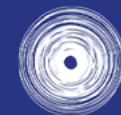


Food Systems & The Bioeconomy



Contents

01

Workshop Summary
Programme Overview
Graphic Recording
Miro Board

02

Speakers
Panel Session
Facilitators

03

Positive Carbon
GIY
Ellen MacArthur Foundation
Anaerobic Digestion Ireland

04

Gallery

Introduction

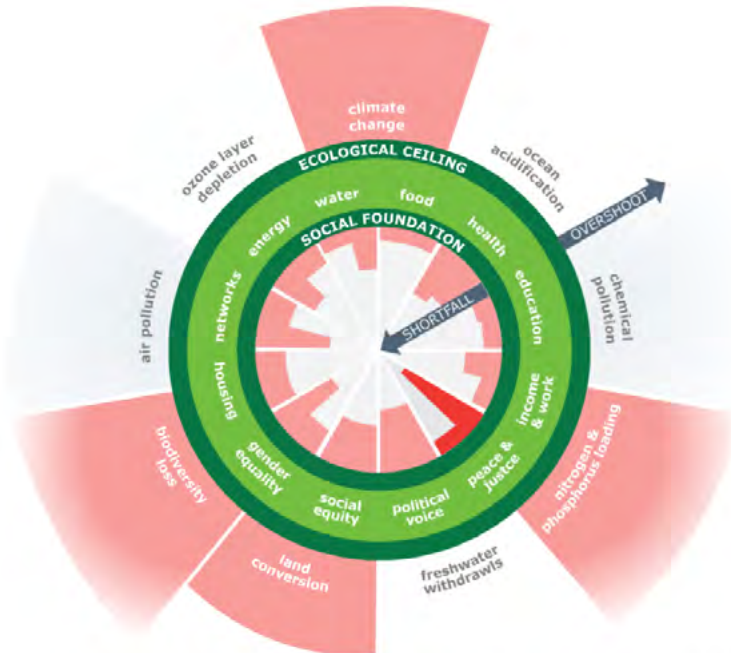
Thinking about the design and transformation of something as complex as a food system, with such important economic and social implications can be daunting. This is a 'problem' that requires multiple stakeholders to voice their opinions, provide evidence and to interact while searching for solutions. At this early stage of thinking, there are no right or wrong 'answers'.

This was the key aim of the Food Systems and the bioeconomy hosted by BiOrbic, Bioeconomy SFI Research Centre, and Ireland's Knowledge Centre for Carbon, Climate and Community Action.

The workshop hosted at the Circular Economy Hotspot facilitated those with an interest in transition to circular food systems and circular bioeconomy to come together and openly discuss ideas that will eventually coalesce to reveal the direction of travel needed for transition to a sustainable food system working in harmony with bioeconomy.



Why It Is Important To Reflect On Where Our Food Comes From



Food systems provide communities with the food they eat, whether it is grown locally or imported from global supply chains. These systems are intricately interlinked with the emerging bioeconomy and are reliant on land resources, natural capital and consumers.

The collection of food items a person or community eats is a diet. A sustainable diet is nutritious, environmentally friendly and affordable. A healthy food system considers both the 'ecological ceiling' of our planetary boundary and the 'social foundation' that ensures life's essentials for those who produce, process, distribute and eat the food (i.e., the 'donut economics' concept put forward by Kate Raworth). The social foundation means foods must be financially viable and nutritious, thus driving inherent positive health outcomes. A food system within the ecological ceiling would replenish, not deplete, natural capital such as soils, land etc, so that food is produced while preserving biological resources and natural capital for future generations to enjoy.

1) Population in countries scoring 50 or less out of 100 in the Corruption Perceptions Index: 85% (2014)

2) Population in countries with a homicide rate of 10 or more per 10,000: 13% (2008-13)

Source: Doughnut Economies: Ireland, Kate Raworth

System Incompatibilities

Current economic models and a “business-as-usual” approach have become incompatible with a prosperous, safe future for humanity. Modern society is reliant on fossil resources for food, industry, and infrastructure, with most societies relying on economic growth driven by a take, make, consume, dispose model.

It is now widely recognised that global food systems are unsustainable, with a knock-on consequence for local food systems. To understand some of the pressures placed on global resources, consider that the EU27 bioeconomy currently generates ca. €1.5 trillion of biobased chemicals and materials and the growth in demand for just biobased chemicals will be somewhere between 3% to 10% annually by 2030. Under these circumstances, demand for biobased products and food is placing a proportional pressure on natural resources.

Even if the whole process becomes more eco-efficient through bioecon, it will be necessary to:

(i) break the link between economic growth and resource depletion,

(ii) recognize the biosphere does more than simply provide physical commodities

(iii) work out how to create sustainable carbon cycles for food and material provisioning.

Circular Food Systems

The circular economy should decouple economic growth from resource use by lifetime extension, increasing use intensity (e.g., by longevity, sharing and rental), reuse, repair, reverse logistics, remanufacture, recycling and valorisation whilst maintaining value, thereby minimizing waste, and promoting regeneration.

This means that to keep pace with increasing demand due to population growth and lifestyle patterns, humans must use fewer virgin materials because more materials are kept in circulation and less are wasted. Circular bioeconomy should also support the regeneration of natural systems to undo the harm of the last two centuries, for example allocating land areas for biodiversity or returning organic matter to the soil to maintain soil carbon.

The Six Common Facets

Regardless of the scale of the food system, there are six common facets that interact to a greater or lesser extent to deliver food to people.

1. Food Production: i.e., growing crops.

2. Food Processing, distribution and aggregation of crops, i.e., bringing them to a location for some kind of pre-processing for preparation, which could be as simple as removing excess stems and leaves or as complex as bringing ingredients together prior to processing.

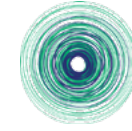
3. Distribution and Logistics, i.e., moving the food and other materials among locations (processor to storage to wholesaler to retailer).

4. Market, i.e., making foods available for sale.

5. Preparation and Consumption, whether in the home or the food service industry.

5. Resource Recovery and Waste Management, i.e., dealing with biomass and packaging once the food has been consumed.

Food Systems & The Bioeconomy



Circular Economy Hotspot
Dublin 2023

MC : Helen Carroll, Journalist & Presenter, RTE

Chaired by: Patrick Barrett, Department of Agriculture, Food and the Marine and Sarah Miller, Rediscovery Centre

Developing our food system to one based on circular economy and bioeconomy principles is one of the most powerful things we can do to address the climate crisis. Join us to explore how this transformation can provide healthy nutritious food, tackle food waste, achieve sustainability, build biodiversity and promote wellbeing.

