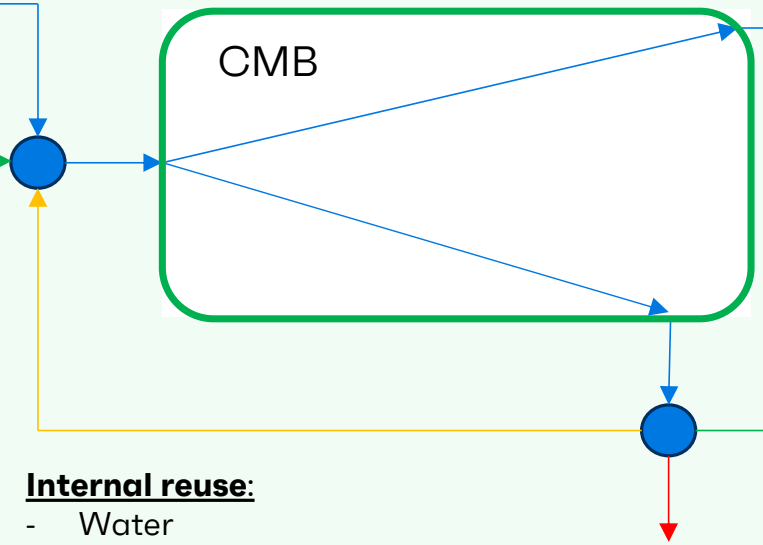
Individual screenings · Brazilian Mint, Casa da Moeda

Resource and symbiosis mapping

Main resource streams identified during visit

Primary resources:
- Water
- Electricity
- Natural gas
- Diesel
- LPG
- Paper
- Ink
- Discs

Synergies/bi-products



Internal reuse:
- Water
- Wiping solution

Main Products
- Bank notes, passports, medals and coins

Synergies/bi-products:
- Metal scrap
- Shredded banknote waste
- Used cans
- Food waste from restaurant

Residues/discharges:
- Effluents (sanitary and industrial)
- Ink cake
- Packaging materials, cardboard, plastic, pallets
- Heat from cooling system

Individual screenings · Brazilian Mint, Casa da Moeda

Implemented symbiosis and circular economy initiatives

- 85% of the wiping solution goes back to printing machines
- 50% of the water is provided by reuse system
- Solar panels installed, avoiding the emission of 3.5 tons of CO_2 per year
- 80% of more than 100 types of waste is recycled
- 100% of banknote waste is recycled
- Banknotes produced with paper containing up to 30% banknote waste combined with reverse logistics on paper supply

- Food waste is converted into fertilizer, which is donated to local farmers supplying products to Casa da Moeda
- Cleaning of used ink cans with the potential of reusing 12.000 cans/year
- Reuse of destroyed coins

- High degree of social responsibility
  - Resource support to local farmers and waste pickers etc.
  - Medical and dental care, and vaccination campaigns for local partners

Individual screenings · Brazilian Mint, Casa da Moeda

Symbiosis and circular economy potentials

- Further substitution of potable water with reused water
- Shared water infrastructures in AEDIN
  - Wastewater
  - Reused water
  - Potable water
  - Technical water
- Possibility for SICPA of reusing ink cake in black ink for corrugated board
- Packaging materials. Reuse and optimization
  - Cardboard. Recycle or replace with reuseable (plastic) boxes.
- Energy optimization
  - Lighting. Replace all lighting in production area and utility area with LED. Install PIR control. Significant potential.
  - Solar PV. Install additional capacity, potentially as co-investment with other companies (entire consumption requires 18-20.000 m2).
  - Cooling. Optimize distribution system to reduce losses, review equipment and operation and optimize setpoints, recover waste heat. Review current state of all chillers.
  - Compressed air. Detect and repair leakages, , sectioning of system -> reduce head pressure (8,2 -> 7 bar).
  - Ventilation. Review and challenge setpoints. Review cooling surfaces -> increase water temperature. Review fan efficiency and control.

Individual screenings · FCC S.A.

Site visit

The screening was an open screening attended by employees from the PRESI 2 project partners and members of AEDIN.

