

Making Places Last – Sustainable Homes and Communities event
Tally Ho West Midlands Police Training Facility, Birmingham
7th November 2018

Introduction

This extremely well-attended event with over 140 people filling the room, including students from an RSA Academy school, involved 14 ten-minute presentations by industry experts offering insight and knowledge in how it is possible to develop a more environmentally sustainable built environment. There was a keynote by speech by Maciej Korbasiewicz CEO and President of the Management Board, Bolix SA.

The event was opened by the Chair, Beverley Nielsen, Associate Professor, Director of IDEA (Institute for Design and Economic Acceleration), Birmingham City University who stated her belief on the importance of awareness-raising events such as this and the criticality of education, especially in light of the recent UN report highlighting that effectively we have '12 years to save the world'.

Overview of Presentations

Presentation One

Jono Adams, Associate Director, Anthesis, explained how his organisation, in collaboration with Tyndall Centre for Climate Change Research, Greater Management Combined Authority, Department for Business, Energy & Industrial Strategy, and Core Cities UK, have developed and implemented 'SCATTER' (Setting City Area Targets and Trajectories for Emissions Reduction) through refurbishment of the stock of buildings in the Greater Management area.

Presentation Two

Paul Dockerill Director of Energy & Programme Management at Walsall Housing Group provided his views on the "Changing Role of Social Housing Providers" and their ability to influence positive change through more fully understanding the *challenges* and developing more effective *partnerships* by inspirational and *foresightful* leadership.

Presentation Three

Stephen Gapik, Managing Director (UK and Ireland) of Soltherm External Insulations examined the question "Can We Afford Not to have Sustainable Energy Efficiency?" and provided some really thought-provoking statistics. The presentation commenced with a quotation from Mattias Wackernagel that our current energy usage is resonant with a Ponzi scheme that is 'borrowing' resources that cannot be sustained and will eventually lead to debt that may result in potential catastrophe.

In order to reinforce this crucial message, the audience was told that 2018 what is known as 'Earth Overshoot day', the point at which more of the earth's energy resources were used than can be replenished, occurred on 1st August.

Stephen stated the following statistics:

- 25% of all carbon emissions are from domestic UK households
- There are 7 million uninsulated Solid Wall Properties in the UK.



- Currently 35% of the total heat loss from UK homes is disappearing through uninsulated homes

Significantly, Stephen contended, current energy policy, particularly the desire to reduce household carbon emissions, has a disproportionate impact on the poorest in society:

“...in effect the poor are subsidising the rich irrespective of income, like an energy Poll Tax - there must be alternatives to redistribution opportunities to the poorest households”

Therefore, Stephen argued, a priority for society should be policies that ensure low-income households receive assistance to become more fuel efficient and produce vastly reduced carbon through Public Private Community Partnerships involving individuals, families and communities, the Government, communities and so called third sectors as well as development partners, strategic civil leadership and the private sector.

“PPCP Partnerships ensure local needs, local foundation and local development rather than profitability are at the core of outcomes Sustainable Energy Efficiency is not a pick and mix single transactional approach – it requires investment and cohesion, it requires partnerships between sectors.”

Presentation Four

Ben Harding, Corporate Development Director SUEZ recycling and recovery UK, described the way in which it is possible to implement policies that will enable society to become more environmentally friendly through reuse and recycling of materials.

This is possible, Ben explained, through key guiding principles based on a “circular economy” in which primary resources are used more sensitively and carefully combined with much greater willingness to engage in re-use, repair, dismantling, recycling, reform and recovery of the increasingly vast amount of waste that modern society creates.

This was a theme that was revisited a number of times and Ben emphasised that it is incumbent on all of us to urgently reconfigure expectations in terms of the way in which all that is consumed is produced in a way that is sensitive to the environment and, ultimately, disposed of to ensure maximum recapture is achieved.

Compellingly, Ben presented a summary of a case study from Saint-Avold, France achieving a “circular industrial platform” in which the objective is shared services and partnerships through identification of new opportunities to pool services and lower the shared costs of running the platform.

