

## **Fostering a culture of collaboration and innovation to drive the circular economy in the Scottish bioeconomy**

### **Introduction and Background:**

This was a collaborative programme developed and run by two of the five Scottish universities awarded Impact Acceleration Accounts by the EPSRC (Engineering and Physical Sciences Research Council). The remaining three IAA universities were involved in the initial stages of development and members of their institutions attended the workshops. Knowledge Exchange professionals managing these accounts formed a working group to identify common, research-rich areas within their universities. The working group of IAA managers liaised with government, third sector organisations and academics within their universities to identify the Circular Economy as an increasingly important research area with potential to create significant impact. Within this, the field identified as high potential but not currently fully supported was the bioeconomy.

### **Activities:**



The programme was made up of four workshops with broad participation from industry, government and the third sector which ran from June until December, 2016 with the aim to identify technologies and knowledge that can help Scotland progress towards a zero waste and circular economy. Across the four workshops there was an average of 40 attendees made up of equal representation from industry, government, higher education and the third sector.

The first three workshops were run in the same format with presentations from organisations, which have already started their bioeconomy journey, in the morning followed by breakout sessions in the afternoon.

At the first workshop held in Glasgow we heard from a global health organisation about their search for alternative resources including bread and additionally from two start up organisations one developing products from waste coffee and the other producing chemical intermediates from shellfish processing by-products. In the afternoon the group worked in four groups discussing the following; ***just how circular are we, my 'waste' is someone else's raw material, Sustainable raw materials, Circularity is a good idea, but...***

The second workshop held in Edinburgh responded to the previous attendees' request to find out about funding available to develop activities within the bio economy sphere. In the afternoon there were four breakout sessions covering the following topics which led on from the first workshops'

discussions where it was identified that ways had to be found as to how to initiate circular economy practices within organisations.

1. How organisations innovate internally;
  - How are sustainable practices implemented/integrated across the organisation?
  - How is approval gained for new policies/practices/technology adoption?
  - What elements of the organisational culture promote/challenge new innovative practices?
2. How organisations promote their innovative culture to their customers/clients/suppliers;
  - How does your organisation communicate its circular/innovative culture to clients/suppliers?
  - Why would this be important to clients/suppliers?
  - Does your organisation consider its suppliers sustainable/circular policies prior to engaging with them? If not, should this be a consideration?
3. How organisations communicate with a general audience in relation to sustainable/circular practices;
  - How does your organisation promote itself as a sustainable/circular organisation to a wide audience?
  - How can this awareness be increased?
  - How can we promote circularity/sustainability as criteria for the public to engage with an organisation instead of another organisation that does not have sustainable/circular processes and practices?
4. How the support system could be structured to accelerate the progression towards a more sustainable/circular economy;
  - What barriers are there within organisations that prevent the progression towards circularity? How could physical and financial support help to overcome these?
  - How could the support system help change thinking within organisations/improve knowledge of the benefits of adopting more circular business practices/processes?

the first two workshops were held in June of 2016 and the feedback indicated that people were finding these forums very useful but they also identified that, as interesting and motivating it was to discuss these various topics, it was equally, if not more important, to ensure that the bodies controlling and/or supporting the various policies pertinent to the bioeconomy activities in Scotland had to be aligned together to have a fighting chance of developing the bioeconomy within Scotland.

With that lead, the third workshop held in St Andrews brought together speakers from the Scottish Environment Protection Agency (SEPA), Zero Waste Scotland (ZWS), and Scottish Enterprise (SE) to outline their roles and activities in the area and again in the afternoon the attendees broke up into groups to discuss the following subjects;

- **Policies and outcomes; are our current policies, and the intended outcomes, clear?**
- **Unintended consequences; will our current policies deliver the intended outcomes?**
- **Securing good outcomes; are there better ways of delivering the intended outcomes?**
- **Focus on science; one of the enablers of 'joining the bio-economy up' is science. The workshops so far have focused on other themes, and so there is an idea on the table that the next event should focus on science...**