The three-hour visit included an introduction to FCC S.A., followed by a site tour focusing on the flows of water, energy and materials/waste in the production and waste management areas.

The aim was to explore possibilities for internal reuse and to identify opportunities for exchanging symbiotic flows between companies in the Santa Cruz Industrial District associated with AEDIN.

Individual screenings · FCC S.A.

Symbiosis and circular economy initiatives and potentials

Pending NDA and company presentation from FCC S.A.

An extended version of this report will be sent to FCC and AEDIN, when these documents have been received and processed.

Sightseeing of the Water Infrastructure & Workshop

Building strategies for engaging local actors - Water Project

A Guided tour of the Santa Cruz area designed for technical experts to provide a holistic overview of the water infrastructure.

The aim was to understand the layout of water flows and widening the scope of the project. The objective was dialog with participants to get a deeper understanding of potential stakeholders in the project, identify sources and discharges of water, clarifying rough magnitudes of water flows (in/out), identifying local challenges and barriers, as well as getting a better geographical insight into the area.

For an optimized output, strong representation of local water operators and users, both private and public, was encouraged.

The workshop aimed to go into greater detail about the opportunities related to the wastewater management project, taking into account the importance of liaising with the region's stakeholders to make the project viable.

The focus of the activity was on mapping the main stakeholders, and the technical, social, political and administrative challenges to achieving the project. The successful experience of Kalundborg Utility was presented as a reference for the discussion.

Sightseeing of the Water Infrastructure – River water

Symbiosis and circular economy potentials and observations

Observations

- Single abstraction point for river water
- Individually infrastructure for distribution
- Close geographic location of industries and sufficient space between
- Control of river flow / regulation by third part
- Climate change affect stability of supply due to lack of water in river
- Low water quality (high TOC) in dry periods
- Few individual groundwater abstractions near river

Potentials

- Detailed mapping of existing infrastructure may lead to development of business cases for new investments in infrastructure
- Higher resource stability by,
  - Joint resource management by monitoring and control of river water resource by water stewardship
  - Joint water abstraction / treatment / distribution of water in different qualities
  - Strong governance and political responsiveness
- Independent joint utility system in AEDIN partner group

Sightseeing of the Water Infrastructure – Reclaimed Water

Symbiosis and circular economy potentials and observations

Observations

- Individually wastewater treatment plants
- Multiple discharge points to river
- Individual infrastructure for discharge
- Close geographic location of industries and sufficient space between
- Existing pipe bridges, crossings etc.
- Batch treatment of wastewater
- High internal reuse of wastewater

Potentials

- Detailed mapping of residuals, including qualities, may lead to development of business cases for central reuse of wastewater as technical water
- Establishing bilateral exchange agreements on residual water
- Independent joint wastewater treatment and reuse system in AEDIN partner group
- Joint discharge of wastewater
- Substitution of potable water with reclaimed water

Screening summary – recommendations to AEDIN

- Plan waste handling inspiration tour for AEDIN members Show existing good examples and discuss opportunities for a joint waste handling station in Santa Cruz
- Establish shared waste handling in AEDIN
- Explore the potential for a circular packaging initiative, reusing and recycling big bags, pallets, plastics, cardboard etc.
- Joint sourcing of raw materials initiative
- Shared transport and logistics solution (workers and goods)
- Joint water nexus/collaborative water resource management
- Expand existing social economic programs
- Detailed mapping of existing infrastructure

Inspiration to waste handling

Examples of waste fractions in Kalundborg, Denmark

Furniture	Insulation	Plastic bottles and foil	Cables
Concrete	Soil	Hard plastic and PVC	Freezers and refrigerators
Big bags	Bricks	Porcelain	Oil waste
Garden waste	Window frames	Tires	Chemical waste
Indoor wood	Window glass	Small electrical apperatures	Accumulators
Outdoor wood	Glass packaging	Large electrical apperatures	Lighting parts
Garden waste	Papers	Screens and monitors	Printer toner
Gipsum	Flamingo	Textile	
Books	Cardboard	Iron and metal	