INTRODUCTION OF PRACTICAL FOOD HIERARCHY EXEMPLARS

Joshua Newton, Ellen MacArthur Foundation

Michael Kelly, GIY

Kate Barlow, Positive Carbon

Stephen Nolan, Green Generation

9:00-12:30pm

Guinness
Enterprise
Centre

31 May
2023

PANEL SESSION

Food system and bioeconomy cross-sectoral experts will reflect on the innovations and discussions of the workshop and together explore future steps forward

Sabrina Dekker, Dublin City Council

Denise Brennan, Kerry Group

Aoibheann O'Brien, Food Cloud

Caitriona Collins, EPA,

Nick Holden, BiOrbic Bioeconomy,



[find our
location here!](#)



[explore our
speakers](#)

INTERACTIVE WORKSHOPS

What would a circular food system and bio-economy look like for Dublin.

This workshop is chaired and developed by Helena McMahon and Zoe Rush (IKC3) and Nick Holden and Derek O'Brien (BiOrbic)

The aim of the participatory workshop is to propose priority actions needed to transform to a circular bio-economy and sustainable food system and bio-economy.

Rapporteurs will present on the challenges and opportunities and the most prevalent points raised.

Graphic Recording

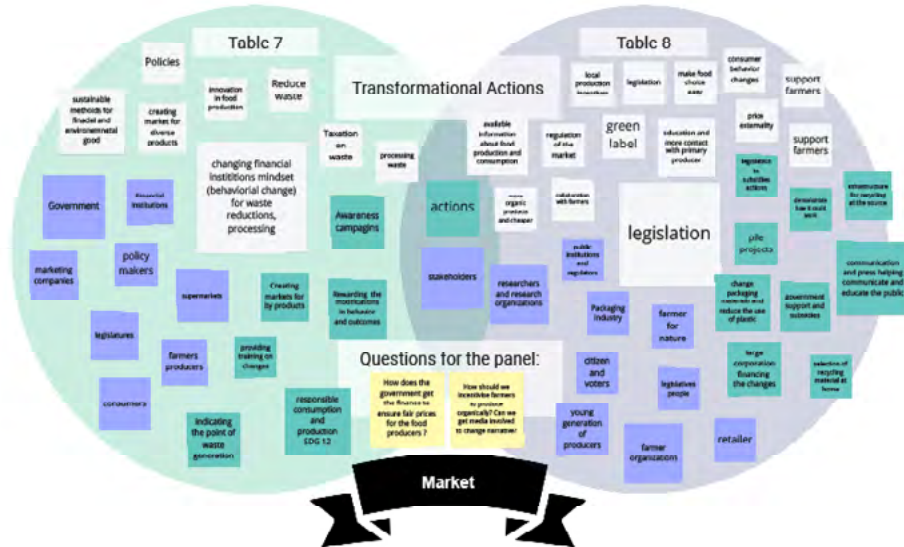
By Robyn Deasy
@DeasyRobyn



Workshop Harvesting -miro board

KEY ACTION (it is a "holistic" one...)
 - if tackling **households** waste ; assuming for a pilot project in Dublin
 0. pick an area and make sure the logistics are in place and the demographic (of the are) is representative of the wider population (e.g. apartments and houses)
 0.B set up the required piece of technology (e.g. Positive carbon sensor)
 1. recover the waste (brown bins)
 2. Identify (sensor)and segregate waste
 2.A potential to link the quality the household waste separation to taxation
 3. Redirect the waste based on their potential bio-conversion and valorisations (for other industries ect) ; have the hierarchy well defined 1. bio-conversion, 2. AD 3. Composting
 4.
 =>start at neighborhood scale, do a pilot and produce best practice and expand to other area of the city and the state

- Set up a task force ; bringing in all the key stakeholders. identifies with a project manager
- bring together community champion and the community and explain the plan
- Put in place an incentive scheme; which can be taxation based
- Technology needs to be available
- have the legislation in place and enforced
- Put in place/make available at the community level ; AD, composter and community garden
- 1. Funding partly provided from government
2. Make an open call to get private partners to take care of the
- link the permits of the waste collection companies to certain level of



**Circular Economy Hotspot
Dublin 2023**

Food Systems & The Bioeconomy

What transformational actions are needed in the table topic area? (10 minutes) Of the actions discussed, which one is determined to be the most important? (5 minutes)

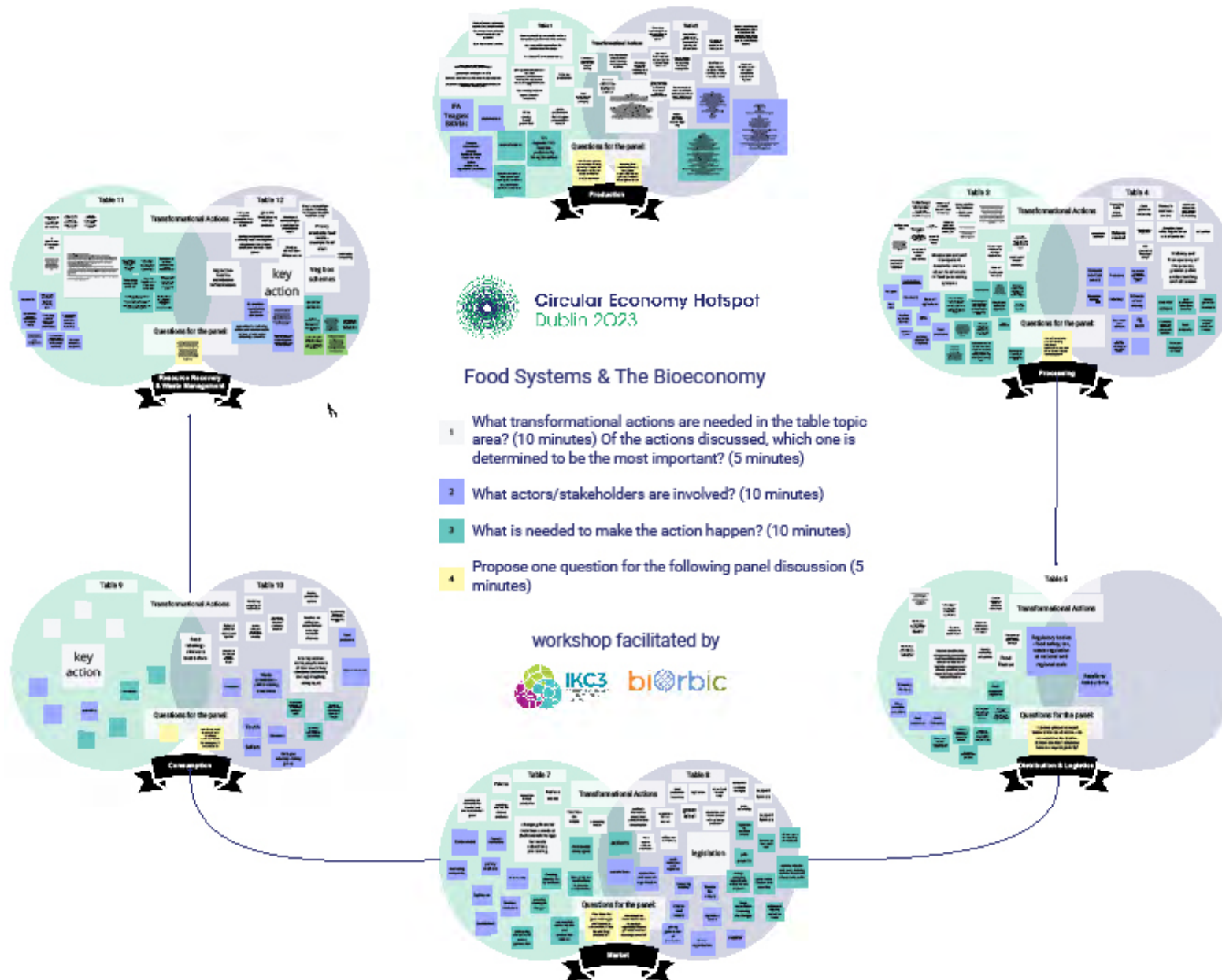
1. How do we ensure and manage the data, to make it accessible for exploring further opportunities for circular activities?
2. How to finance/what are the financing avenues to overhaul/improvement of the waste/resource recovery system?
3. How should we incentivise farmers to produce organically? Can we get media involved to change narrative?
4. How should we ensure we get the data?

