TRIS

Interreg Europe

European Union
European Regional
Development Fund

3rd TRIS Peer Review Report (Älmhult, Sweden)

Birmingham City Council

Introduction

1.0 What is a peer review visit?

Peer review visits are intended to be a practical and effective tool to foster learning between organisations. In the context of the TRIS project, the objective of a peer review visit is to enable organisations to improve their working knowledge of industrial symbiosis by learning from each other. The visits are intended to benefit all participants through an open exchange of ideas, knowledge, and sound practices. The host organisation should expect to gain as much from the experience as the visitors, if not more.

1.1 Steps to organise a peer review visit

- Make contact between the host and visiting organisation
- Identify potential areas for support or sharing
- The two organisations should identify which areas they want to learn about from each other. Possible areas include: leadership/management; strategic planning; project examples (good practices); funding/ governance arrangements
- Identify responsibilities in planning and carrying out a review visit

1.2 Organising the visit

During this step, it is very important that both organisations know what they are responsible for. The following is a starting point

1.2.i Host organisation

- Establish availability and identify tentative dates for the site visit. If possible, the visit should happen at a time when the visitors can observe your activities taking place.
- Determine who will participate in the review visit. Designate which staff will be responsible for receiving the visitors and taking them around.
- Make necessary logistical arrangements, e.g. set up meetings, arrange local transport, meals, etc.
- Inform key staff of the upcoming visit.
- Prepare and share an agenda for the visit. Don't forget to estimate and include travel times and distances between locations.
  Also consider including a wrap-up or closing activity.
- Prepare any other programme materials and share key documents and background information about your organisation with the visitors at least 2 weeks prior to their coming.
- Try to identify good ideas from your organisation that you think might be helpful to the visitors.
- Address the potential necessity of a translator – this will be dependent on the host organisation (language barriers may be more significant in some host organisations than others).
  The host organisation will assess the need for translation.

Text adapted from http://www.tools4dev.org/resources/ how-to-organise-exchange-visits-among-local-organisations

Visiting organisation(s)

Determine who will participate in the review visit. People should agree to participate in the team only if they have a genuine desire to both offer and receive new ideas and to report back to others.

Agree locally the number of visitors and how many people can come from the same company

Review and give feedback on the proposed agenda.

Notify the hosting organisation (with enough advance notice) of the names, arrival dates/times and other relevant information about arriving participants.

Review the materials sent by the hosting organisation.

Prepare to present/discuss your own organisation and programmes, as well as your successes and challenges.

When you return home, share relevant information, approaches, skills, recommendations and ideas with those who did not participate.

All organisations

Based on the needs of both organisations, identify focus areas for activities/discussion during the visit.

Develop clear expectations about the visit, including:

Issues to be discussed

Type of activities to be carried out

– meetings, focus group discussions, observation, site visits, etc.

- Who will participate? Agree the organisations that should be involved: do we want people from the same sector? Should we weight some sectors more than others? Should it comprise a mix of stakeholders?
- The programme duration/length
- Financial responsibilities – which organisation will pay for what?
- Who will be responsible for follow-up and reporting?

- Maintain an open, supportive, friendly environment for discussions about programmes and organisational strengths and challenges, as well as past successes and lessons learnt.
- Provide complete, accurate and meaningful information and feedback to each other during the visit.
- Do not act in any way that can negatively affect the reputation of the other organisation during the visit.
- Monitor participants' reactions and comments during the visit. Notify each other of any issues or problems that arise. Communicate and cooperate fully and openly with each other in relation to the solution.
- Provide participants with a formal opportunity to comment on the programme immediately following participation.

1.3 Follow-up

When the visitors return home, it is time to reflect further on what each organisation has learned from the exchange experience. It is important to make an effort to share the information with your colleagues after the visit. Discuss what ideas have come out of the review visit and how you might go forward to adapt or enhance your organisation's programmes or systems.

1.4 What makes a peer review visit successful?

- Clear expectations for both the host and visiting organisations developed prior to the visit.
- A well-planned and well-implemented programme, including enough time to discuss what you have seen at the end of the day.
- A friendly and open atmosphere during the visit.
- People from both organisations actively taking part in the activities and discussions
- Not just sharing information, but a focus on trying to learn and identifying lessons and ideas to use and adapt after the review visit
- Effective follow-up and reporting.

