Workshop 3D:
How Personal Consumption affects Climate Change

Energy Co-operatives Ireland
Building community energy networks
energyco-ops.ie

Rethink

South West Mayo
DEVELOPMENT COMPANY LTD
Comhlacht Forbartha
Iarthar Mhaigh Eo Teo

MAYO CLIMATE ACTION AWARENESS WORKSHOPS

LCDC

Rialtas na hÉireann
Government of Ireland

Project Ireland 2040

MAYO.IE

CARO

Climate Action Awareness Group

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- South West Mayo Development Company Ltd.
- CARO (Climate Action Regional Office)
- Mayo County Council
- Moy Valley Resources IRD
- Mayo North East Development Company Ltd.

South West Mayo
DEVELOPMENT COMPANY LTD
Comhlacht Forbartha Iardheisceart Mhaigh Eo Teo

CARO

Comhairle Contae Mhaigh Eo
Mayo County Council

Oirthuaisceart Mhaigh Eo
Mayo North East

Energy Co-Op

Energy Co-operatives Ireland

Building community energy networks

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OVERVIEW

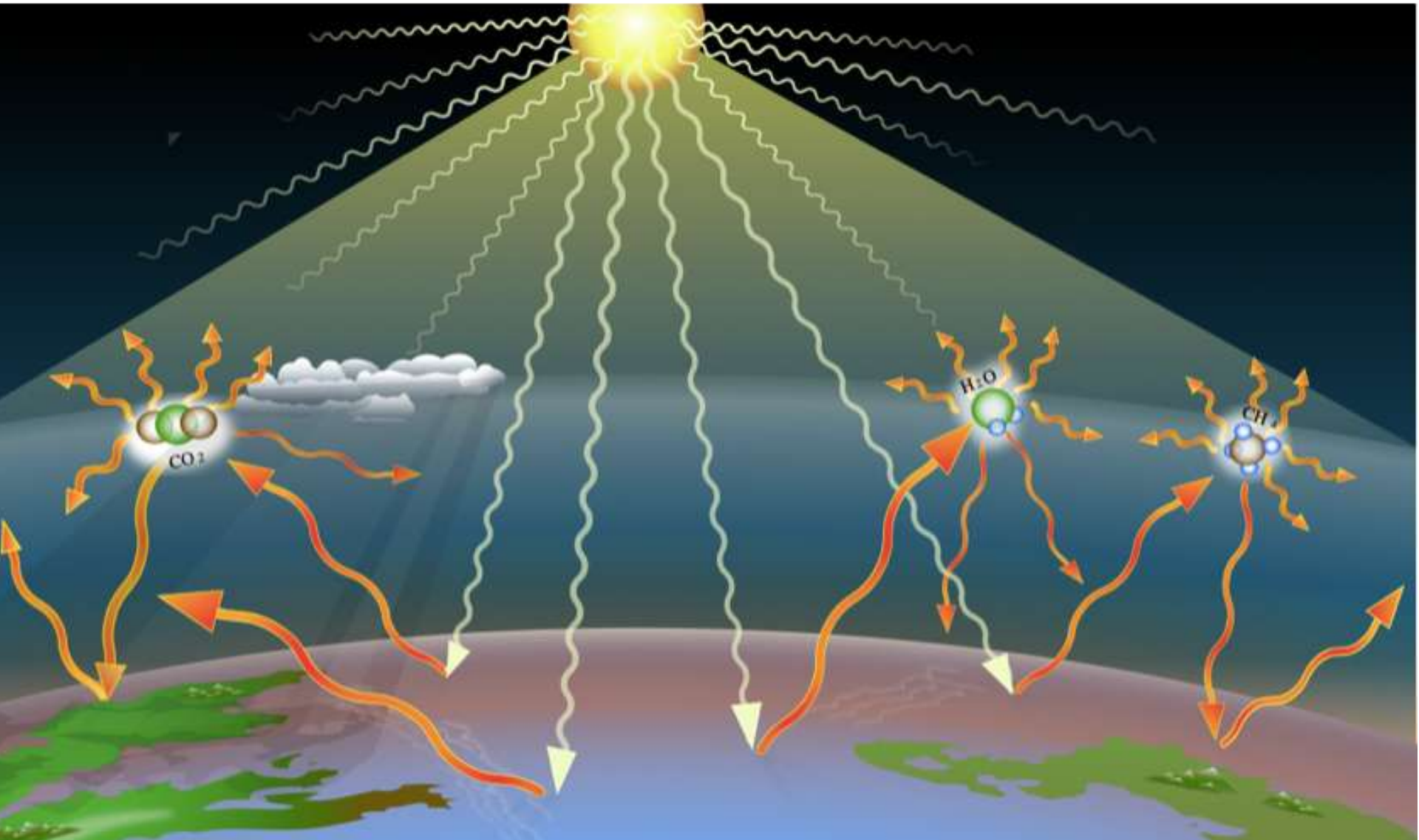
South West Mayo Development Company, as part of a Climate Action Awareness Group, are delivering a bespoke workshop programme 'Mayo Climate Action Awareness Workshops' in 5 Mayo Towns. These workshops will look at a number of topics related to climate change, the relative impacts and adaptation and mitigation actions that can be taken.

The format of these workshops will allow for educating and creating awareness of climate change issues and for interactive discussion around these issues and associated actions that can be taken individually or as a community. The training material will be a combination of both generic and specifically local information using local case studies directed at communities.

This programme will run over a period of 6 weeks, starting the 4th of February 2020 with 3 workshops running in 5 locations around the county. The first two workshops in each location will be common across all 5 locations, with the final workshop focusing on different themes in each location, but open to participants across the whole county.