How does the government get the finance to ensure fair prices for the food producers ?

1. if we want farmers to modify their production ways , does that increases the retail cost for consumers or how is it paid , by consumers or public policy ?
 2. for positive carbon -what support are they offering to their customers to help reduce waste once they have identified the quantity?

How should we ensure we get the data?
 What do you feel should change societally to enable the actions e.g. 4 day working week, living wage?

2. What actors/stakeholders are involved? (10 minutes)
3. What is needed to make the action happen? (10 minutes)
4. Propose one question for the following panel discussion (5 minutes)



Speakers



Joshua Newton
Ellen MacArthur Foundation



Kate Barlow
Positive Carbon



Mick Kelly
GIY



Stephen Nolan
Green Generation

Panel Session



Sabrina Dekker

Climate Action Coordinator,
Dublin City Council



Denise Brennan

Kerry Group



Aoibheann O'Brien

Food Cloud



Nick Holden

BiOrbic Bioeconomy SFI
Research Centre.



Caitríona Collins

EPA

Facilitators



Patrick Barrett

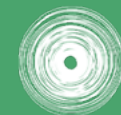
Department of Agriculture Food
and the Marine



Dr Sarah Miller

Chief Executive,
Rediscovery Centre

Positive Carbon

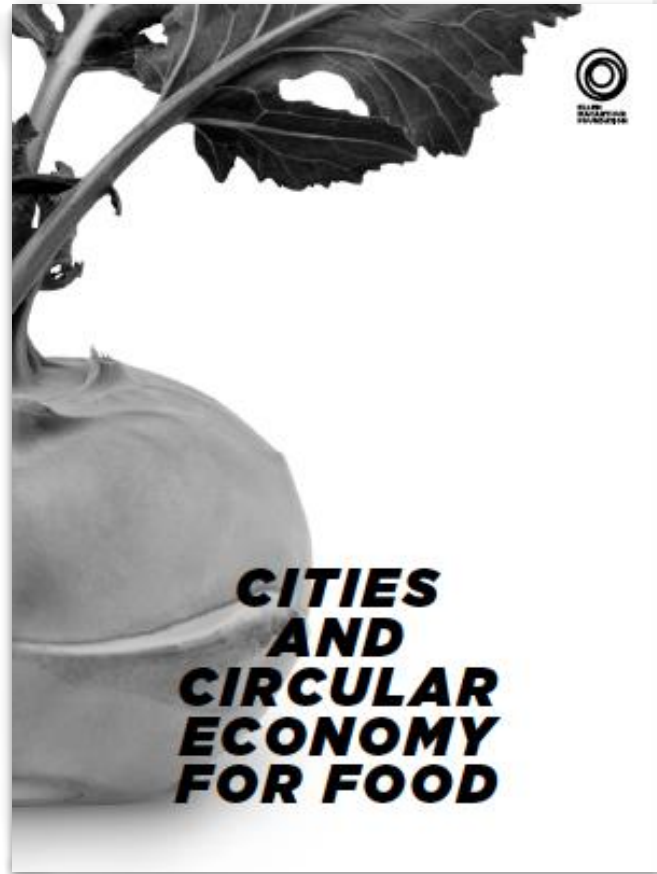




Introduction to Anaerobic Digestion in Ireland

Stephen Nolan, PhD

Circular Economy Hotspot, Dublin, 2023



Visit emf.org for useful frameworks and insights



We can change the
future with food
growing

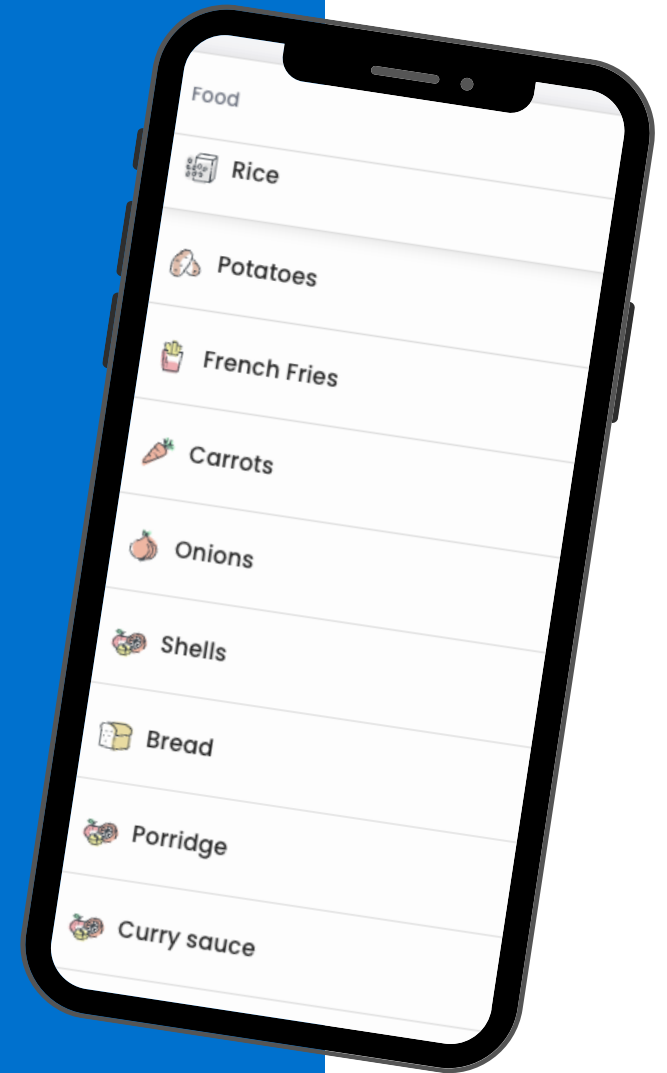
Mick Kelly
Founder, GIY

Social: @mickkellygrows, @giyireland
www.GIY.ie



Bringing Visibility to Food Operations

Reducing Food Waste in the Foodservice Industry





Case Study The Grand

The Grand Hotel Malahide works with Positive Carbon to understand and track the food waste that they were creating