1.5 Prepare a report to donors on the peer review visit

Reporting is an important way to communicate with key stakeholders about the purpose and outcomes of your peer review visit. The following key questions should be answered in the report to share what both organisations have learned during the visit.

Include any additional information, insights or ideas of interest to you in the report. Length of these reports should not exceed five pages.

Peer Review Visit to

Region of Kronoberg, Municipality of Älmhult,
in Southeast Sweden

Background information

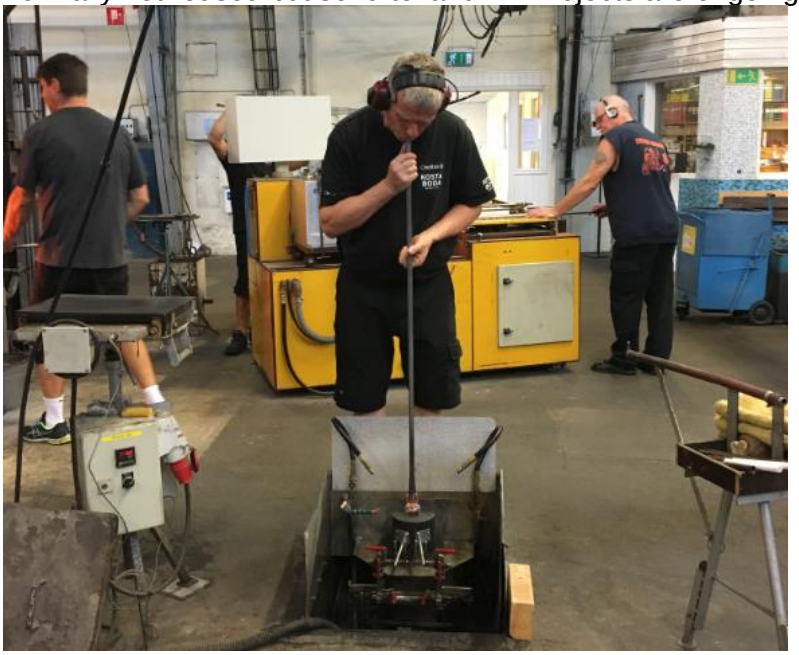
1. Describe the overall purpose and intent of the peer review visit

The peer review (PR) visit purpose was to initiate a dialogue with the visiting delegations. The Energy Agency for Southeast Sweden (ESS) identified some areas that could be interesting in the region of Kronoberg. The visiting partners, Birmingham and Budapest, were asked about what areas could be of interest and Budapest was interested in bioenergy. Three main topics were chosen which play a role in stimulating industrial symbiosis practices: waste management, innovation in terms of policy (innovation policy of Kronoberg) and circular use of biomass (waste material from forestry) for energy production.
They key planned activities were presentations, discussions and visit to a biomass plant and to IKEA museum with focus on sustainability, resource efficiency and design from a circular economy perspective. We also made time for good practices presentations from the visiting organisations in order to share them with the participants.
Below a summary of the presented activities which were covered during the three days program between September 27 and 29.

2. Programme of the peer review visit

Wednesday September 27:

During this day Pierre Ståhl and the Budapest delegation took a tour by car around the region Kronoberg. The day gave a good insight of the characteristics of the region outside the main cities. The tour started with a drive from Växjö to Kosta. Kosta is a centre for Swedish art glass manufacturing. At Kosta a guided study visit showed the manual fabrication of glass products. After the tour, we had a discussion with the production manager Thomas Karlsson. Thomas admitted the production in some aspects are non circular. Raw material is virgin sand from Belgium, and the waste portion is high. Only white glass is reused. If there are any colour in the scrapped glass it is normally not reused but send to land fill. Projects are ongoing to find a use of this scrapped glass.



Manual art glass manufacturing

After lunch, next stop was at a small bio-fueled district heating plant. The plant was unique since the boiler was combined with solar heating panels. Kent Danielsson, responsible for the plant at Tingsryd Energy gave an enthusiastic description of the facility. The system works well, but an accumulator would improve efficiency since excess heat during sunny days cannot be stored.