Benefits being produced from this case study are fourfold:

1. *Water* based on management of all water utilities, technical and economic optimisation of water cycle management, identification of economic solutions for water utilities
2. *Waste* through optimisation of resources on site; “Reduce, Re-Use, Recycle, Recover”
3. *Remediation*, creation of a platform for the recovery of excavated or demolished materials
4. *Energy*, management plan optimization and pooling of energy purchases across platform users

Presentation Five

Debbie Ward, Secretariat, Circular Economy Club (CEC), which is an international network of “over 2,600 circular economy professionals and organisations from over 60 countries” in which the emphasis is on members running local workshops to identify “circular initiatives being undertaken in their cities”.

Debbie presented a ‘Mapping Week’ in which, over seven days in 40 countries there were 65 workshops involving 2,100 participants and 3,000 initiatives

Additionally, Debbie described, circular initiatives and projects:

- Improvement of cities in terms of their construction, infrastructure, mobility and logistics an example being Ibimina Kakulu & Associates Real Estate Developers which are an SME in Nigeria recovering construction waste to be used in new developments
- Consumer products and electronics, an example being Skipping Rocks Lab which is a ‘start-up’ in the UK who’ve created a spherical flexible packaging made from seaweed that can be used to carry liquids and is cheaper than plastic Fashion and other textiles e.g. which VF Corporation, a corporation in the US, the owner of Vans® and The North Face® to achieve ‘rental strategies’ for products to ensure they are designed to achieve a second life
- Food and beverages including restaurants and agriculture in which Bionativa, an enterprise from Chile, is able to produce pesticides for agriculture that are entirely based on resources that are natural, renewable and native (including fungus and worms)
- Manufacturing including equipment, furniture, paper, plastics e.g. Furlenco a furniture company in India that rents rather than selling.

The ‘key learnings’ from CEC are as follows:

1. Willingness to build on momentum which is being achieved in the circular economy all over the world
2. Opportunity for citizens to come together and share experiences; CEC creates space for citizens’ ideas to flourish into impactful actions
3. Clarity between “circular” and “not circular”
4. Urge to collaborate

Presentation Six

Gerrard Fisher, Partner, Circular Business Models QSA Partners LLP, an organisation dedicated to assisting businesses to develop and implement circular business models in a wide range of sectors including transport, electronics, fashion, furniture, renewables and “toilet resources”

Focus on appreciating essential connection between those they advise (customers) and the commercial opportunities through:

- Coherence
- Commitment
- Collaboration
- Change
- Circularity

Gerrard presented successful circular economy business model case studies including Samsung which recover products for refurbishment and remanufacturing



and Bandvulc Commercials, a fleet management company which though it wanted cheaper tyres, reconsidered and now uses those that are better able to increase value over the life and reduce costs whilst ensuring longer life in use and reliability.

Additionally, Gerrard described what is known as “fast fashion” who are those likely to have a small budget and wish to maximise utility by “convenience, low cost” and wear items once or twice but willing to trade or exchange as well as being prepared to purchase used items (the young) As such, on the basis of advice, C and A Foundation working on the desire to “drive loyalty through trade-back or subscription services”; “link to customers’ social media profiles and value”; “manage brand value by curating collections and managing quality of reused garments”; “increase supply resilience – reduce reliance on existing chains”

Presentation Seven

Simone Hindmarch, Co-founder Commercial

Showed an interesting video of her organisation

The strapline of their business is being “Commercial by Nature, Commercial by Heart. Proud to reflect our values, our brilliant staff and our pledge to leave the planet in a better place for the next caring generation. Our presentation video showcases all we do to make this happen and how an Office Supplies Company can make a legacy difference to all our valued customers whose values chime.”

Presentation Eight

Monique Seth Partner Conigital Group provided a wonderfully evocative presentation in which there was demonstration of the way in which it is possible to integrate artificial intelligence with vehicles for effective solutions:

- Developing Autonomous Agritech and Precision Farming; laser weeding field trials and strawberry picking as well as drone-based crop spraying (in collaboration with Harper Adams Agricultural University)
- Conigital Systems; providing connected systems for passengers and operators
- MCAV; the Midlands Connected Autonomous Vehicle Cluster as a way to exchange information and develop innovative solutions
- 5G Connectivity; especially in the use of IT and AI to achieve ‘connected farms’

Presentation Nine

Gavin Coull Senior, Client Representative, North West Cambridge Development, presented a summary of the development of ‘North West Cambridge’ based on the vision “to create a new district and extension to the City, centred around a mixed academic and urban community” ad which, crucially, is explicitly “sustainable, long-lasting and ambitious, offering a high quality of life to enhance both the City and the University.”