The Grand Hotel is a four-star hotel located in Malahide, north Dublin. The hotel has a strong sustainability focus, with a large number of environmental initiatives in place, including energy-efficient lighting and a bio-digester for the decomposition of food waste.

However, the Managing Director, Matthew Ryan, recognised that to further reduce the impact of food waste in his hotel they needed to focus on food waste at the source.

Over the initial three-month period, the hotel reduced the cost of food waste by an extraordinary 42%.



Our Customers



Twitter



Intel



The Grand Hotel



Gather & Gather



KSG



Radisson Blu



KPMG



Dalata

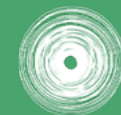


Amazon



UCC

Grow It Yourself (GIY)





We can change the
future with food
growing

Mick Kelly
Founder, GIY

Social: @mickkellygrows, @giyireland
www.GIY.ie



The Big Picture

- The global food system is putting an impossible strain on the planet
- It is responsible for 30% GHG emissions, 69% of water use, 70% of biodiversity collapse
- 2 billion people are hungry, 1 billion obese, 2 billion more to feed by 2050
- There is a pandemic of diet related illness globally, accountable for 80% of global healthcare spending
- The climate emergency is here and now and an existential threat to life on earth

The latest **IPCC report** emphasises the importance of behaviour change and education in addressing

The SDGs can't be achieved unless we shift the way we produce food.

EAT Lancet Report

About GIY



- For 15 years we've been helping people to grow their own food
- We are a proud social enterprise with reach globally through our partnerships, media and advocacy work.
- Our Grow, Cook, Eat TV series has reached over 12 million people.
- By 2030 we will inspire 100 million people around the world to grow their own food and lead healthier, happier and more sustainable lives.



**1 Million+ people
a year learn how to grow food with
GIY**

WHAT WE DO

Inspire | Educate | Enable | Connect

A global movement of food growers



Food Empathy

1 KG of
CO2 saving:
1 KG food
grown

Our Research shows that when people grow their own food it shifts their **knowledge, attitudes and behaviour** around food. It empowers them to make healthier and more sustainable choices.

We call this **Food Empathy**

Five Key Food Empathy outcomes:

| Less Food Waste (43%) | More Plant-Based Food Choices (57%) |

| Increased Connection with Nature |

| Connection with Local Suppliers & Producers |

| Less Pollution |



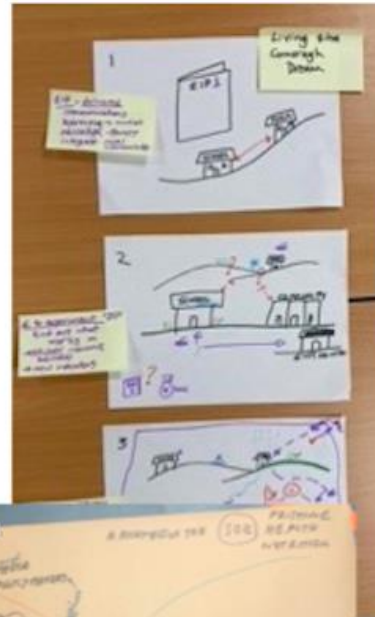
Bioregional Weaving Lab Waterford

Bioregional Weaving Lab

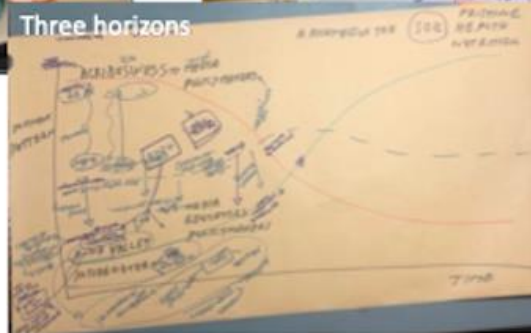
Working to restore, protect or regenerate 1 million hectares of land and mobilise 1 million changemakers.
One of eight in Europe, coordinated by Ashoka, Commonland and The Presencing Institute



System modelling



Three horizons



Action pathways 1
Stakeholder projects and participation
From the outputs of the future thinking workshop the following patterns for action could be seen:

1. Reframe producer-consumer relationships - neighbourhoods and townships, work to establish food partnerships and foodscapes
2. Develop strategies to create a new body to promote organic, regenerative and non-chemical farming in Ireland
3. Look for opportunity to partner with, or start new, media channels that communicate quality assured stories about regenerative/organic farming, food, and changemaking for future we aspire to
4. Campaign to stop spreading protected areas
5. Building a proper support structure for community participation - e.g. water-related
6. WFP as a focus of sustainable and regenerative methods, research, teaching and practice. Demonstration of what works for soil, water, food and education.
7. Short and long skills training (DCTS +) for regenerative farming, biodiversity and more
8. Farming with Nature - can this grow to be planted in the landscape?
9. Community-governance hubs and mobile units - what would these look like and how to get them going in the landscape?
10. The power of procurement and new business forms
11. Schools - schools in community, heritage and place. Schools as places to give children opportunities to experience being changemakers

Plus:
12. Schools - schools in community, heritage and place. Schools as places to give children opportunities to experience being changemakers

Portfolio of concepts

1. A mission driven geopark
2. Rural hubs and 4R valleys
3. Older people as changemakers
4. New farms, new farming, new farmers
5. Good food for all - consumer/producer contact
6. Weaving as a platform for change
7. Community-led land use management
8. Local communities for collective eco-impact
9. Rivers and seas: for and by communities