Väckelsång near heat power plant

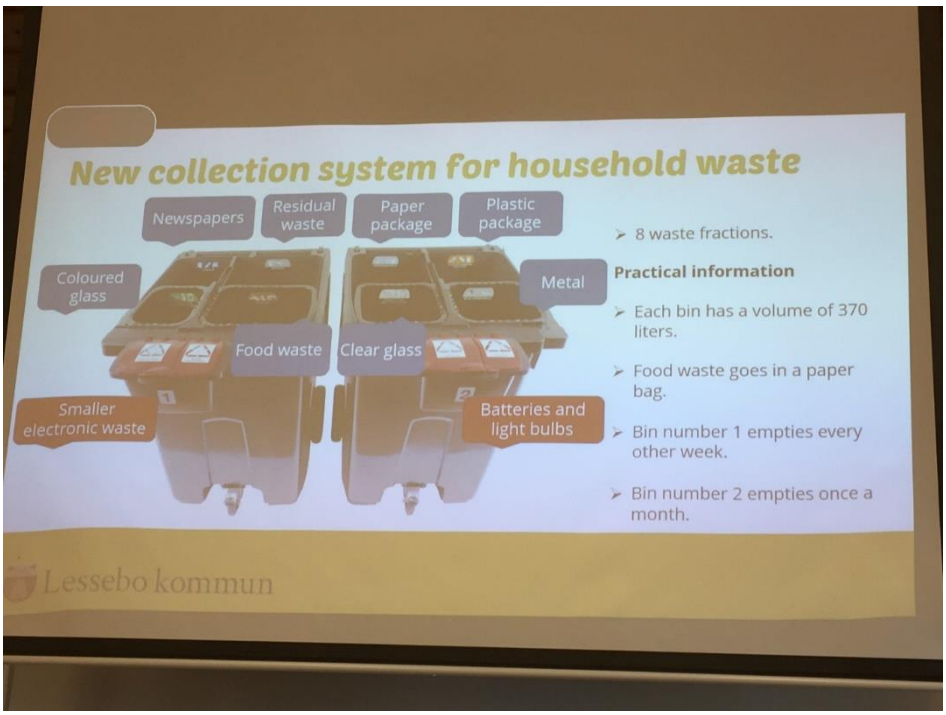
Last stop before arriving to Älmhult was at the planned National Park “Lake Åsnen”.

Thursday September 28:

Älmhult, the municipality and its environmental work
Cecilia Axelsson, environmental strategist, Älmhult municipality.

The virtual power plant
Balázs Mezősi, from Mi6 - Hungarian Innovation and Efficiency Nonprofit Ltd., a non-profit private company owned by large consultant company, presented their work on energy efficiency in companies, they act as national energy agency. EE is invisible, fragmented – this is a problem. Solution: Glass bricks corresponding to savings adding up to a virtual power plant, including an award and recognition program with award ceremony in parliament. See presentation.

State of the art waste collection – cooperation between municipalities
Five municipalities in Kronoberg has founded a common enterprise to coordinate concept and procurement for waste management. The new source sorting system has two bins and 8 fractions, new trucks are needed. Many questions came from the audience. How is it financed? Increased fees and saved money from previous years, no EU nor governmental funding. The fractions will be sold to different companies, food waste will be biogas. See presentation. Åsa Garp Lessebo municipality.



8-folder waste collection system

Bioenergy

An overview of forest use in Sweden;

Dr Jimmy Johansson Linnaeus University, explains the use of wood in different areas. 285 of 290 Swedish municipalities have some sort of district heating, mostly from biomass. The forest in Sweden grows more then what is cut. The waste from forestry is used for energy production; electricity, heating and cooling. Part of the ash goes back to the forest as a fertiliser. Se presentation. Discussion on CO2 from biomass – Sweden sees bioenergy as no additional CO2 contribution to the atmosphere. This was questioned by the visitors. The increasing forest volume in Sweden act as a CO2-storage.

Importance of incentives to create a transfer to a bio economy,

Ulf Johnsson Jenco AB, former production manager of Växjö Energy. UJ introduced large scale bioenergy in Sweden. In 1979 Växjö district heating plant had 100% oil and in 2015 100% biomass. Flue gas condenser adds 20% efficiency. Clean fuel (virgin wood waste) gives clean ash that can be spread in the forest.

Funding from national level was given to transform the oil boiler to biomass, this was during the oil crisis and the reason was security of supply. There was a rapid change of fuel in the district heating systems in Sweden when the tax on fossil CO2 introduced in 1991, and there are also other taxes for energy and NOX. Taxes for NOX goes back to the plants in proportion to the production and low NOX-emissions. This has been good because it is stable and predictable for investors. Now we have the EU emission trading system that is not so strong driver. Green certificates is another driver but it varies a lot in price and has today a low value. Planning economy and market economy in the same system, not always so good. Today heat/electricity production from biomass is not very profitable and future investments are put on hold because of unsure conditions, the current system is not a driver.