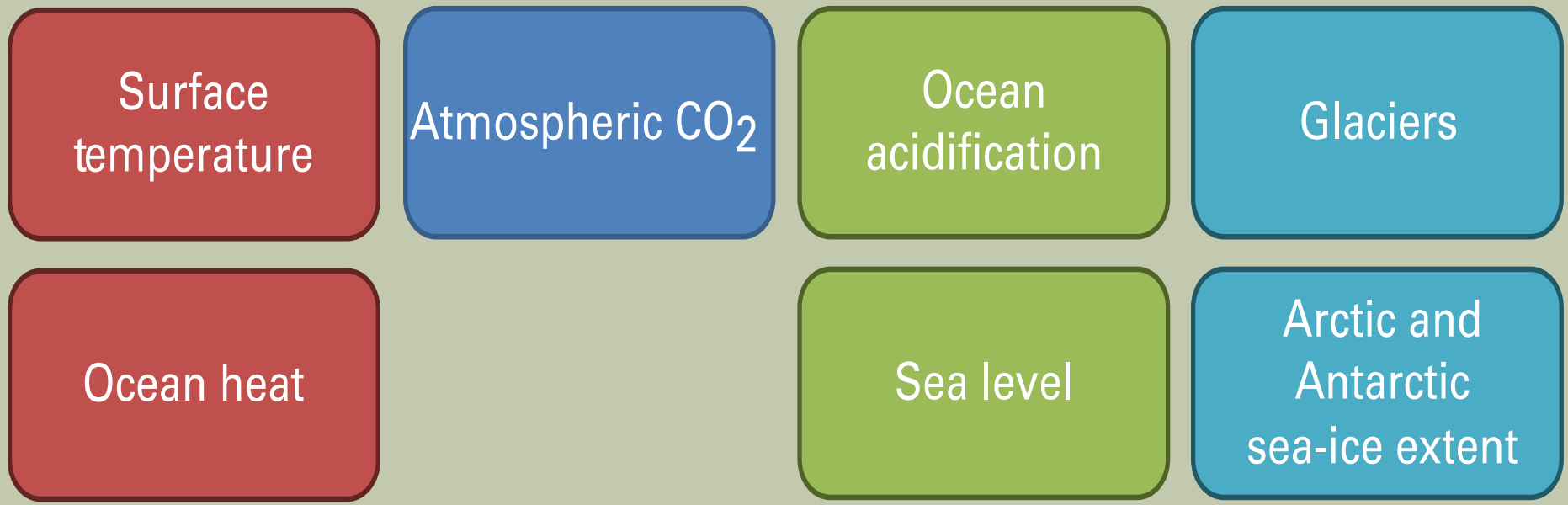
Global Warming – Greenhouse

Greenhouse Gases collecting in the atmosphere trap heat



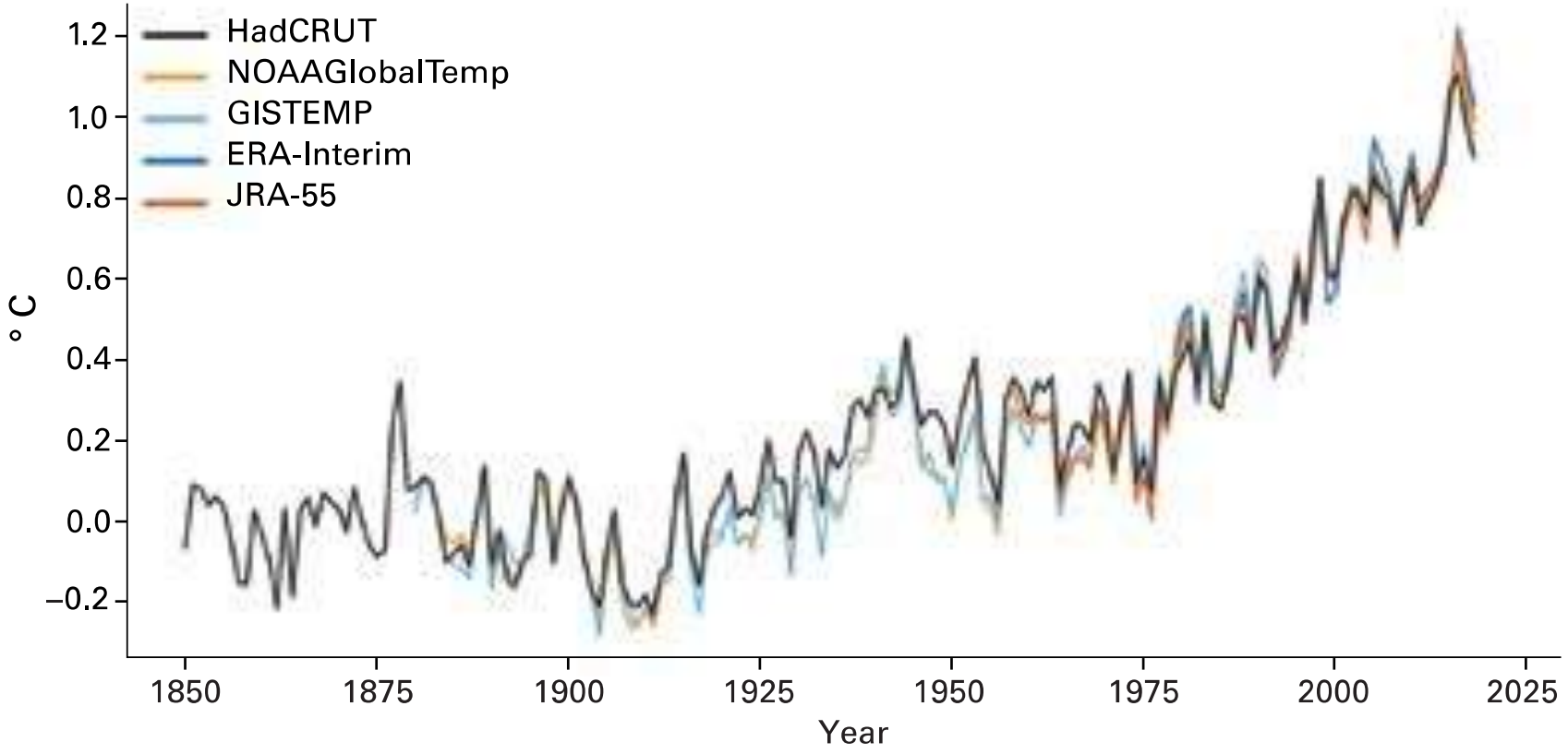
Global Climate Indicators

Indicators which show the changing conditions which humans are causing



Used by WMO and at https://gcos.wmo.int/en/global-climate-indicat

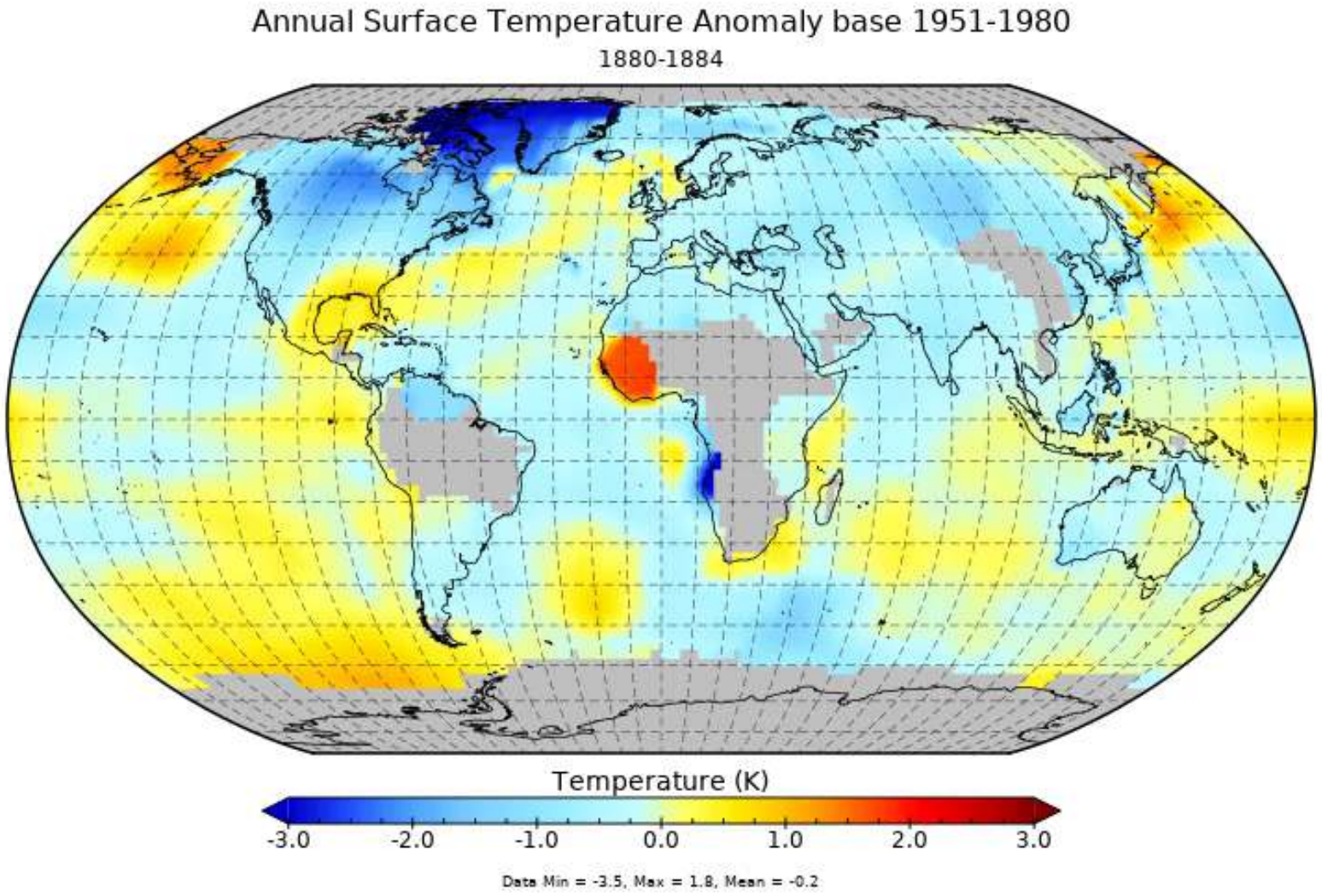
Global Mean Surface Temperature



- Combines land & marine data
- In 2015 a record level of 1°C higher than in 1850
- Industrial revolution

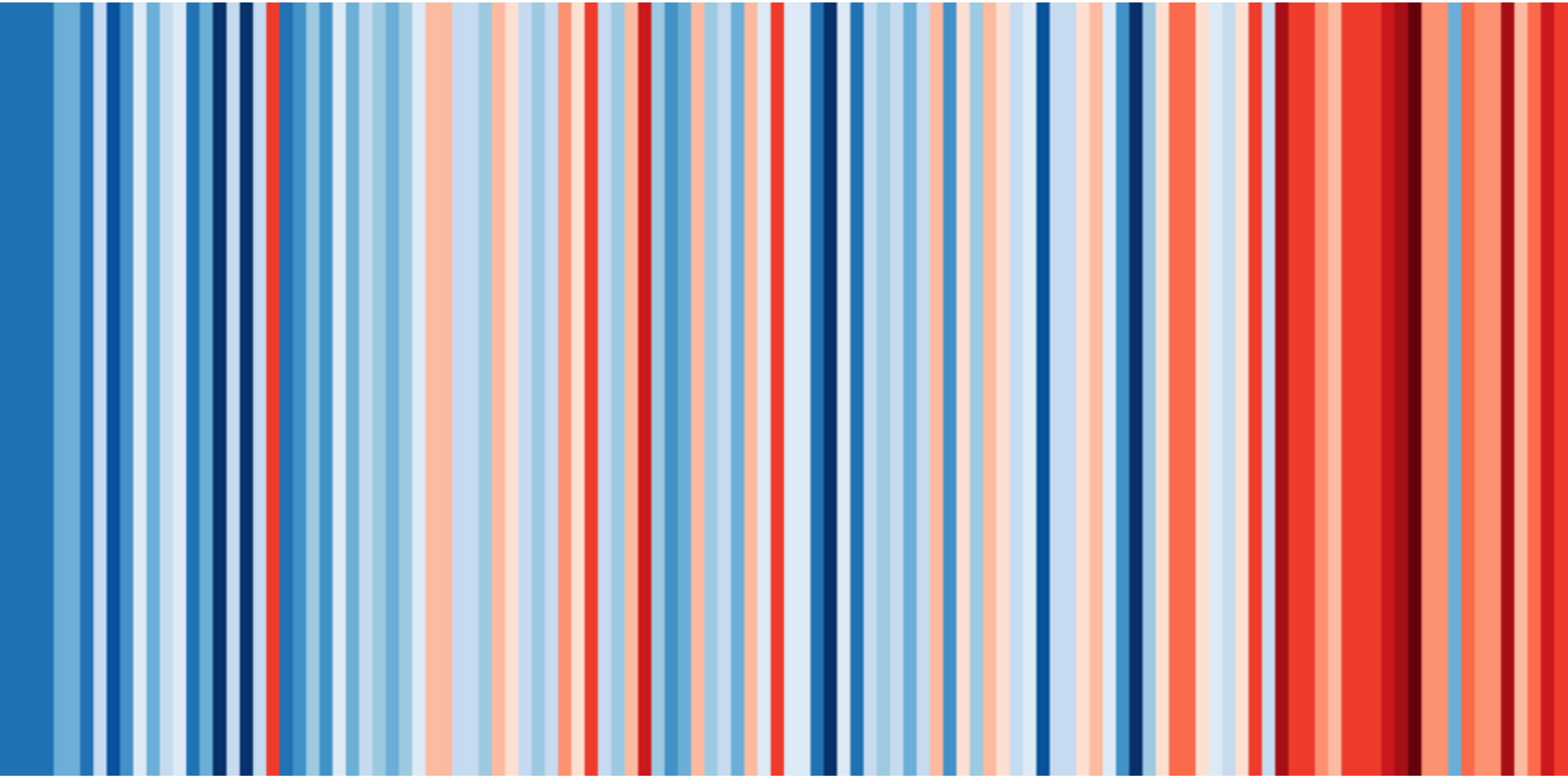
UK Met Office Hadley Centre, WMO (2019), EPA (2016)

Global Mean Surface Temperature 1880-2017



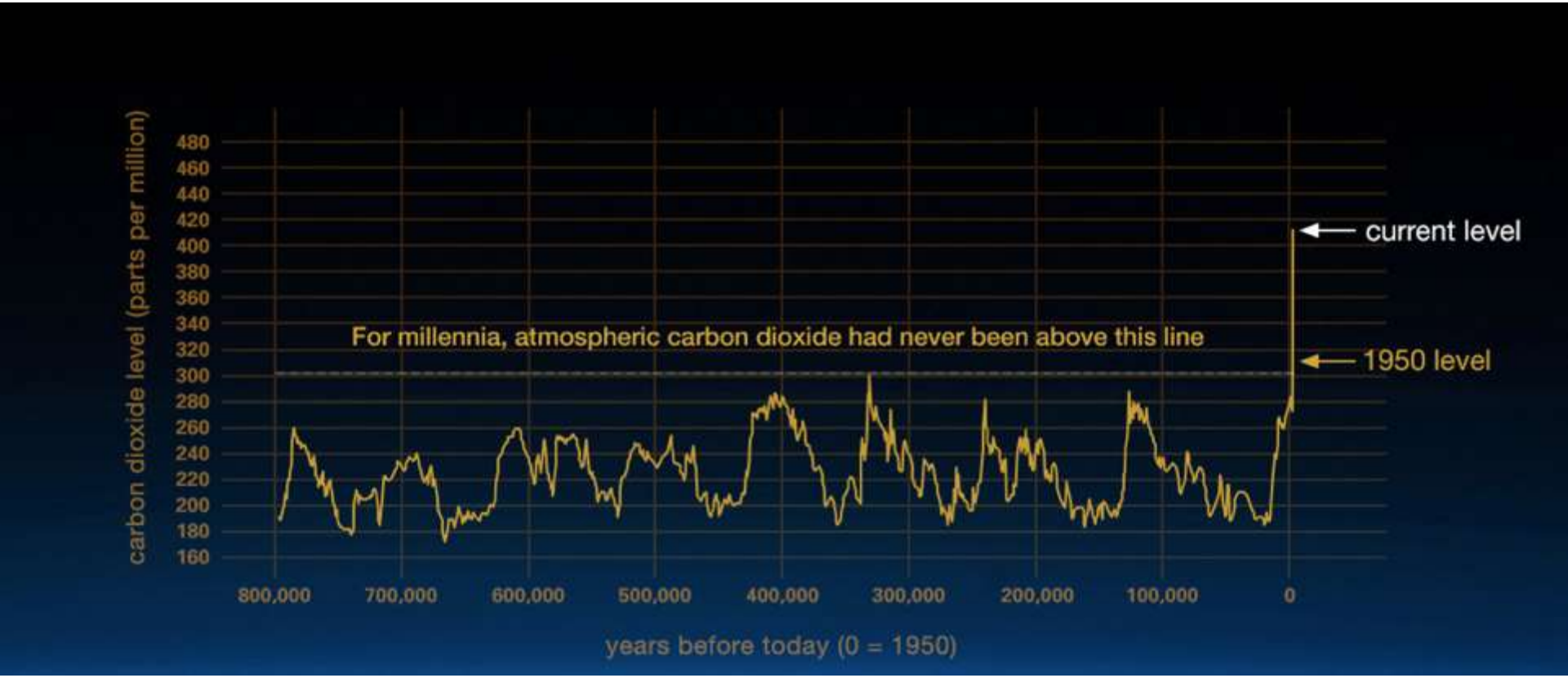
NASA/GSFC Scientific Visualization Studio (2018)

Annual Average Temperatures for Ireland



- The first line on the left is the temperature in 1801 and the temperatures increases as we move across to the 2018 temperature (far right)
- Berkeley Earth data https://showyourstripes.info/stripes/EUROPE-Ireland--1901-2018-BK.