The governance model of industrial symbiosis

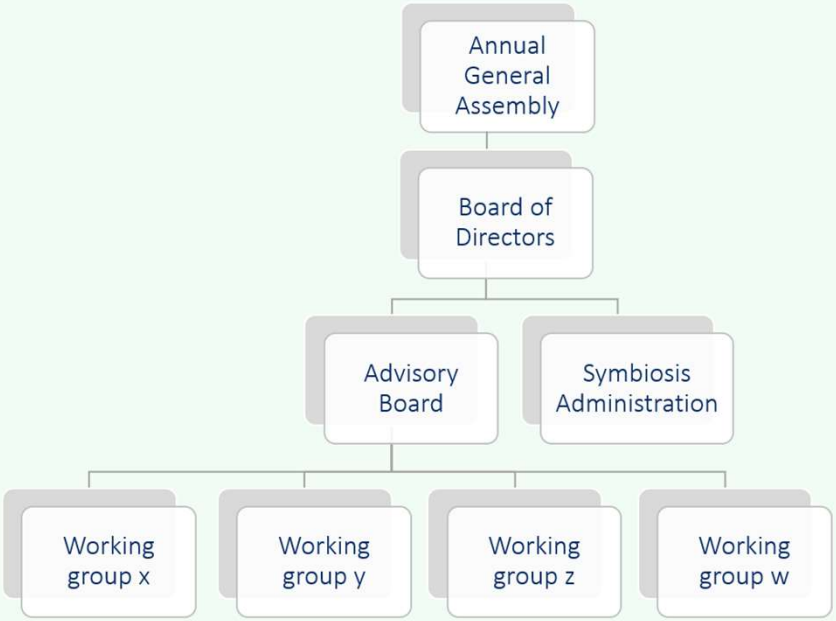
Industrial Symbiosis: Beyond Technical Cooperation

Industrial symbiosis goes beyond the technical potential of exchanging waste materials. For efforts to succeed, they must be anchored in a strong partnership or organization. While such partnerships may take different forms, it is crucial that they are empowered to develop a clear strategy and ensure ongoing progress.

A comprehensive strategy should address key elements such as identity, communication, business model, and – most importantly – a governance model. The governance model plays a vital role in defining responsibilities and ensuring that the right individuals are engaged at the appropriate levels.

The governance structure is typically hierarchical. The symbiosis partnership holds decision-making authority and a unified voice through its Board of Directors. The Board delegates responsibilities to various working groups and the facilitating body, the Symbiosis Administration.

This model helps deliver tangible results and ensures the long-term viability of the partnership. A well-functioning governance model acts both as a tool for continuous development and as an incubator for future projects.



Levels within the governance model

Board of Directors (BOD)
The Board of Directors is composed of CEOs from each member company, with one seat and one vote per member regardless of the size of the company. The Board elects a Chair and a Vice Chair.

The BOD holds the formal authority for strategic direction and decision-making on behalf of the symbiosis partnership. However, the Board does not approve specific collaboration projects or shared business models. These are negotiated and agreed upon bilaterally between the relevant companies, outside the formal symbiosis structure. Once established, such initiatives are recognized as official symbiosis projects.

Advisory Board (AB)
The Advisory Board consists of representatives at the managerial level, reporting below the BOD level. The AB functions as an informal network, with a mandate from the BOD to foster a collaborative approach in identifying challenges and exploring partnership potentials.

This group plays a key role in surfacing issues, proposing solutions, and drafting ideas to be submitted to the BOD for formal consideration.

Working Groups

Working groups are established around themes of high strategic importance or significant challenge. For example, topics may include the utilization of excess heat, use of excess materials or addressing water scarcity. These groups are temporary by nature and exist as long as there is a defined need or opportunity.

Can you work as an informal partnership without a governance model?

The short answer is: yes, you can initiate and work on an industrial symbiosis partnership without a formal governance model; especially in the early phases of cooperation. Global experience shows that working informally is often sufficient in the beginning, when partners are just being gathered and shared value propositions are being identified. However, when you aim to anchor the partnership more permanently, a formal governance structure becomes highly beneficial.

As described earlier, such a structure ensures effective implementation, long-term viability, and strategic anchoring of the partnership. In turn, this foundation makes it easier to launch more advanced projects and increases the likelihood of long-term success.