Principles of sustainability to be achieved on Greenbelt land:



- Highly sustainable design and construction; innovative low carbon living
- Adaption for future Climate Change 2050
- All dwellings Code for Sustainable Homes Level 5
- No adverse impact upon water, environment and biodiversity as a result of water conservation measures
- Non-residential and Student Housing to be BREEAM Excellent
- Site wide CO2 emission reduction through on site renewables (if no biomass CHP) e.g. wind turbines, photovoltaics etc

Outline planning permission was granted in 2012 with detailed sustainability principles including:

- Energy and CO₂ emissions
- Pollution
- Food
- Waste and Materials during construction
- Water use reduction
- Biodiversity and Ecology
- Transport and Mobility

Phase one of the development includes:

- Over 800 homes for University Staff
- 325 units of Graduate housing
- Senior living/Extra Care
- Faith worker homes
- 300plus room Hyatt hotel
- Energy Centre (incorporating a gas fired combined heat and power (CHP) plant)
- Over 700 market homes by Hill
- Community facilities including primary School (630 pupils), community centre and nursery, GPs' Surgery, sports pitches, open space, play areas, Sainsbury's foodstore and other local shops

Later Phases will include remaining housing and supporting hard and soft infrastructure as well as allotments

Commitments and targets for the development

- Code for Sustainable Homes Level 5
- 'BREEAM Excellent' for all non-residential; some Outstanding
- Protection and enhancement of existing ecology
- Combined Heat & Power with gas-fired boilers
- District Heating network to all buildings
- Below ground bin system; more effective management of waste
- Green waste management via a managed green waste scheme
- 20% reduction in CO2 emissions through renewable energy e.g. Photovoltaic panels ▪ < 40% journeys to work by car - (compared to national average of 71%) ▪ Non-potable water recycling network
- < 80 litres water use per person per day potable water consumption (compared to Cambridge average of 150 l/p/d)
- Very low parking levels for staff accommodation – 1 space per 4 units



- Delivering the social infrastructure upfront to establish a sense of place e.g. primary school, community centre or play areas

Other key objectives for the development:

1. Fabric energy efficiency to reduce space heating demand to achieve 100% improvement over Building Regulations 2010 DER/TER (estimated CO₂ emissions per m² per year) and high level of airtightness (target leakage 1-3m³/hr/m² of envelope depending on ventilation method as well as airtightness testing and post completion thermographic testing)
2. Waste Management – below ground bins (no wheelie bins)
3. Sustainable travel – university bus, bike, car club and walking
4. Site Wide Heating and Hot Water Gas boilers and combined heat and power (CHP):
 - ✓ The 1MW Combined Heat and Power unit will deliver both generated electrical power (to export to the national grid) and engine heat recycled to provide a heating source for district heating
 - ✓ The Energy Centre's thermal stores can hold enough hot water to fill 3,112 domestic baths. There is over 2.35km of district heating pipework installed at North West Cambridge The Energy Centre distribution pumps can circulate 233 litres per second around the heat network, enough to fill 175 baths a minute
5. Energy Centre & District Heating Network
6. Control of surface water to protect against flooding and drought through Water Sensitive Urban Design
7. Water – Integrated site wide approach
8. Brook Leys – a new parkland with lakes created from recycled rainwater
9. Renewable Energy at North West Cambridge
 - ✓ The solar Photovoltaic arrays on the roof of buildings across the development will generate enough electrical power to supply at least 300 homes with electricity (approximately 850,000 kWhrs per year) with excess being exported to National Grid

Presentation Ten

Mike Leonard, CEO, Building Alliance provided a presentation advocating the urgent need for building regulations to better reflect the criticality of using fire-resistant materials. As Mike contends, the Grenfell disaster has put the onus on all those involved in the construction industry from design to actual delivery of the end product to select materials that perform to the highest standards in terms of thermal insulation but not in a way that causes risk to occupants. Moreover,

Mike explained, solutions such as modular and/or prefabricated approaches, do not produce the cost-effectiveness and speed that is claimed by advocates. Rather, he argued, as well as containing the sort of hazardous material that is believed to have been the central cause of Grenfell, they tend to restrict refurbishment and modernisation that is possible with traditional forms of construction.