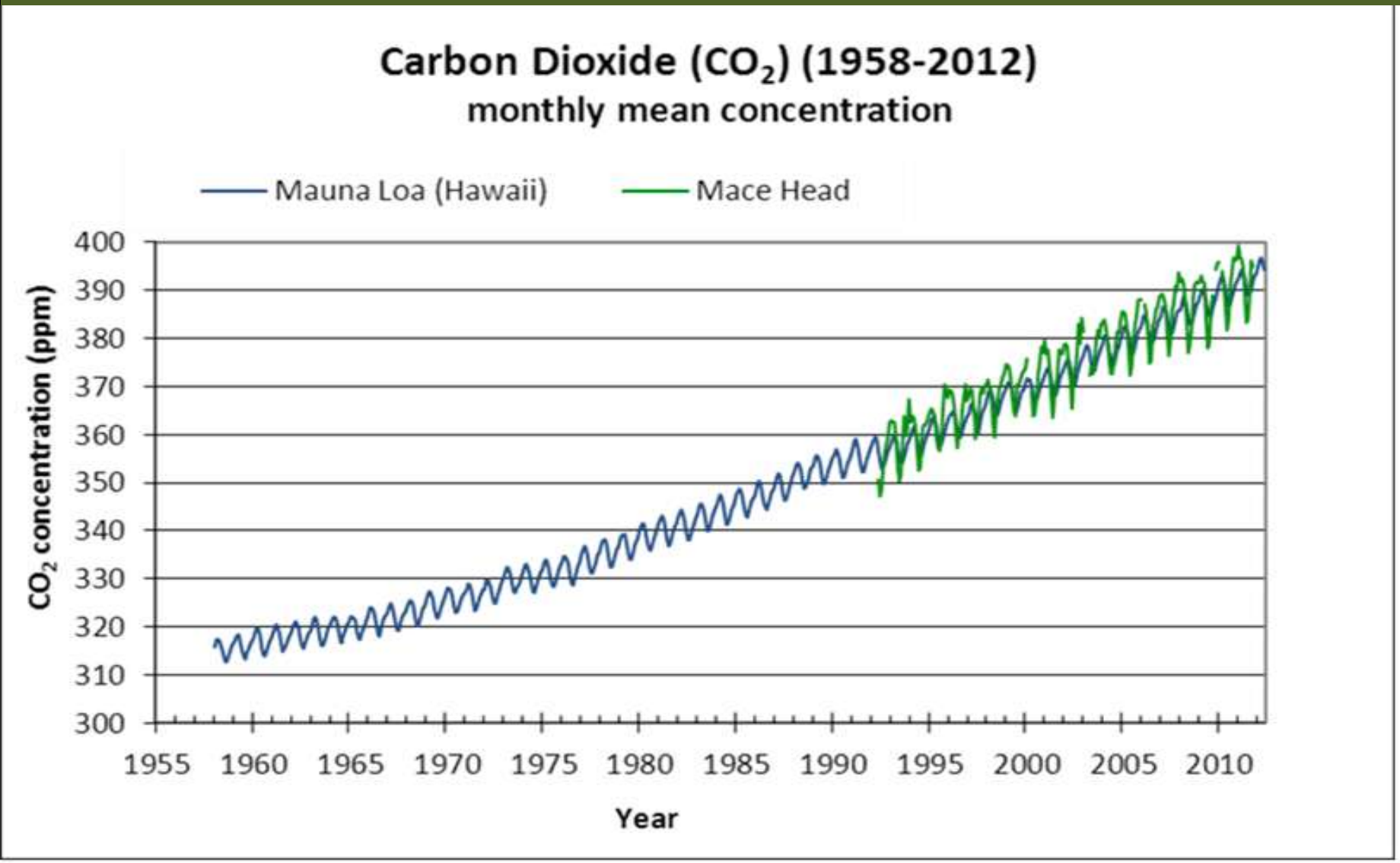
CO_2 Concentration in the Atmosphere



- Graph shows scale of the CO_2 spike over 800,000 years
- Record highs >400 ppm
- Other Greenhouse Gases also like: CH_4, H_2O and N_2O

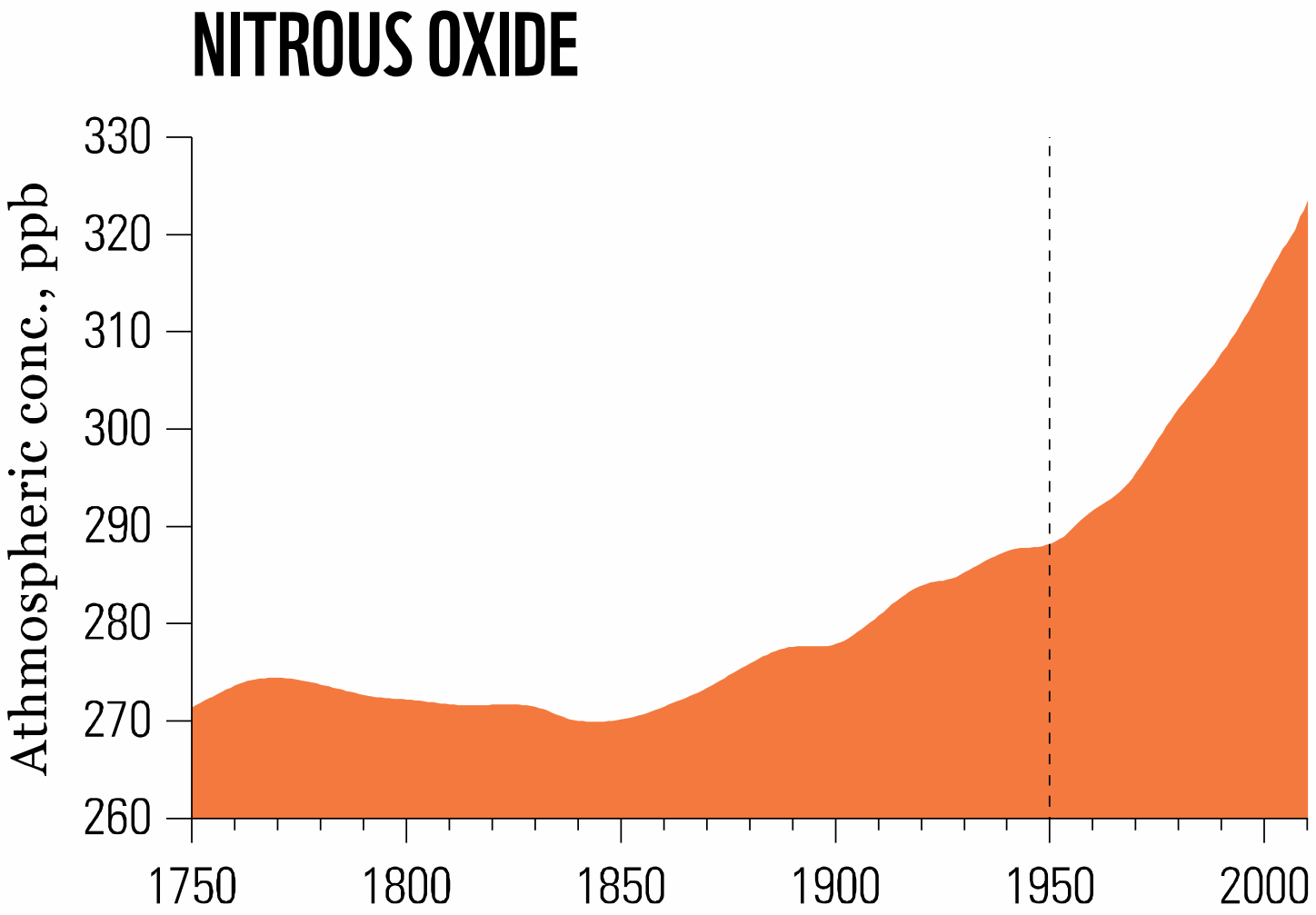
NASA data: https://climate.nasa.gov/evidence/

Atmosphere CO2 Concentration in Mace Head



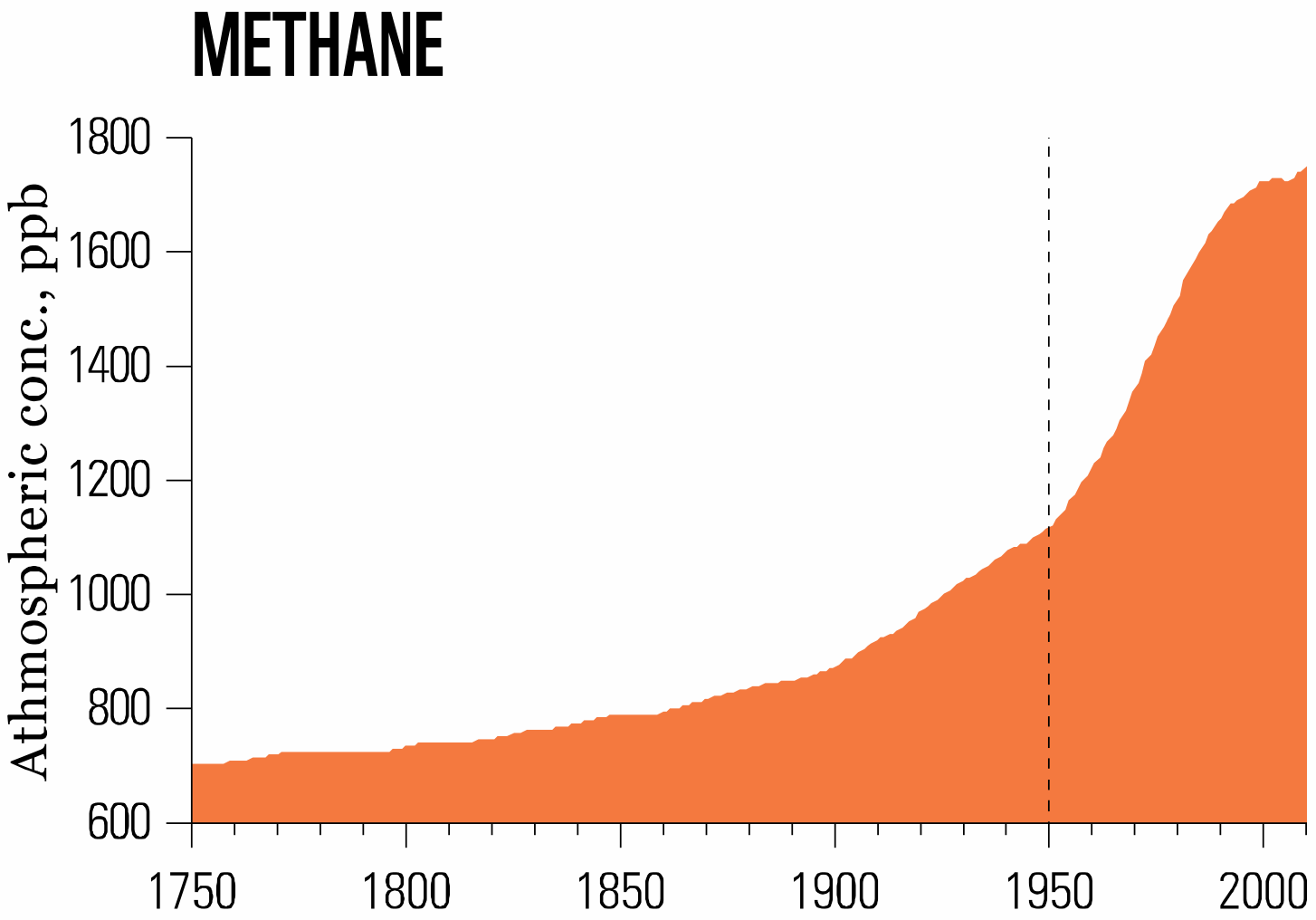
(Dwyer,2013)