For inspiration on how to establish and facilitate an industrial symbiosis partnership, please visit The Facilitators Guide (2021, Kalundborg Symbiosis), https://www.dropbox.com/scl/fi/nv8lfucxnky4fv04291ac/Guide-for-IS-facilitators_online.pdf?rlkey=bdx77xhjex5o432elbtjnyyju&e=2&dl=0)

Top-down or bottom-up approach

It varies whether a symbiosis partnership begins from a top-down or bottom-up approach. There are successful examples of both around the world. The right approach depends on local conditions; such as where the strongest interest lies and, importantly, where the enthusiasts and champions are located.

What is most important is that if the partnership does not eventually extend across all levels of governance, it will likely lose momentum or even dissolve. Leaders cannot succeed without support from the people below them to implement strategies. On the other hand, managers and technical staff cannot move forward if leadership doesn't provide financial backing or the time and space to develop and pursue good ideas.

Governance summary – recommendations to AEDIN

During the delegation tour in May, we identified a threat to the future of the Santa Cruz partnership: the people working with the industrial symbiosis concept are positioned far from the decision-makers within their companies. They still need to convince their CEOs of the business case for engaging in an industrial symbiosis partnership – a business case that may not yield a return on investment today or tomorrow, but which secures the foundation for future environmental and economic gains. At the same time AEDIN is also currently structured in a way where not all companies have a voice and a table at the organizational board of directors – this limits reach and symbiosis potentials significantly. Meanwhile the AEDIN staff and collaborators have already identified and drafted many promising project ideas.

Therefore, we strongly recommend the Santa Cruz Industrial Symbiosis Partners to anchor their ideas into a formalized partnership. From our perspective the first thing is to work on the governance model.

By developing this powerful cooperation, AEDIN will gain the mandate for political influence and secure the needed power for development of the symbiosis. In the following, the Danish experts within governance and technical support have listed concrete examples from the local context where the empowerment of the partnership will have potentials for addressing challenges and gaining success.

Trust: Having a board with a strong voice and power will lead to the surroundings trusting in the partnership. This will be an opener for investment, business opportunities, and political influence.

Funding opportunities: As mentioned above a strong and visible partnership will be able to attract investments, state subsidy, and other funding sources for the AEDIN area and partnership.

Water: **A shared voice** addressing the authorities on municipal, state, and federal level will help on discussing and solving regulatory barriers.

Water: Joined forces in negotiations with existing water suppliers.

Communication material on the shared value proposition of a symbiosis partnership

We advise producing communication material that clearly presents the value proposition of a symbiosis partnership.

This material should highlight the opportunities and benefits for all relevant stakeholders; companies, public partners, and the local community.

The communication strategy developed under PRESI II could serve as a useful starting point for this work (see model on the next page).

The communication material should be built around the following value proposition: Industrial symbiosis offers knowledge and new perspectives on sustainable solutions revolving waste, energy and decarbonization by linking the right partners to create new business opportunities in the State of Rio.

Communication plays a key role in engaging both internal and external stakeholders and in strengthening the symbiosis partnership. A strong communication strategy from the outset will benefit not only governance but also the initiation and implementation of projects.

Communications strategy

PRESI
Pathways to Resource Efficiency in Santa Cruz Industries

Vision	Industrial symbiosis (**IS**) is commonly explored as a business oppourtinity in the State of Rio
Goal	Create awareness and support of IS Promote IS as a new (profitable) business opportunity Clarify and inspire the collective process of IS Build expertise around IS in Rio Increase the number of engaged and interested companies
Value proposition	Industrial symbiosis offer knowledge and new perspective on sustainable solutions revolving waste, energy and decarbonization by linking the right partners to create new business opportunities in the State of Rio
Target groups	**Decision makers** in resource heavy industry Municipalities in Rio de Janeiro Investors Local communities Legislators (DK+BR)
Key messages	We can find sustainable solutions on complex problems collectively IS is great business and it can be integrated in your business model IS helps you to turn waste into resources IS can benefit citizens and companies building sustainable local communities IS is a win-win situation: Become sustainable and Profitable
Channels	Media Stakeholder meetings Events and forums Social media (LI)

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