Ulf sees two ways to convert to bio economy: traditional way is incineration and co-generation from biomass. Alternative way is gasification of biomass to methane and feed into natural gas grid. See Ulf's presentation for details.

Discussion:

Budapest: District heating has a bad reputation in Hungary, inefficient and expensive. Bad designed systems without thermostats in houses etc.

Birmingham: district heating does not exist, houses are heated with natural gas from grid, centralised heating.

Guided tour at IKEA museum
The tour focused on sustainability, sustainable design and circular economy. Ingvar Kamprad, the founder of IKEA, was born in Agunnaryd, a small place outside Älmhult, and the region is known for taking care of the scarce resources.

Fish breading in Kronoberg – a new IS-project initiated through TRIS
Dr Maria Unell Miljö Linné/Refarm 2030 explained the concept of a fish farming plant using waste heat and nutrients from a local starch industry. Recirculated concrete will be used to build the ponds. This project was initiated at a local TRIS-lab in Växjö and the national innovation agency has financed the pre-study. 1 hectare intense greenhouse production = 10 jobs. Tropic fish species grow faster and can eat vegetarian food, in contrast to for example salmon. Maggots contain approximately the same nutrients as shrimps. Bio-flocking is another way to produce food for fish, microorganisms “eat” the nutrients and produce an eatable flock. Plans to produce Tilapia from bioflock from industry with carbon hydrate rich and warm waste water to heat the plant. The rules and regulations in Sweden needs to be adapted to land based fish farming, now they are for pigs stalls or production in water.

Discussion:
Birmingham: urban farming can be short term – if you have exploitation coming in a few years, it is possible to have urban farming for some years and employment. Hungary: this could be interesting for us because we do not have sea and it is forbidden to fish commercial. There are catfish farms in open air, the price is very high. Salmon is three times more expensive than catfish.
We were also discussing the possibilities to see fish-farms at the next meeting in Budapest.

Swedish governmental investment program for reduction of GHG,
Klimatklivet (Climate stride). We saw a film with examples and had a discussion.

Some reflections from the day:
Hungary: 50 000 SEK in subsidy for buying a new electric car. Few electric cars in UK too, lack of chargers. Some subsidies are launched. Diesel has been popular for a while in all three countries. The largest air polluter in Birmingham is transport, Birmingham was built for cars but has to be rebuilt with rail and tram. Budapest has a 6 lane road going right through the city, we need to rebuild.

UK: surprising that your forest in growing. HU: the approach of Sweden should be exported to third world countries that are cutting down their forests for palm oil etc.

Friday September 29:

Site visit at Elmeverket

Visit at the district heat plant in Älmhult owned and operated by EON, 100% fuelled with wood waste. A 12 MW boiler was commissioned 2010. Today only heat production, but an ORC (organic rankine cycle) for 120 KW electricity production has been installed and will be tested within soon. Lars-Göran Albertsson (LG) operation manager showed us the facility and described its functions. Roundwood, bark and other waste from saw mills (only virgin material) are used as fuel. The boiler is designed for 50% moisture content. Corresponding 120 000 m3 chipped wood are used per year.

About 1% of the fuel will be left as ash. The ash is later spread over the forest. It is not allowed to spread on farming land. Another waste from the plant is condensed heat water with a temperature of aprox. 50 centigrades. LG will find out the volume (=energy) of the waste water for the TRIS project, in order to see if the heat can be used in some way.

Region Kronoberg – strategies for sustainable regional development

Therese Magnusson and Agata Uhlhorn from Region Kronoberg (RK) (Regional elected authority), see presentation. The region is responsible for health care, public transport etc.

Circular economy is one of two main themes in Regional development strategy. There is also a regional strategy for Innovation that supports circular economy and industrial symbiosis. Sweden works with challenge driven focus areas instead of smart specialisation, more with pre-conditions for innovation. One example Loan a researcher. Birmingham university has the same service for SMEs.

Discussions about the different responsibilities and regional levels, they are quite confusing in Sweden and very different organisation in the different countries.

RK supports a range of project within regional development and CE. RK also participates in project “Business development in a circular economy”. Is now developing a new project; CRKL, together with the company network Sustainable Småland, Linnaeus university, Energy Agency and the Region of Kronoberg. This project is an outcome of the TRIS project.