Nitrous Oxide Concentrations in Atmosphere



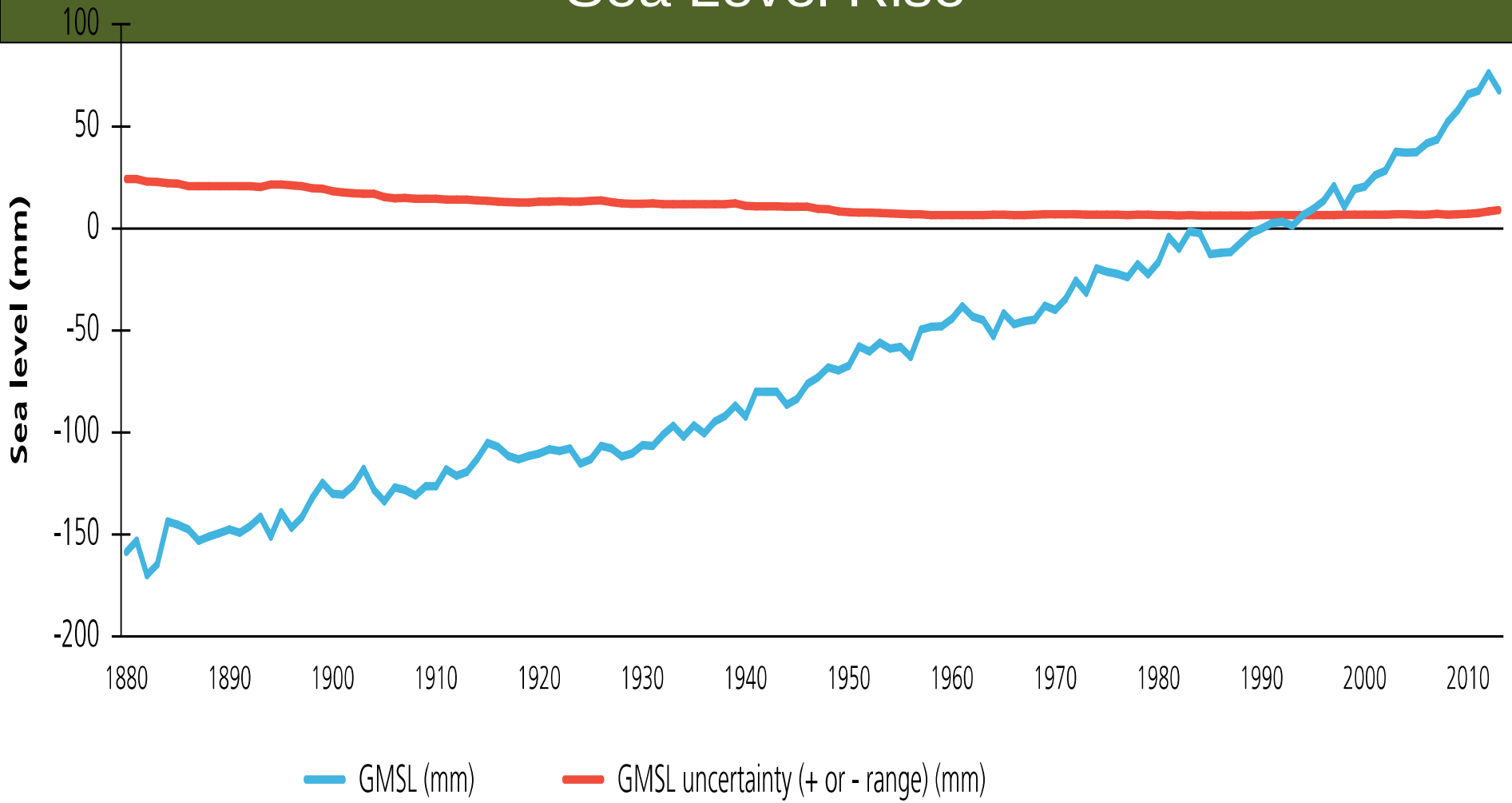
WWF, 2019

Methane Concentrations in Atmosphere



WWF, 2019

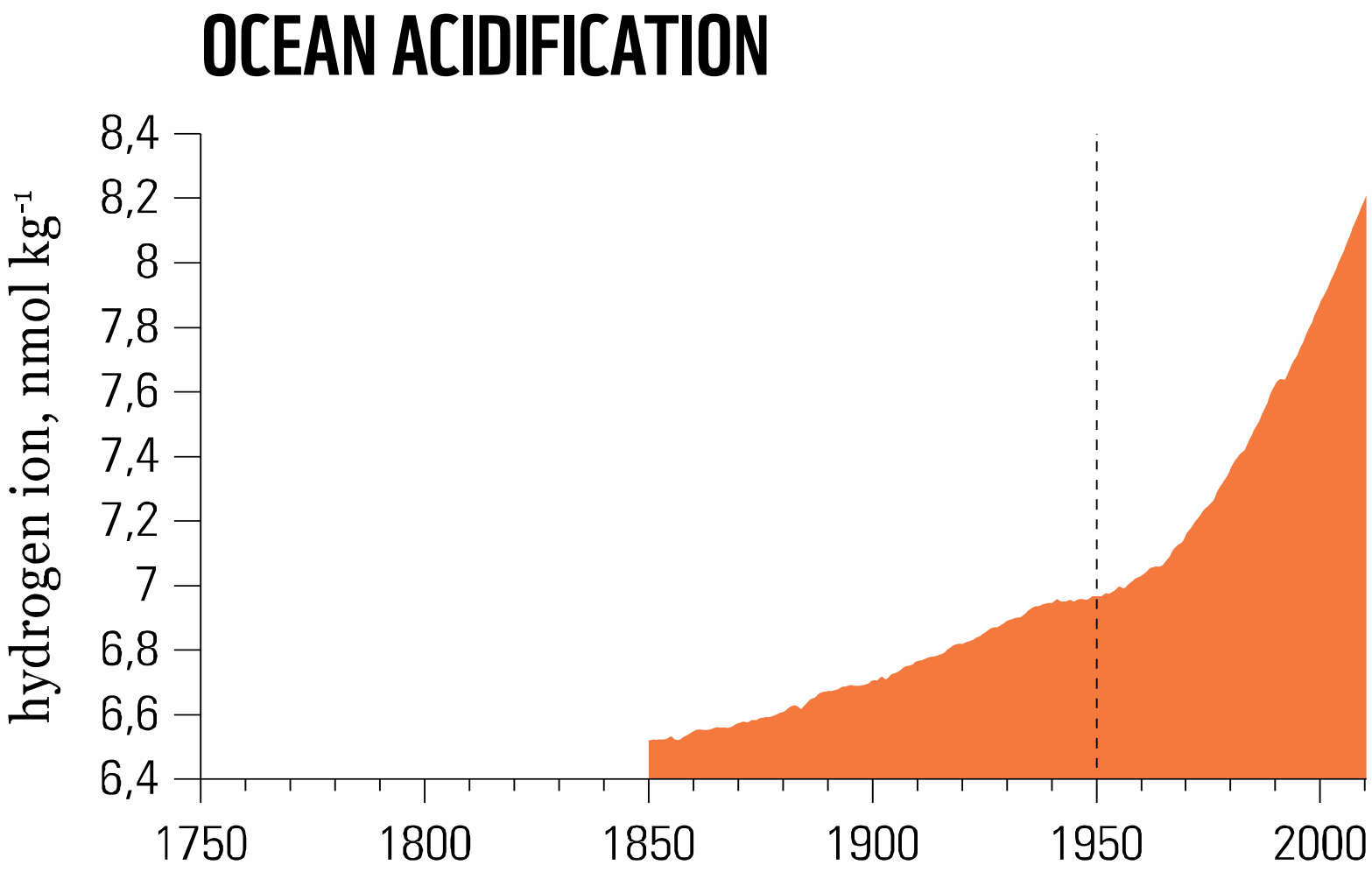
Sea Level Rise



- Heat trapped by oceans leads to thermal expansion
- Global sea level rise of 2 cm each decade in the last century
- Since 1993, average sea level by just over 3 cm per decade