Conference September 8th
Financing landscapes/bioregions



Trust and togetherness

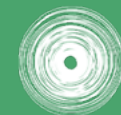


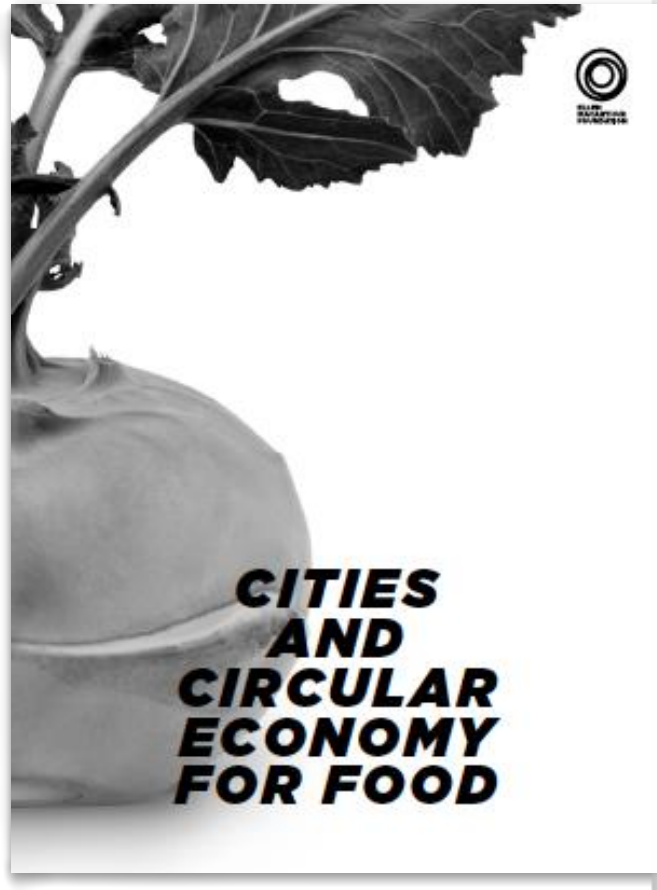
Systemic innovation tools



Portfolio of concepts

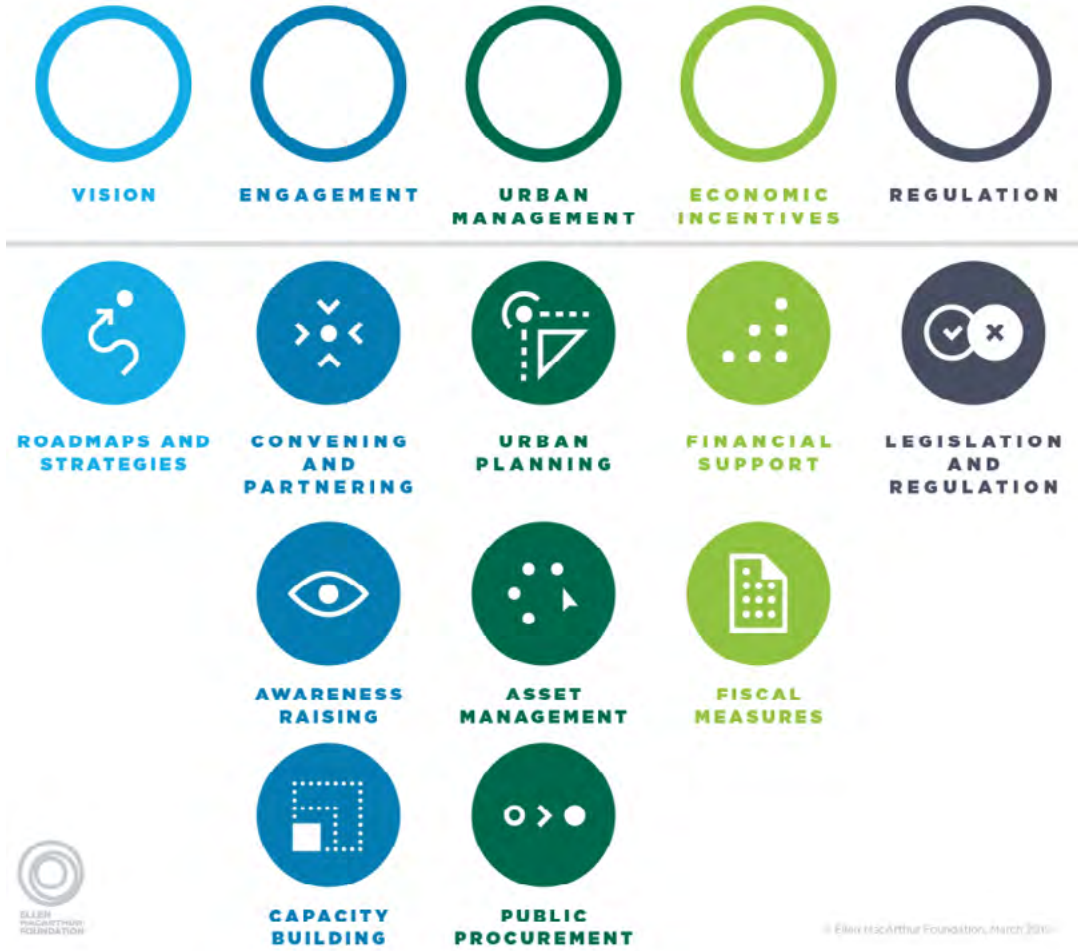
Ellen MacArthur Foundation





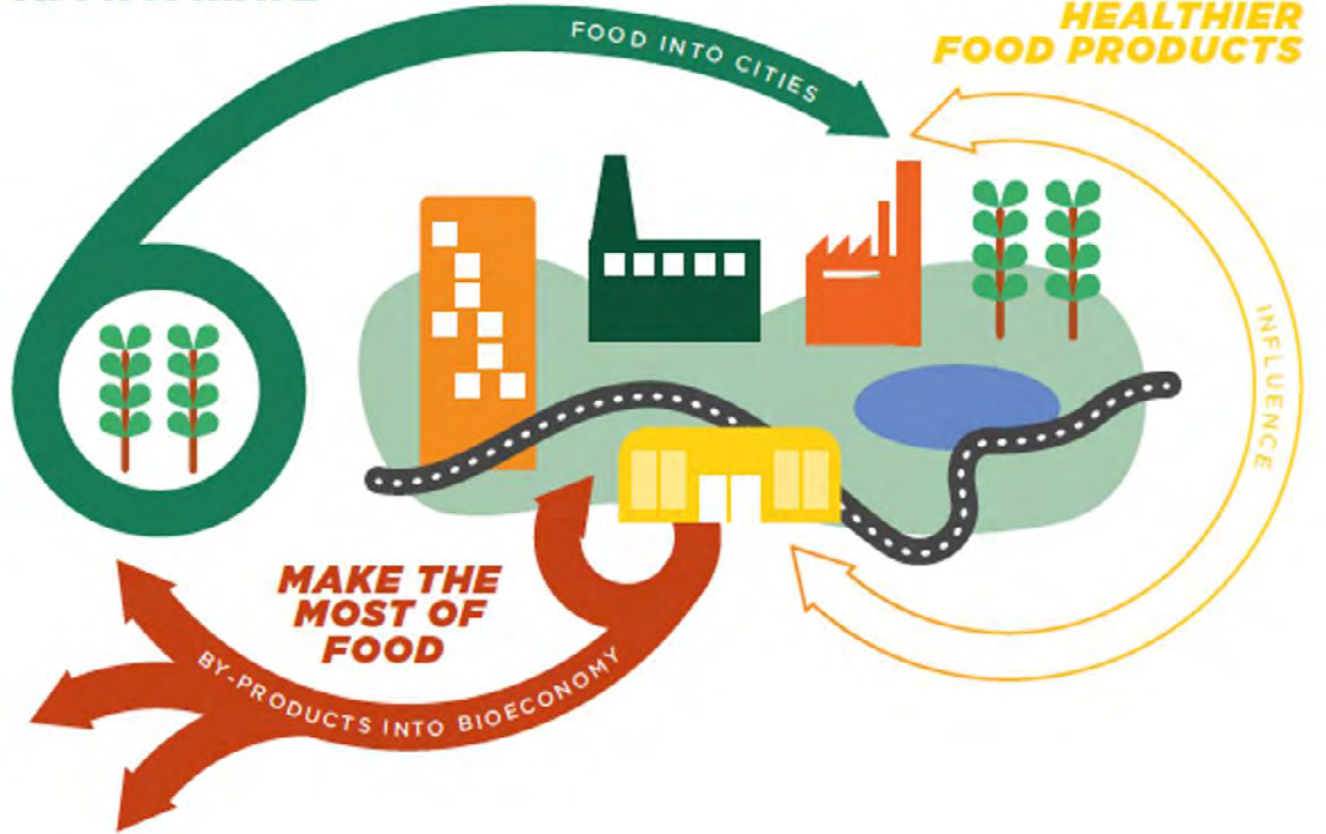
Visit emf.org for useful frameworks and insights

URBAN POLICY LEVERS FOR CIRCULAR ECONOMY TRANSITIONS

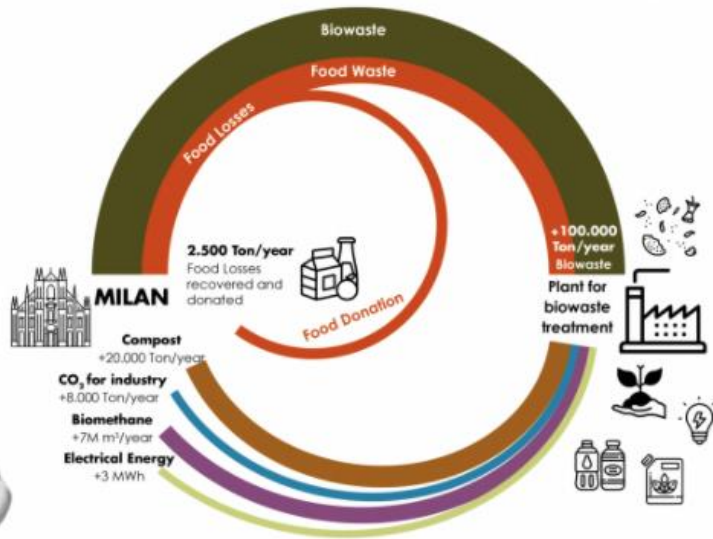


© Ellen MacArthur Foundation, March 2016

SOURCE FOOD GROWN REGENERATIVELY, AND LOCALLY WHERE APPROPRIATE



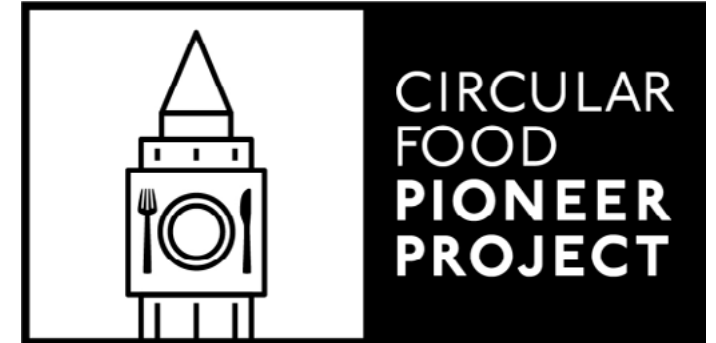
Inspiring examples



- The [Milan Food Policy](#)-award winning policy package to rethink the local food flows.
- Peri-urban procurement, fiscal measures, 3 redistribution hubs and valorising discarded organic material.



- [Connect the Dots](#), São Paulo, created 'Farmer under agroecological transition' certification
- Purchases produce at 30% above market value
- Technical assistance, training and equipment



SUPPORTED BY
MAYOR OF LONDON

- London's [Food Flagship Initiative](#) mapped existing activities and developed 20 interventions across the 3 pillars.
- School food standards, EHP training, business engagement



The big
food
redesign
challenge

Visit bigfoodredesign.org



1. Create ambitious and well-resourced action plans to make nature-positive product portfolios a reality



2. Create a new collaborative dynamic with farmers



3. Develop iconic products to showcase the potential of circular design for food



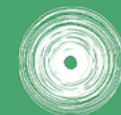
4. Contribute to and use common on-farm metrics and definitions