The main outcome of this workshop was the wish of the attendees to participate in a workshop whereby the chief executives of each of these organisations presented their vision of the bioeconomy and their proposals to work together. Unfortunately time constraints prevented this

happening at the last workshop however it is not forgotten - going forward (below) – therefore it was decided to use the last workshop as a forum to undertake a back casting exercise on the bioeconomy. This involved looking forward to what the attendees would like to happen, looking at the status quo and then road mapping the route to achieving the set of goals outlined. It was based around the Scottish Government bioeconomy vision of; **“We want Scotland to be recognised as an international leader in the efficient use of biological resources. While our primary focus is on reducing waste, we want an increasing proportion of biological wastes to be used for production of high value materials and chemicals, maximising environmental and economic benefits and replacing non-renewable chemical feedstocks. When high value uses have been exhausted, we want to see increased production of renewable fuels, heat, and fertilizer products.”**



Using back casting in this way was not something we had considered. An attendee proposed it after the penultimate workshop and we agreed it was a good idea. In hind-sight it may have been an ideal first workshop. However, it was still a useful exercise, which drew on the collective wisdom of a dynamic group that had developed a sense of community – or at least a convivial common purpose – over the workshop series. The majority of attendees attended at least 50% of the workshops.

### Outcomes:

An attendee list of 140 people was generated over the period of the four workshops.

The back casting exercise generated a total of 130 drivers via the STEEP process - Social, Technology, Economic, Environment and Political. When those were then distilled further by placing them on an Impact/Uncertainty Matrix the top five drivers across STEEP were as follows;

- **Social** – Engagement and Understanding (messaging, consumers, education systems, social spectrum)
- **Technological** – Technology Library – codifying understanding and access to the best technologies
- **Environmental** – Climate Change and everything it brings – lots of uncertainty
- **Economic** – Price of raw materials
- **Political** – Global Policy uncertainty is high e.g. globalisation vs trade wars

For additional information on the outputs of the back casting exercise please click on the following links;



## Challenges

Developing a circular economy is vital for Scotland and the wider world, and this is being recognised by researchers, local and national governments, the UN, businesses and the third sector.

However, broad participation crossing business sectors, academic disciplines and party politics is absolutely fundamental to the development and sustainability of a circular economy. In addition to key stakeholder engagement, new business models, technology and knowledge will be needed.

This workshop series sought to bring together key stakeholders from across Scotland and certainly succeeded in doing so. The challenge was to bring a wide range of participants to the same level of understanding and knowledge quickly. This took longer than anticipated and it wasn't until the third workshop that participants and organisers felt like we were really getting somewhere.

Indeed, it was at that third meeting that there emerged a desire to bring together the CEOs of Scottish Enterprise, Zero Waste Scotland and SEPA. These organisations had had representatives at the workshops but not at the executive level, and not always the same person at each workshop.

There is an appetite to continue the network, and on-going discussions amongst the programme team to drive this forward. In this the aim of establishing a network has been met.

## Going Forward:

It is important that outputs of workshop 4 are shared with all attendees who attended the four workshops.

An additional workshop which involved the chief executives of SEPA, SE and ZWS would be well received by the various attendees and should be recognised as part of a larger mapping exercise of CE activity within Scotland.

There is an appetite for the group to keep meeting and to work together in submitting collaborative funding proposals. Taking into account of what has been generated throughout the workshops and in particular the last workshop there are areas of interest around which funding could be applied for would be "Policy mapping" covering the following;

- a) It is recognised that the policy surrounding bioeconomy and CE in totality are complex, and mapping of the relevant policies (including those related to CE but not specifically on – as above) is required.
- b) An exploration into the dissemination of those policies would be required.
- c) Explore how to capture that complexity to ensure (in the hope that the network grows) that future discussions are inclusive but also allow the development of ideas.

Additionally, the other findings of workshop 4 require to be developed through collaborative work and they are;

- a) There is a strong industry requirement for knowledge on the technologies available and location and type of resources needed to drive new business models
- b) There is a need to develop greater societal understanding of the bioeconomy through the education system and with consumers. Students need to know that there will be careers to aim for in the future and consumers need to know that their actions are critical to future resource use
- c) Rather than drive large infrastructure projects it was highlighted that the bioeconomy and the circular economy overall could drive disruptive change at the local economy scale, especially rural populations

Finally a group will be developed on “Linkedin” for all of the attendees to join.