EPA, 2016

Ocean Acidification



- CO2 combines with sea water making it acidic

WWF, 2019

Ice Melt

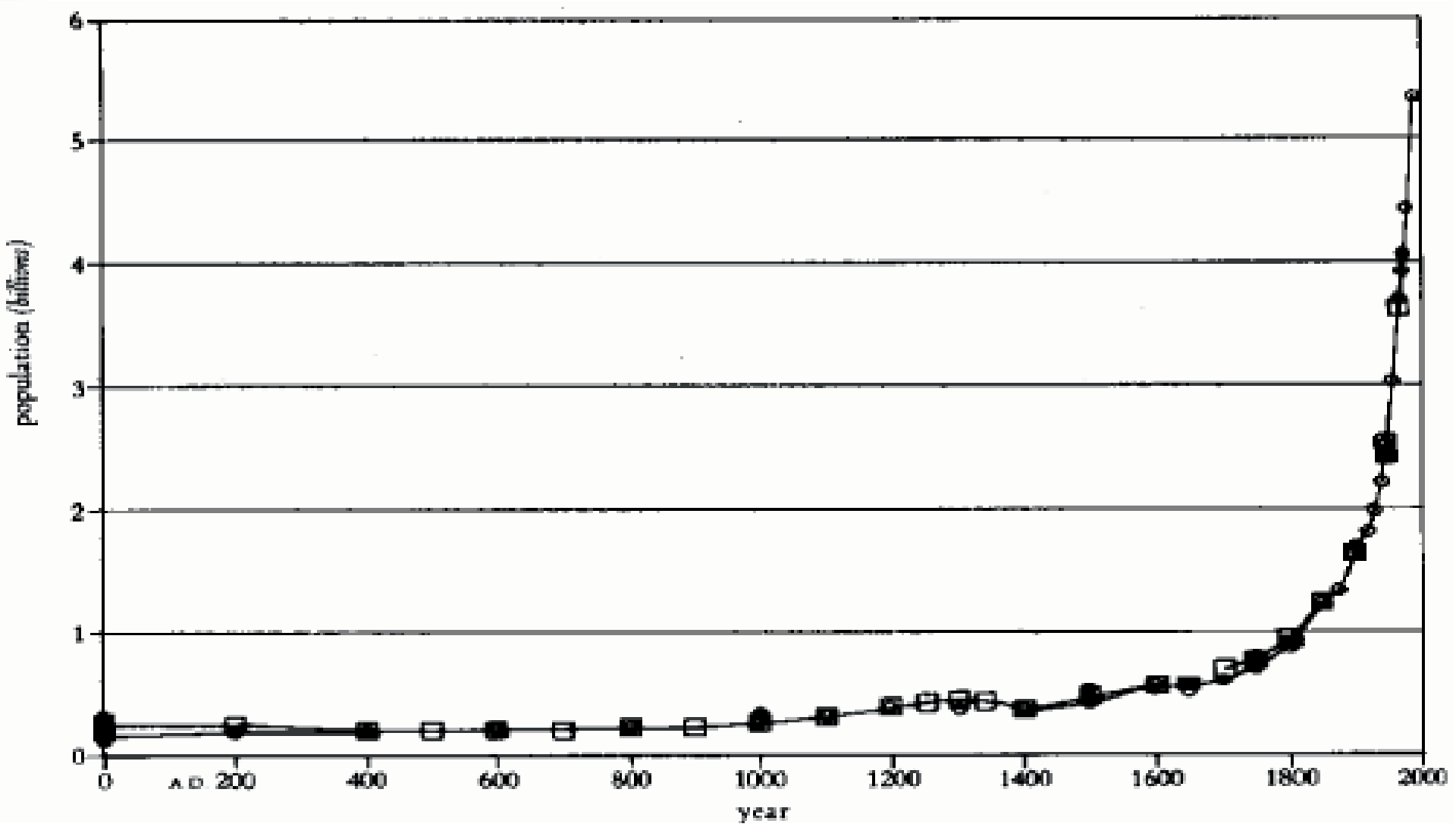
- Muir Glacier disappears (1941-2004)
- National Snow and Ice Data Centre (link below)
- Photos by W.O. Field and B.F. Molnia

http://nsidc.org/data/glacier_photo/index.html

Iceland Mourns Loss of Glacier

https://grist.org/article/heres-why-iceland-is-mourning-a-dead-glacie

Population Pressure 2000 years – The Anthropocene



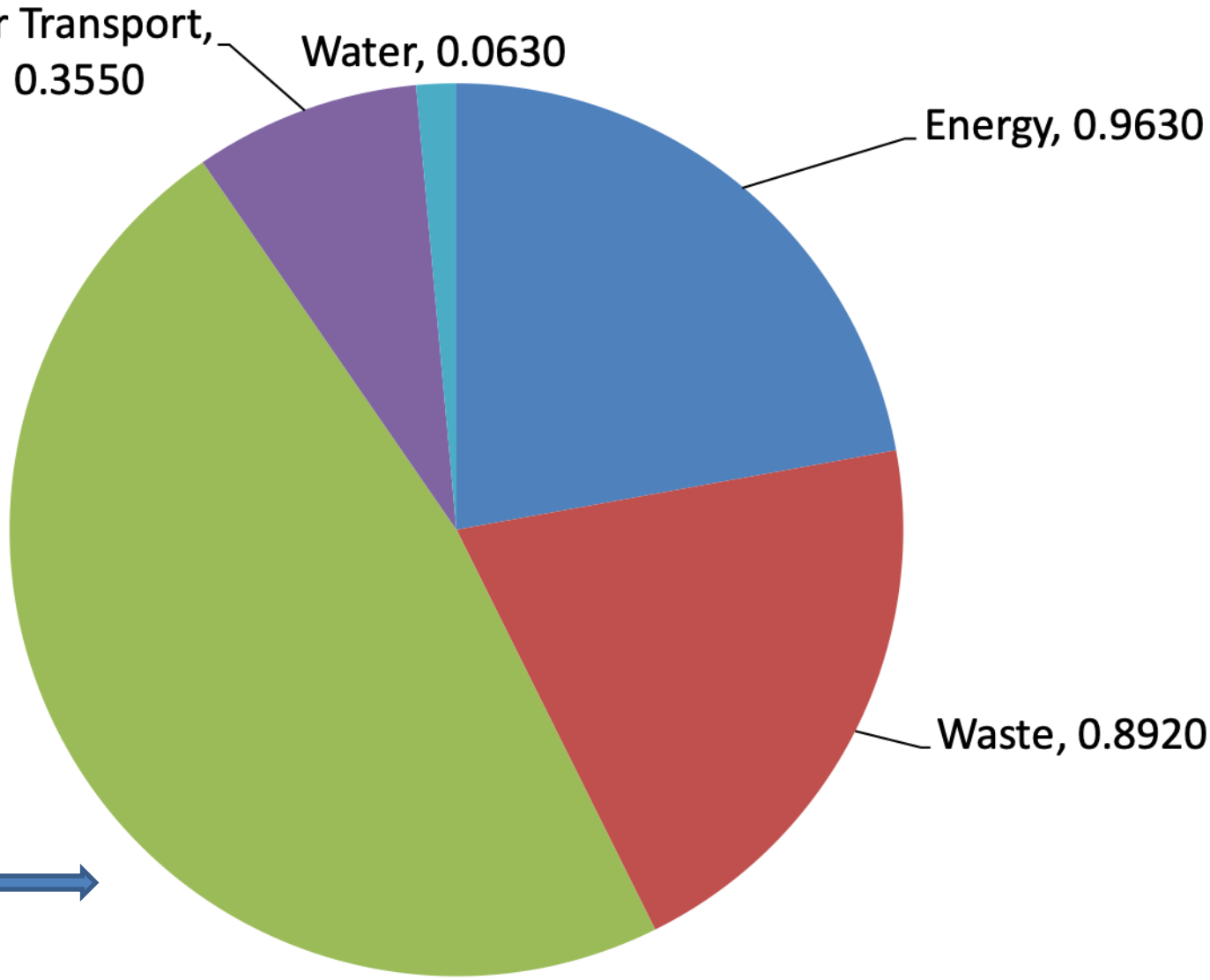
Includes agricultural revolution, industrial revolution now > 7 billion

Ecological Footprints

Last timeout we looked at the ecological footprint of household energy use.

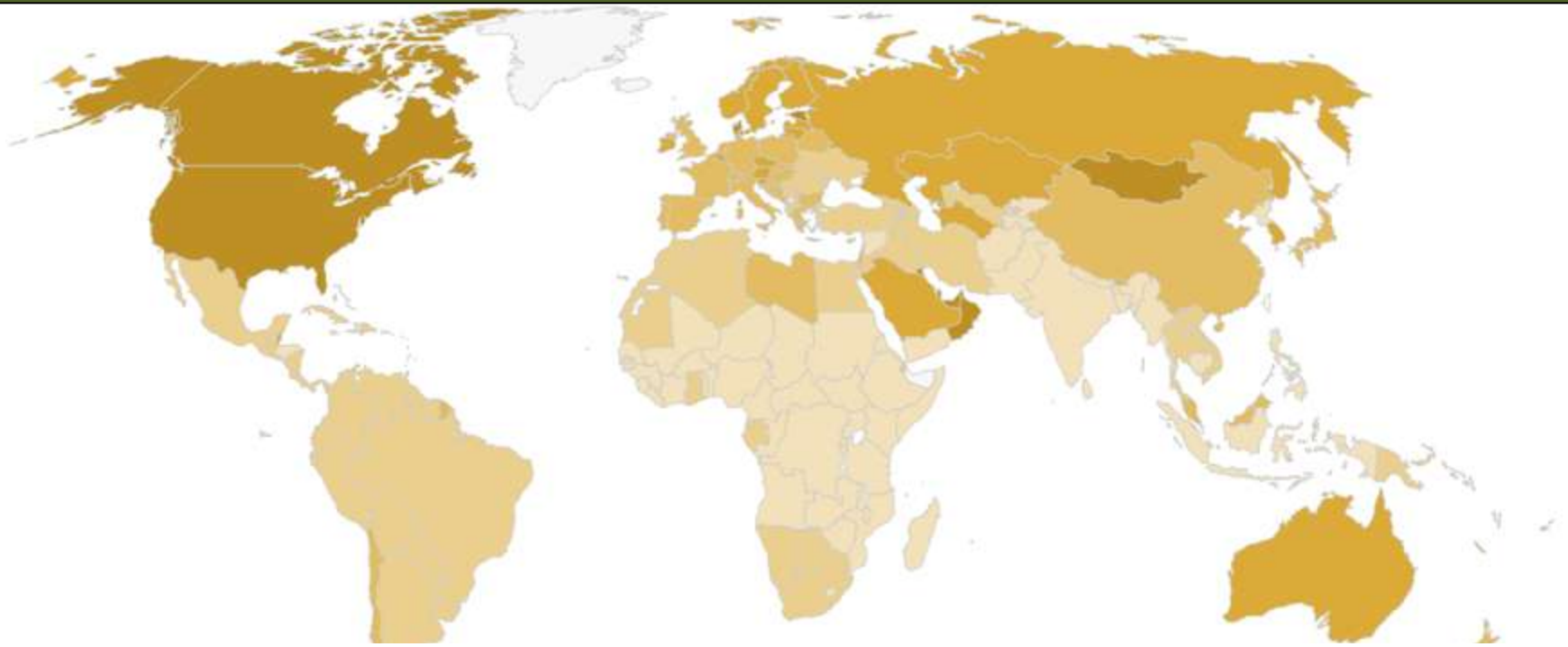
So we provide some background information first in case you missed that……

Ecological Footprint (4.3 gHa) 79 Irish Communities



What is our largest impact?

National Consumption - Country Ecological Footprints



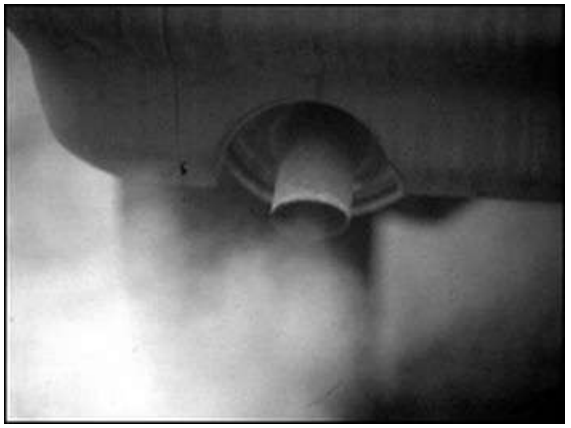
ECOLOGICAL FOOTPRINT PER PERSON

The Ecological Footprint per person is a nation's total Ecological Footprint divided by the total population of the nation. To live within the means of our planet's resources, the world's Ecological Footprint would have to equal the available biocapacity per person on our planet, which is currently 1.7 global hectares. So if a nation's Ecological Footprint per person is 6.8 global hectares, its citizens are demanding four times the resources and wastes that our planet can regenerate and absorb in the atmosphere.