5. Advocate for policies that support a nature-positive food system



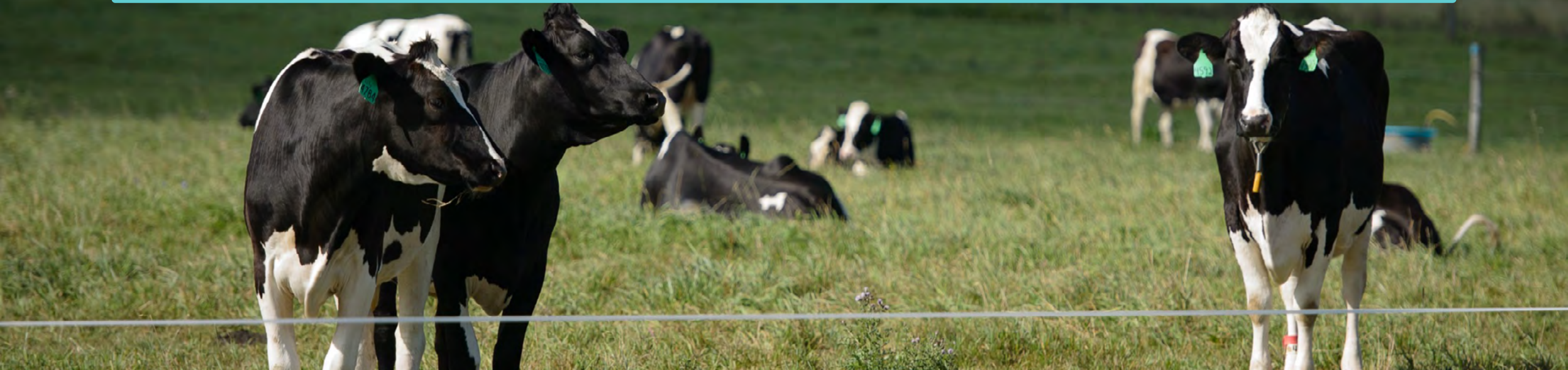
Anerobic Digestion Ireland



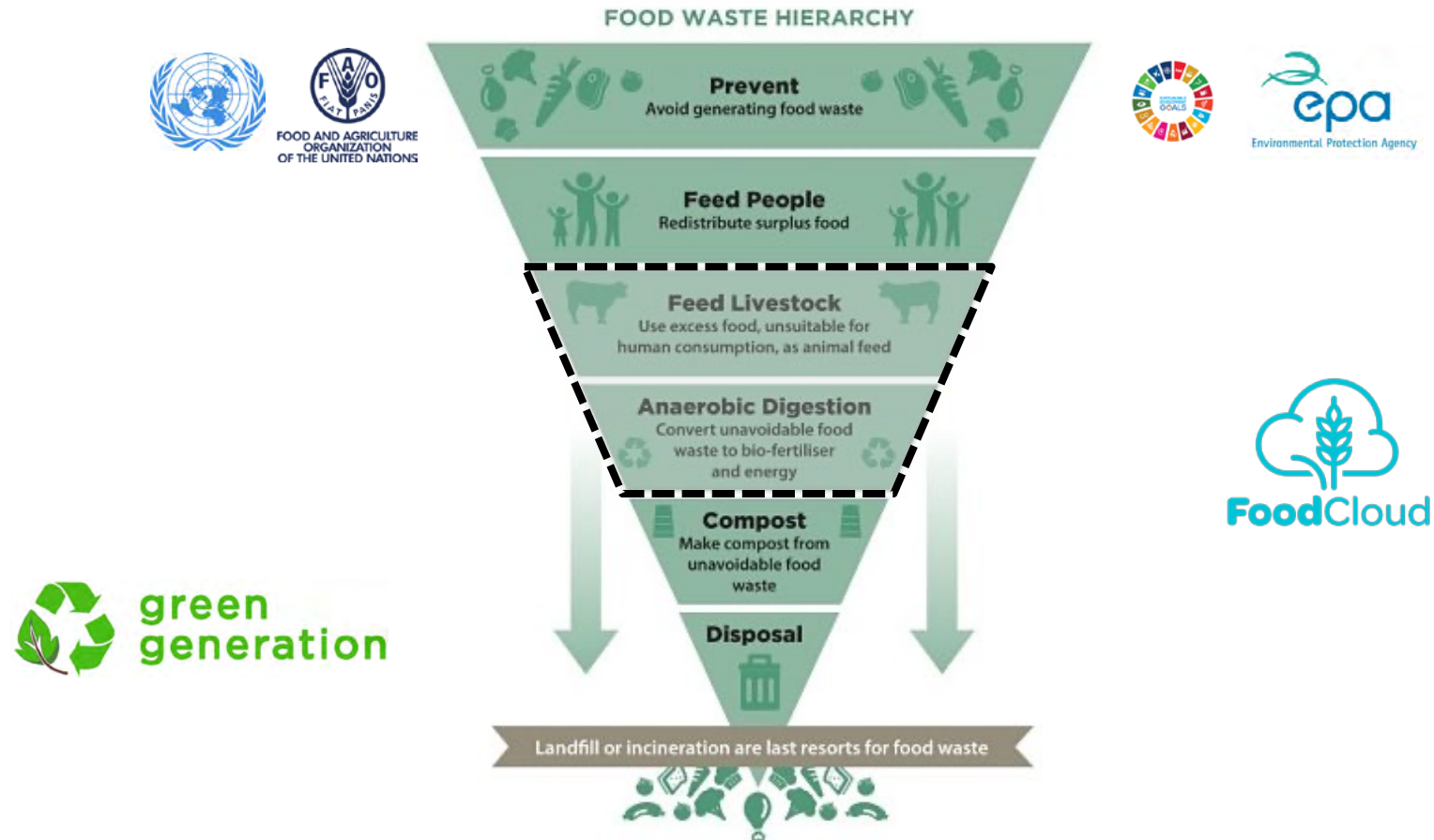
Introduction to Anaerobic Digestion in Ireland

Stephen Nolan, PhD

Circular Economy Hotspot, Dublin, 2023



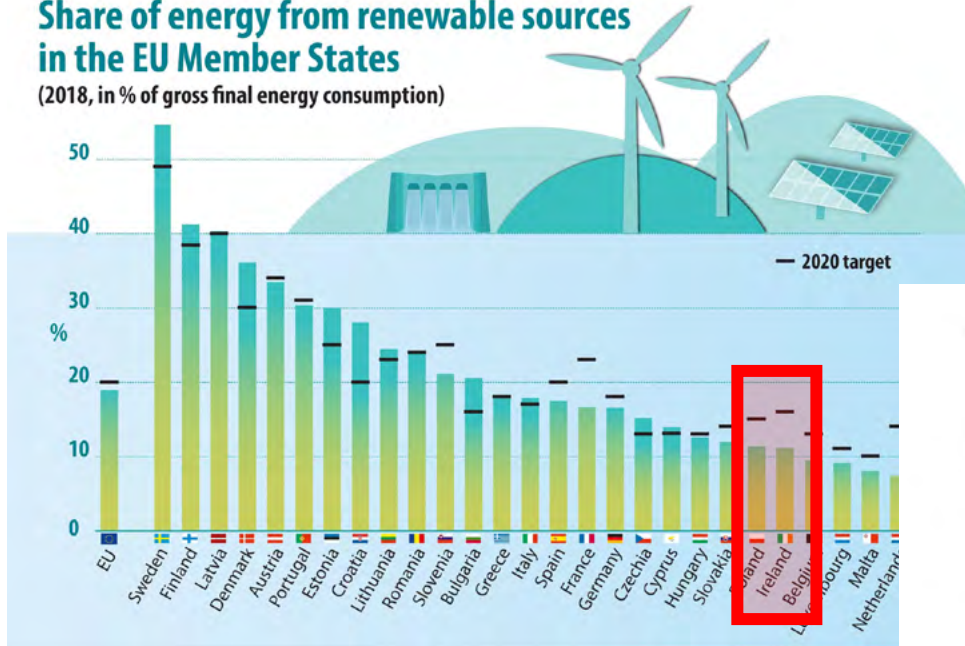
Anaerobic Digestion's Place



Irish Potential

Share of energy from renewable sources in the EU Member States

(2018, in % of gross final energy consumption)