17 million SEK from government mainly used to co-fund ERDF, that has 65 M Euro, only 35% of ERDF is used until today. The development of ERDF for the next budget period has started, it is discussed if Agenda 2030 should be the framework. Future funds will be more investment funds.

ESS: How can we influence ERDF from TRIS project? RK: contact me, you could present in the political group. TM can invite us to meetings etc. Some changes must be made on national or EU level.

UK: We have to influence a lot of actors in order to change anything ERDF. 48 different programs.

3. What are the names of those who participated in the review visit and what are their roles within the organizations?

Name	Name	company/Organisation	Role
Sarah	Nilsson	Energikontor Sydost	Senior project advicer
Pierre	Ståhl	Energikontor Sydost	Project manager
Adrian	Murphy	Industrial Symbiosis Ltd	
Peter	Braithwaite	University of Birmingham	
Zsuzsanna	Viszlay	IFKA Public Benefit Non-Profit Ltd	
Máté	Kriza	The Foundation for Circular Economy	
Balázs	Mezosi Dr	Hungarian Innovation and Efficiency Nonprofit Ltd.	
Maria	Unell	Miljö Linné	Director
Cecilia	Axelsson	Älmhults kommun	Environmental strategist
Åsa	Garp	Lessebo kommun	Environmental strategist
Therese	Magnusson	Region Kronoberg	Coordinator projects
Agata	Uhlhorn	Region Kronoberg	Coordinator innovation
Ulf	Johansson	Jenco AB	Independent consultant
Jimmy	Johansson	Linneus University	Associate Professor Forest products

Reflection on the visit

1. What was the most positive or rewarding aspect of the Peer review visit?

UK: Well organised, everything on the agenda was given. The networking was useful. Fish farming was very interesting, relates to project that Birmingham University is running. IKEA was interesting but EON was very interesting. EON is an international company that used waste wood, this does not happen in UK.

HU: Interesting to see the wood value chain, from strategy to reality. Everything in a basket. Gave a good overview of how Swedish circular economy works. There are pieces that can be taken home, even if our systems are very different, learned a lot. It would be nice to have further cooperation, not only one meeting, Maybe a sister city relation between Älmhult.

2. What new information, approaches, skills, recommendations or ideas were identified by the visiting organizations as something they would like to consider for their own organization when they returned home?

UK: fish farming and lettuce production together.

HU: Aquaponics was very interesting and could be implemented in Hungary. Also, waste collection system was very interesting, we have a horrible system and needs good examples.

SE: Virtual powerplant concept can be very useful for our Energy saving SME-networks.

3. What new information, approaches, skills, recommendations or ideas were shared with the hosting organisation by the visiting organisation as something they would like to consider for their own organisation?

HU: Aquaponics was very interesting and could be implemented in Hungary (there is already an example at the University of Debrecen). Also the planned waste collection system in Lessebo was very interesting, as we have a horrible system and low level of communication with the citizens, so we need good examples.

SE: Virtual powerplant concept.

UK: Gazification and liquid methane is another area that we touched that can be explored in TRIS. Regarding waste collection we also discussed the problems of resident behaviour change, and identified significant differences between UK and Swedish attitudes based on our respective current waste management systems.

4. What challenges or constraints did you encounter in planning or carrying out the review visit?

HU: we didn’t have any challenges until the day before the visit, when one of the stakeholders had to cancel his participation. We involved another stakeholder, therefore Tuesday morning was mainly spent on last-minute bookings and logistics.

Another challenge was the delay of our flight, that resulted in missing the last train to Vaxjö.

SE: We did not get any response from Birmingham city, neither regarding if the dates was suitable nor what would be of interest to see, so we had to plan the visit anyway. We did not know until the last weeks before the visit that Industrial Symbiosis would come with one stakeholder Birmingham University. Birmingham city did not attend the peer review.

Follow up

What did both organisations identify as the most important follow-up actions following the review visit?

Input to the next project meeting in Budapest: aquaponics will be of interest.

Virtual power plant concept will be followed up by Sweden, possible cooperation will be explored.

Follow up on LBG and LNG with the Birmingham Energy institute, a joint interest.

Look into possibilities of a new project within the Interreg Europe programme on food from waste streams.

UK: The fishfarming project is of particular interest for one of the University's research projects on Liveable Cities and I will be linking the two together.

Birmingham City Council