ECOLOGICAL FOOTPRINT PER PERSON OF COUNTRY'S POPULATION (in global hectares)

https://www.footprintnetwork.org/licenses/public-data-package-free/

Personal Consumption, Making the Data Real



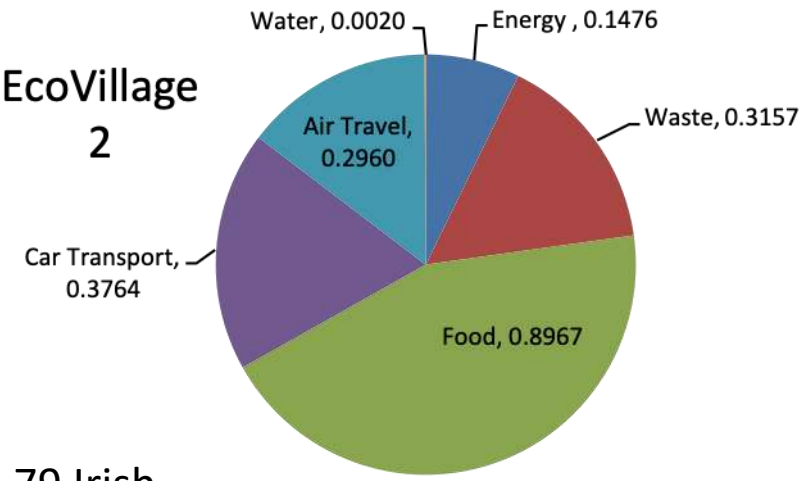
Ecological Footprint Local Data Benefits

Ecological Footprints are a:

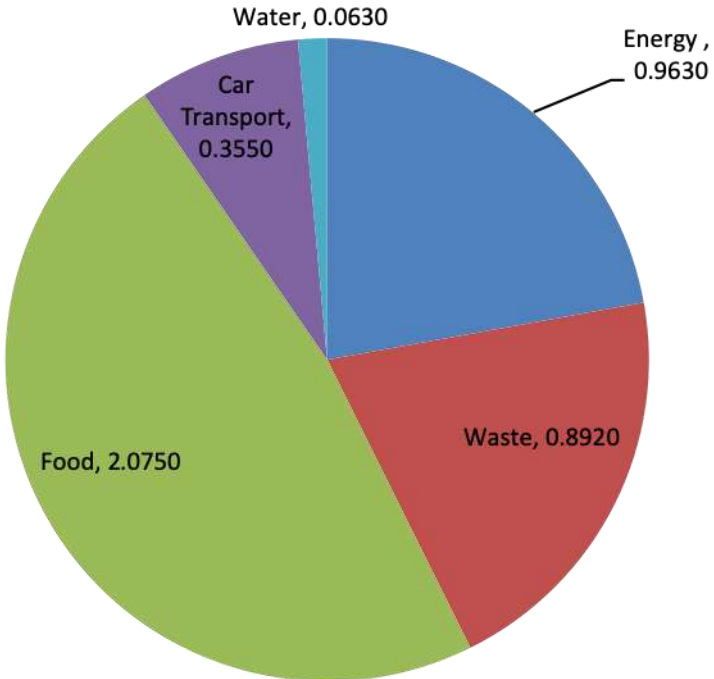
- **Meaningful** measure of human consumption.
- **Measure of climate change**.
- **Measure of biophysical limits.**
- **Communication tool.**
- **Local data means the person footprinted contributes their personal data** and therefore this is their footprint and not that of the average person.
- **Food is highest and waste often next**.