Crucially, as Mike described, research carried out by him and Dr. Steven McCabe, Associate Professor, IDEA, Birmingham City University, shows that locally produced materials and labour is economically sensible in terms of positively contributing to the circular economy. The results of this indicate that, on average, doing precisely this for every house built will potentially result in £316,000 of benefit to society or equivalent to a £70bn impact in the West Midlands if all 215k homes making up the



target for the Mayor and West Midlands Combined Authority were sourced from local supply chains.

Presentation Eleven

Tom Pell and Jeanette Wong, Founder, The Clean Kilo, who presented their experience of opening a shop dedicated to reducing waste through selling basic foodstuffs and provisions without packaging.

As was described, plastic was invented in Birmingham in the mid nineteenth century and became very popular in the 1950s due to being lightweight and hard wearing. However, it has become ubiquitous:

- 2.0 tonnes of virgin plastic produced in 1950
- 8.3 tonnes of virgin plastic produced in 2017
- Only 9% of plastic is currently recycled

The Clean Kilo is based on the desire to reduce the amount of plastic which is blighting the environment and having a devastating effect on delicately-balanced ecosystems:

- ✓ High quality and organic products from suppliers within the immediate area or region
- ✓ Local, small and independent suppliers
- ✓ Keep the prices low enough to make it accessible to all

Analysis of impact:

- First zero waste shop in Feb 2017, three shops by Jan 2018 - now there are at least 30 around the country!
- The Clean Kilo has been since mid-2018 and served over 6000 customers
- 30,000 individual pieces of plastic saved
- Changing consumer habits - absolutely no reason why zero waste shops can't all challenge the big supermarkets to do things differently!

Presentation Twelve

Peter Braithwaite, Former Head of Sustainability, London Olympics Delivery Partners, in which there was consideration of whether the lessons of the London Olympics with respect to sustainability and focus on the environment can be effectively utilised as part of Birmingham's 2022 Commonwealth Games.

"We want London 2012 to be the first 'sustainable' Games, setting new standards for major events." David Cameron

London 2012 Sustainability Policy (Climate Change, Waste, Biodiversity, Healthy Living, Inclusion) – Summer 2006

Sustainable Development Strategy; an holistic approach to:

- Carbon
- Water
- Waste
- Materials
- Biodiversity



- Environmental impacts

And emphasis on:

- Supporting communities
- Transport and mobility
- Access
- Employment and business
- Health and well-being
- Inclusion

Delivering sustainability through the project:

1. Commitments and challenges
2. Project specifications and design reviews
3. Contract requirements
4. Code of Construction Practice
5. Environment and Sustainability Management System
6. Auditing and Reporting

SDS embedded in planning and key commitments through Section 106: Sustainability requirements:

- ✓ 50% by weight of construction materials delivered by rail and water
- ✓ 50% reduction in carbon emissions
- ✓ 20% reduction in carbon emissions from on-site renewables
- ✓ 90% of material from demolition to be reused or recycled
- ✓ 40% reduction in potable water-use
- ✓ BREEAM excellent

Peter described the notable sustainability achievements on this project which include 50% reduction in carbon and 58% reduction in potable water use, 97.7% of demolition materials reused or recycled (98.6% reduction in waste sent to landfill), 2/3 of materials delivered to site by rail, 80% of contaminated soil reused, 15,000sqm of 'living roof' created and 700 bird/bat boxes installed

Challenges and lessons learnt:

1. Costs are an issue but ODA constantly driving Value for Money
2. Strategic approach to SD across programme
3. Commitment by venues is essential (BREEAM) coupled with pragmatism
4. Critical to get strategy into construction tenders and contracts
5. Strong and robust assurance system vital
6. Partnership with other stakeholders is vital to deliver greenest games ever