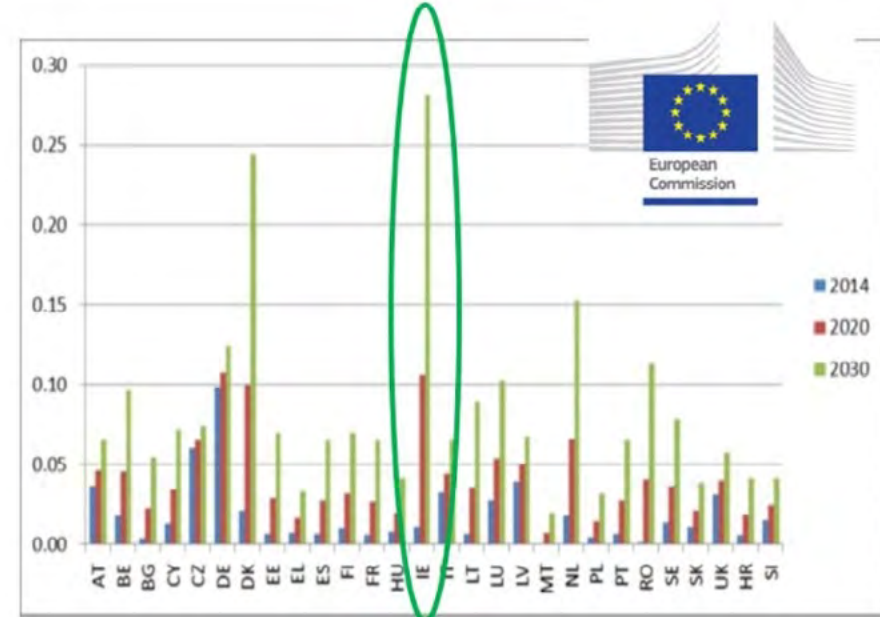
ec.europa.eu/eurostat

Share of energy from renewable resources

Source: European Commission

Ireland has the highest per capita potential for renewable gas in Europe

Source: Gas Networks Ireland



EU Commission report showing the potential of biogas/ Renewable Gas

Feedstocks – Food waste



FOOD WASTE

33% of food produced globally is wasted.

Source: www.fao.com



1 million tonnes of food is wasted annually in Ireland.

Source: EPA



250,000 tonnes in the commercial food sector at an estimated cost > €300 million

Source: EPA



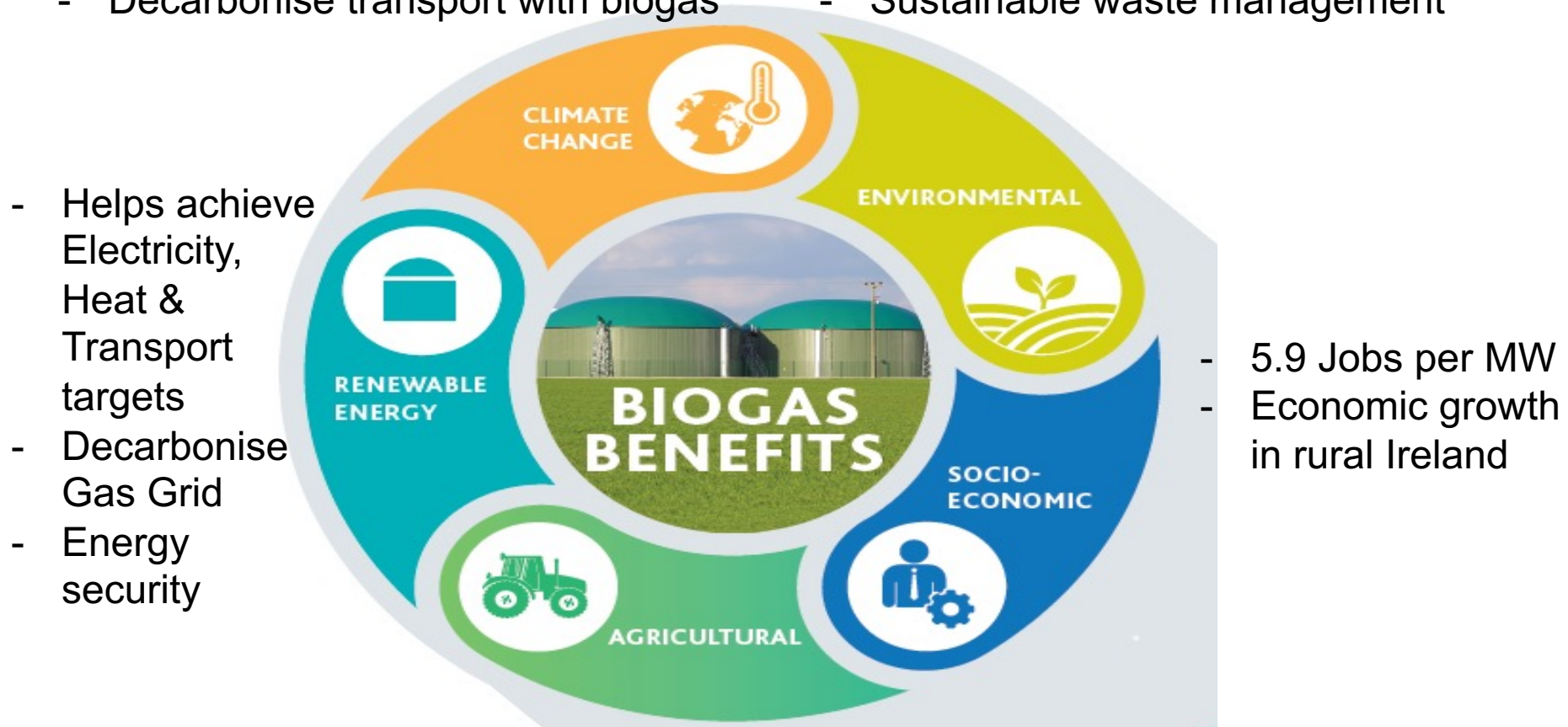
Anaerobic Digestion

- Reduce emissions
- Improve fertiliser value
- Additional income stream
- Reduce pathogen load to environment



AD/biomethane benefits

- 65MW Abates 500,000 Tonnes of CO₂
- Biomethane as a transport fuel
- Decarbonise transport with biogas
- Improve water quality and management
- Improve biodiversity
- Sustainable waste management



- Alternative Land use option, abundance of feedstock available, reduce chemical fertiliser with biofertiliser, boost farm income, reduce slurry odours, reduce GHG emissions,

Gallery

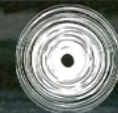


Gallery





Thank You



Circular Economy Hotspot
Dublin 2023