Ecological Footprint (gHa) 82 Irish Settlements

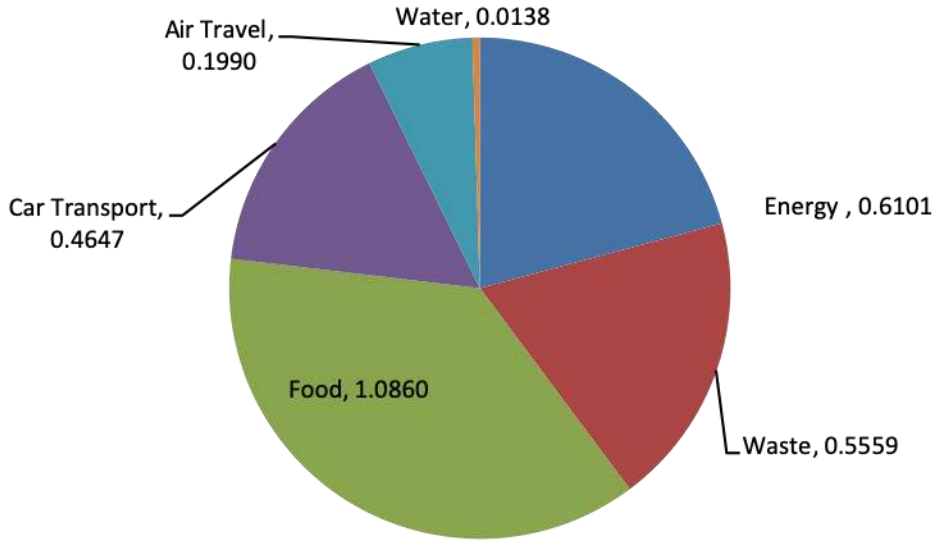
EcoVillage 2



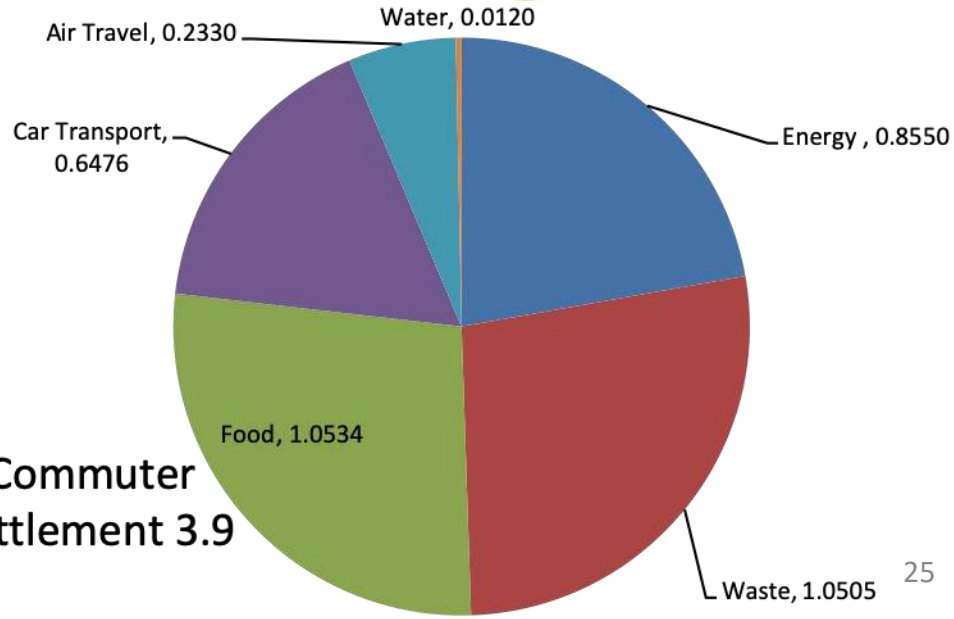
79 Irish settlements 4.3



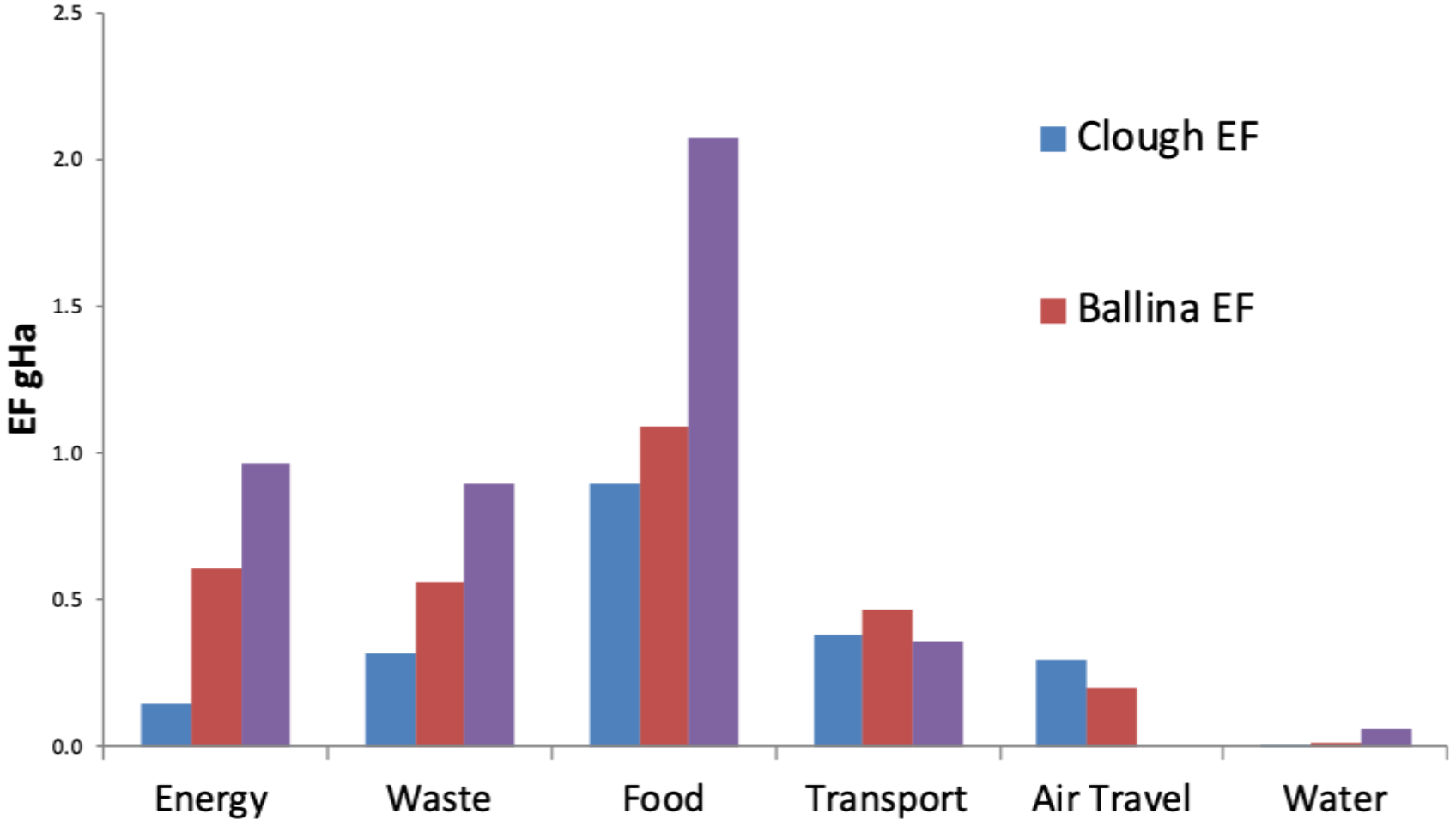
Ballina 2.9



Commuter Settlement 3.9



Ecological Footprint (gHa) 82 Irish Settlements

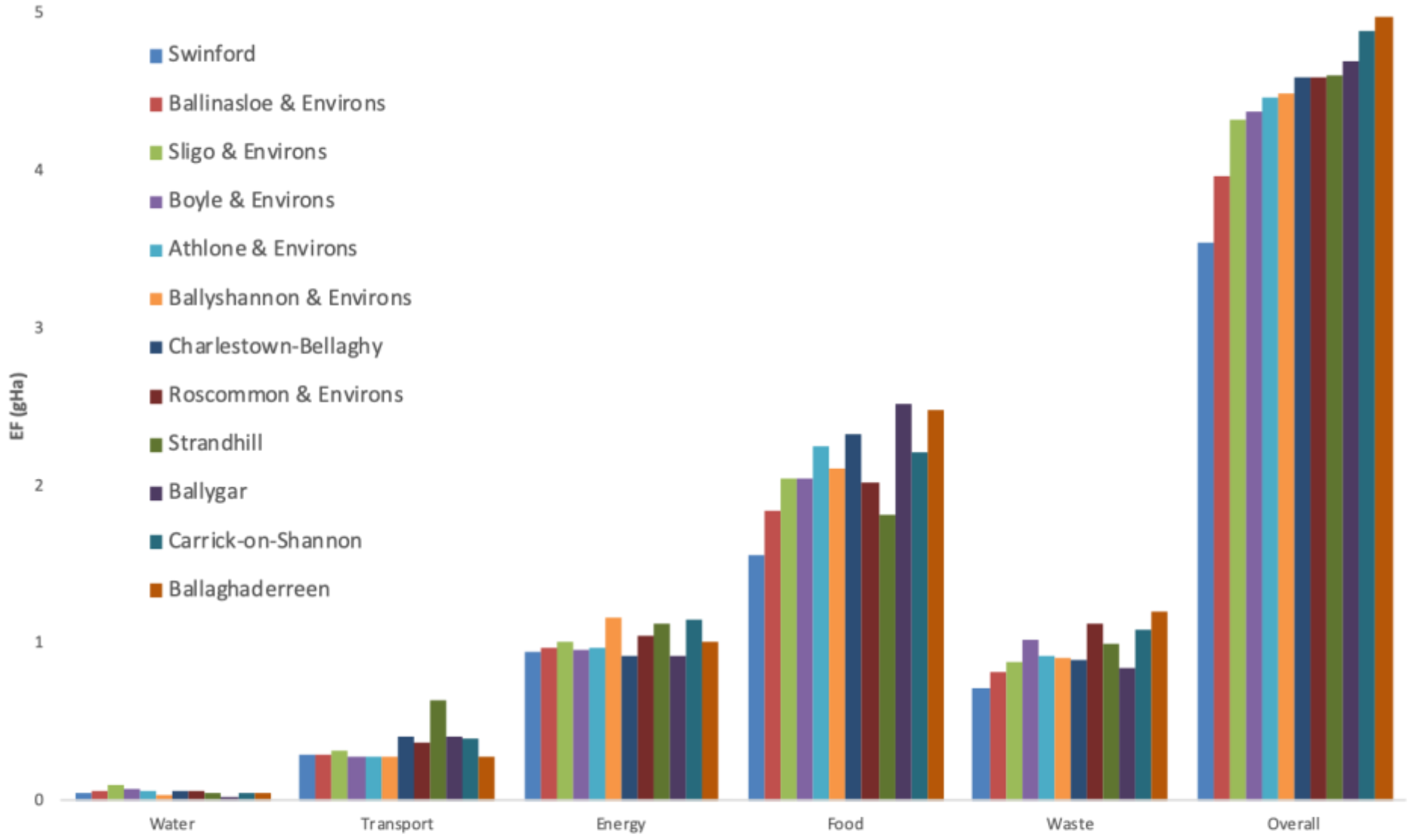


Local Ecological Footprints (Foley, Carragher & Peters)

Settlement	Water	Transport	Energy	Food	Waste	Overall
Swinford	0.04	0.29	0.94	1.55	0.71	3.53
Ballinasloe & Environs	0.06	0.29	0.96	1.84	0.81	3.96
Sligo & Environs	0.09	0.31	1.01	2.04	0.87	4.32
Boyle & Environs	0.07	0.28	0.95	2.04	1.02	4.37
Athlone & Environs	0.06	0.28	0.96	2.24	0.92	4.46
Ballyshannon & Environs	0.03	0.28	1.16	2.11	0.9	4.48
Charlestown-Bellaghy	0.06	0.4	0.91	2.32	0.89	4.58
Roscommon & Environs	0.06	0.36	1.04	2.01	1.12	4.59
Strandhill	0.04	0.63	1.12	1.81	0.99	4.6
Ballygar	0.02	0.4	0.91	2.51	0.84	4.69
Carrick-on-Shannon	0.05	0.39	1.15	2.21	1.08	4.88
Ballaghaderreen	0.04	0.27	1	2.47	1.19	4.97
Average	0.05	0.35	1.01	2.10	0.95	4.45

Proximity to Hubs generally reduces car travel and waste dependency

Local Ecological Footprints (Foley, Carragher & Peters)



Ecological Footprint of Food – includes numerous food items

Ecological Footprint of the Food we Eat

For **plant** derived foods the **embodied energy** to create the food has a footprint and so does the **land required to grow** the crop.

For **animal** derived foods the **embodied energy** to create the food has a footprint and so does the **pasture land** required for the animal, where animals are dry store the crop land required to grow the grain or animal feed is factored in, also **methane emissions**.

Transport of food has a small EF relative to the above and the food origins of the 100 or so food items we eat would add significant complexity to the process.

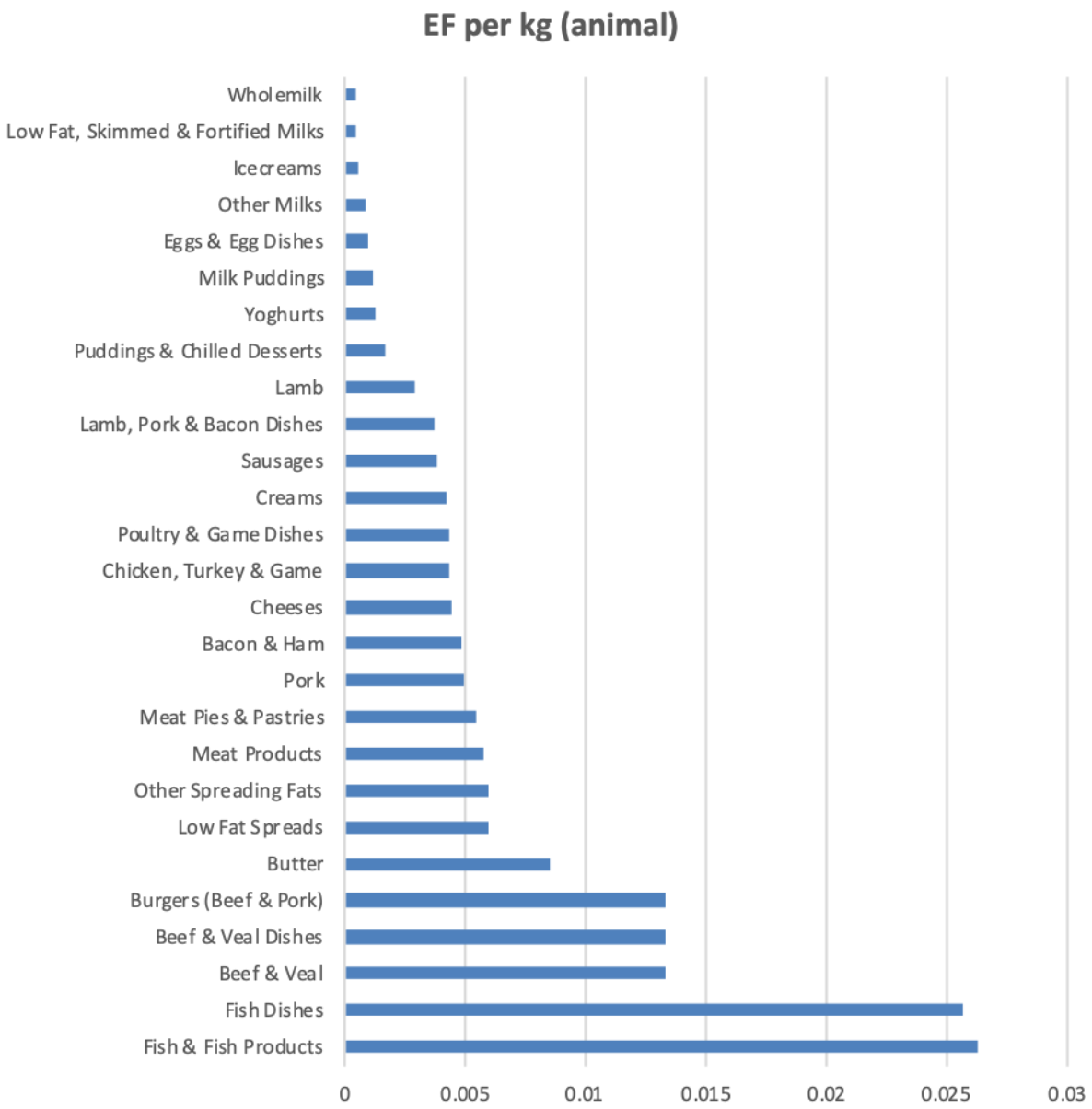
$$EF_{animal} = \text{energy EF} + \text{pasture EF (plus cropland EF)}$$

$$EF_{plant} = \text{energy EF} + \text{cropland EF}$$

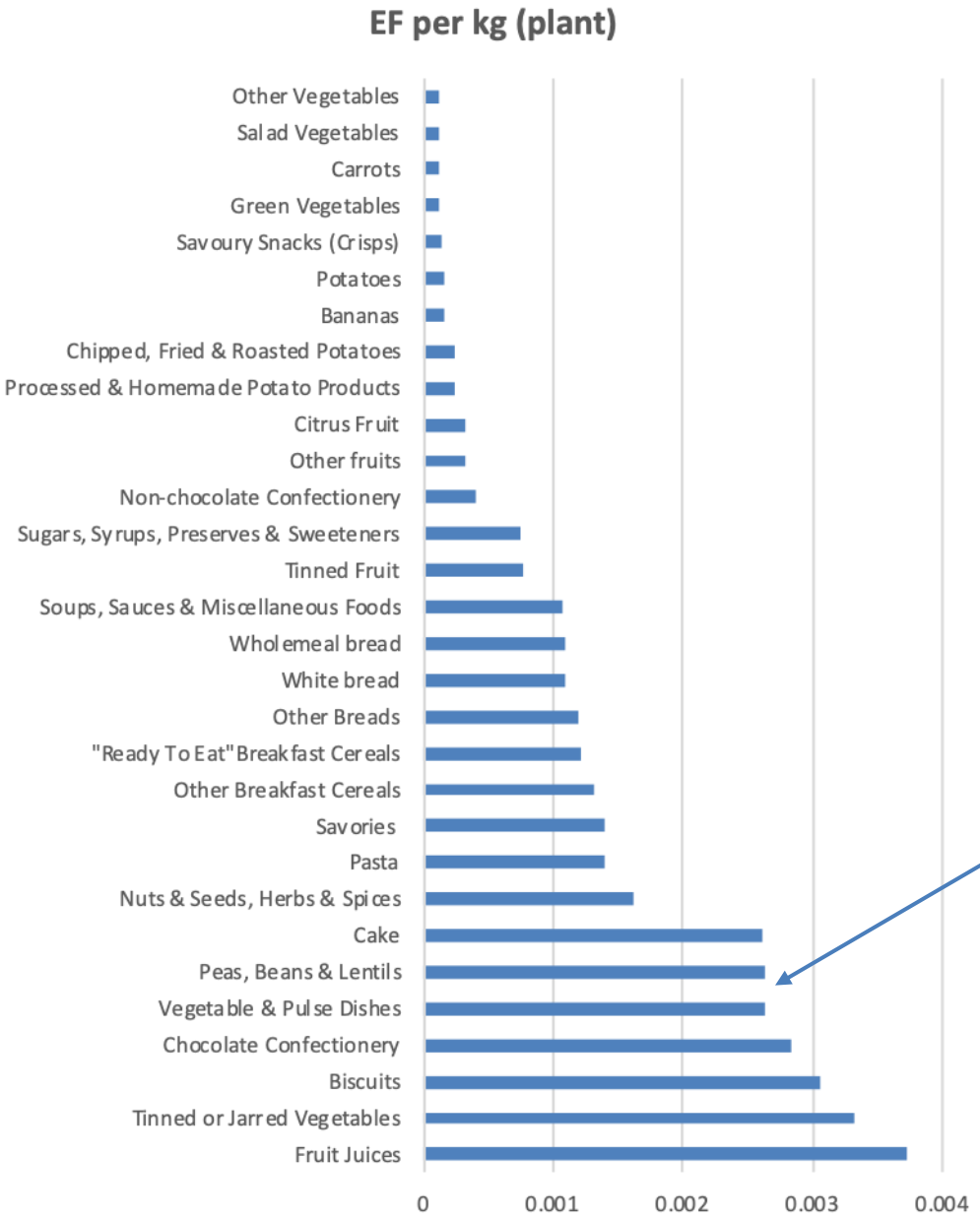
The animal/pant ratio the person eats is critical to the food EF.