As Peter was able to assert, positive change that costs nothing – he stressed that he underspent his budget – is entirely possible with affirmative and determined action. This, he passionately believes, can be replicated in every project including the Birmingham Commonwealth Games to be held in 2022

Presentation Thirteen

Carolina Karlstrom, Proprietor, Jade Advisory (for Ecoed), 'Awareness, education and action through social media and gamification'



Belief that climate change needs behavioural change to achieve 'sustainable living' which though difficult to achieve is not impossible

The phenomenal power of social media provides incredible potential to ensure that billions are aware of the need for change

Using a survey approach to Ecoed:

Baseline for analysis: 519 answers to quiz questions

- ✓ 29 Participants
- ✓ Strengths: Energy, Health & Wellbeing
- ✓ Areas for improvement: Waste, Water

Presentation Fourteen

Prof Peter Slater Professor of Materials Chemistry Centre for Strategic Elements and critical Materials University of Birmingham, 'Impact on Critical Materials of Electric Vehicles: The need to develop efficient recycling strategies'

Birmingham Centre for Strategic Elements & Critical Materials

- Launched in March 2017
- Bringing together capability across the University of Birmingham, Birmingham Energy Institute around the issues of materials criticality
- Seeking solutions through substitution, recycling and reuse of materials – along with examination of the regulation and law
- Policy Commission for a "UK Elements Strategy" to be launched 2019
- Leading the Faraday Institution ReLiB project: investigating the recycling and reuse of electric vehicle Li ion batteries

Solutions to the issue of materials criticality:

- ✓ New primary resources
- ✓ Substitution of application
- ✓ Substitution of material
- ✓ Efficient use of materials
- ✓ Change in policy
- ✓ Re-use
- ✓ Recycling

Project involves seven UK universities, diamond and 14 industrial partners

Key message of the presentation is that though science is the key, it is about the business models that will make critical materials recycling work

RSA World Café including school project introduced by Susan Harris, Chair, RSA

This occurred over lunch and simultaneously allowed children from XX secondary school and groups from the audience to engage in consideration of the issue that



are considered crucial to changing attitudes in a way that will alter behaviour in the long-term to achieve greater sustainability

Presentation Fifteen: Keynote guest speech

Maciej Korbasiewicz CEO and President of the Management Board, Bolix SA

“A real and steady process of sustainability improvement requires a few fundamental preconditions, none of them is purely related to technology”

1. Conventional, prevailing, unquestionable acceptance of the need to make the society organise itself in a nature-friendly way
2. Speed of Eco changes should be high but within the limit the society is ready to accept
3. The Economy does not have to be on the ‘Dark side of the Force’
4. Business has to be involved to make profit and push the economy ahead

The sources of inspiration to improve our society’s impact on environment can be found in very different areas:

- ✓ Technology based on creation of new sustainable materials and innovation
- ✓ History and learning from experience as well as going back to ‘old’ ways
- ✓ Economy or Ecoeconomy by more accurately measuring (financially) the impact of continuing the current approach compared to alternative solutions
- ✓ Mathematics in terms of including metrics for all actions and especially by suppliers
- ✓ Local and global culture which involves shifts in beliefs to recognise that there are better ways of living which will have a positive impact for all

In Maciej’s post scriptum he emphasised the fact that the importance of understanding climate change is “still not widely accepted” and:

- Environmental certification should be requested when goods are imported from the ‘outside world’
- Real changes come from large high-profile initiatives
- More conferences such as this will assist the importance of raising awareness
- Finally, there might be a wonderful future ahead, if only we remain unsatisfied with what has been achieved so far

Concluding summary by the chair

The event was concluded by Beverley Nielsen who thanked all involved and stated that there had been some excellent presentations and discussion. As she believed, ensuring greater dedication to achieving sustainability in communities is a continuous process that we can all play a part in. She also highlighted that a compilation of key elements of each presentation would be compiled by IDEA in association with RSA following the conference which would be available online for reference.

Compiled by Dr Steve McCabe, Associate Professor, IDEA, Institute for Design & Economic Acceleration, Birmingham City University