As individual information was unavailable the amount of food consumed daily was taken from the **North South Food Survey.**

Ecological Footprint of the Food we Eat (Animal)



Ecological Footprint of the Food we Eat (Plant)



The EF of Beans, Lentils and Pulses is 10 times smaller than fish and 5 times smaller than beef

Ecological Footprint of our Waste

Ecological Footprint of our Waste

Transport distances are a relatively small portion of the waste footprint and not calculated here.

EF waste = EF (embodied energy) + EF (decomposition)

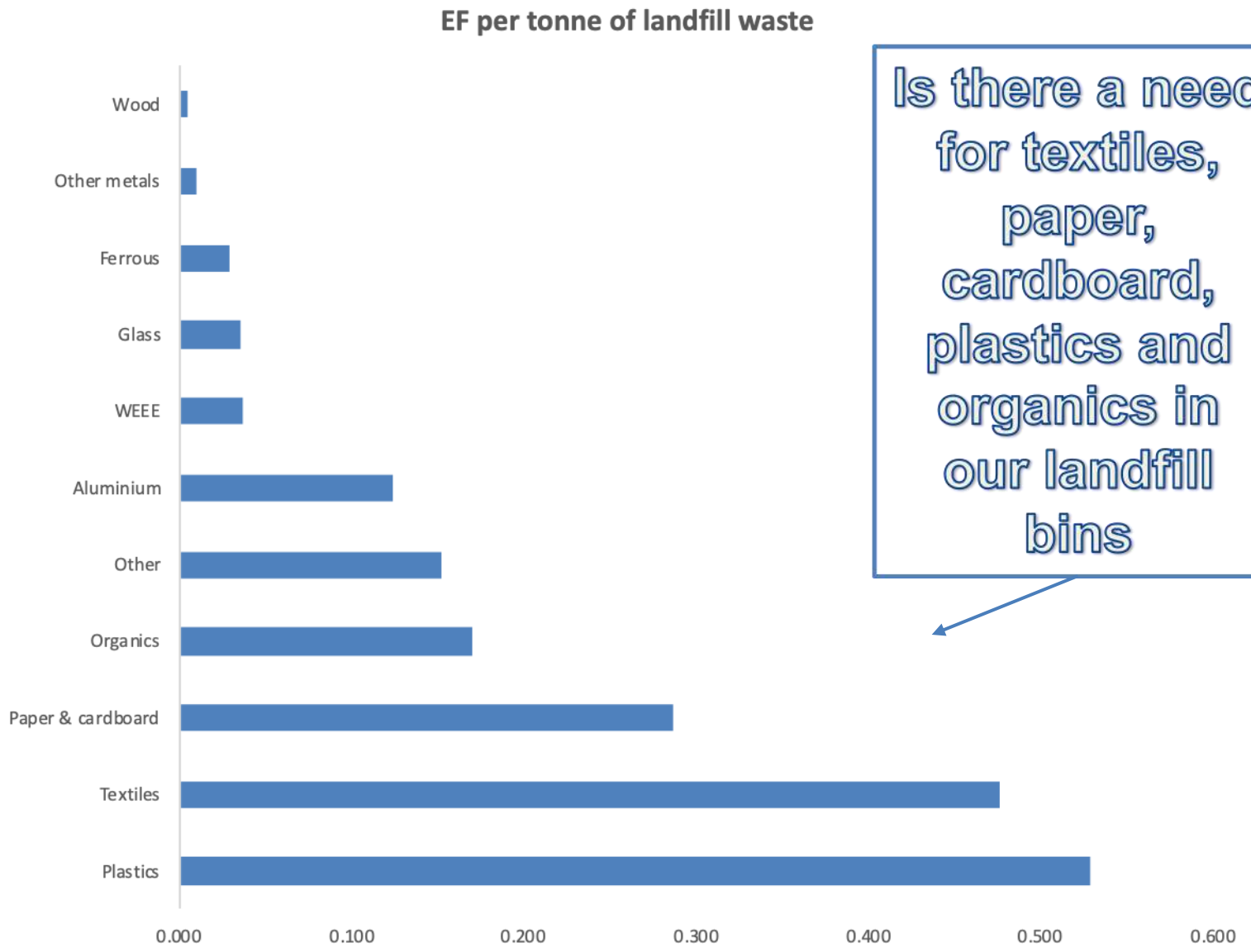
The footprint of the energy required for its production as waste requires a replacement

Organics

- Prevention removes both.
- Composting reduces methane decomposition
- Recycled items have a lower energy requirement for their production.

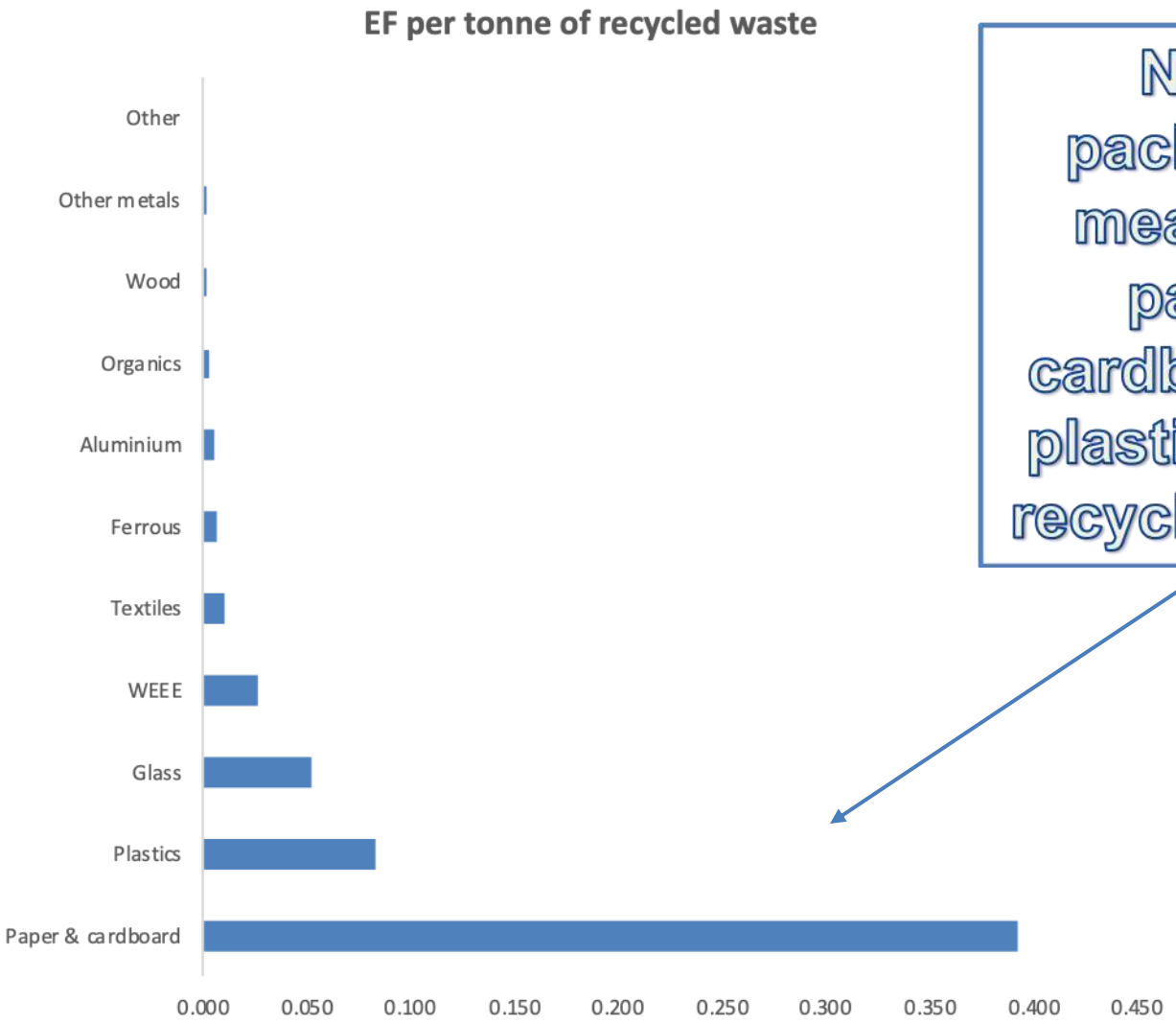
National compositional data from the EPA waste database was used to identify the contents of landfill and recycling refuse bins.

Ecological Footprint of the Food we Eat



Is there a need for textiles, paper, cardboard, plastics and organics in our landfill bins

Ecological Footprint of the Food we Eat



No to packaging means no paper, cardboard or plastic in our recycling bins

Fast Fashion

Landfill bins have a significant quantity of **textiles** but recycling and composting bins also have quantities. Addressed in DCCAE draft action plan for a circular economy and will be actioned.

80,000 tonnes of textiles were contained in Irish household bins (2018).

According to the Ellen MacArthur Foundation:

- >50% of fast fashion is disposed of in **less than a year**;
- fashion will use **25% of the global carbon** budget by 2050
- 500,000 tonnes of **microfibres** (equivalent to 50bn plastic bottles) is released into the oceans every year during washing;
- Globally, the equivalent of **1 rubbish truck of textile** waste is landfilled or burned every second

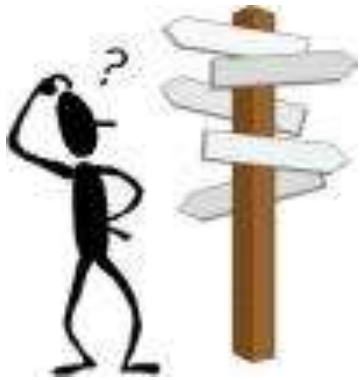
Breakout Session – What is your food & waste footprint?

Tea Break – 15 minutes

Food Solutions – where to start

- Start with the biggest
- Reduction ideas
  - Food waste
  - Animal and dairy emissions
  - Food miles

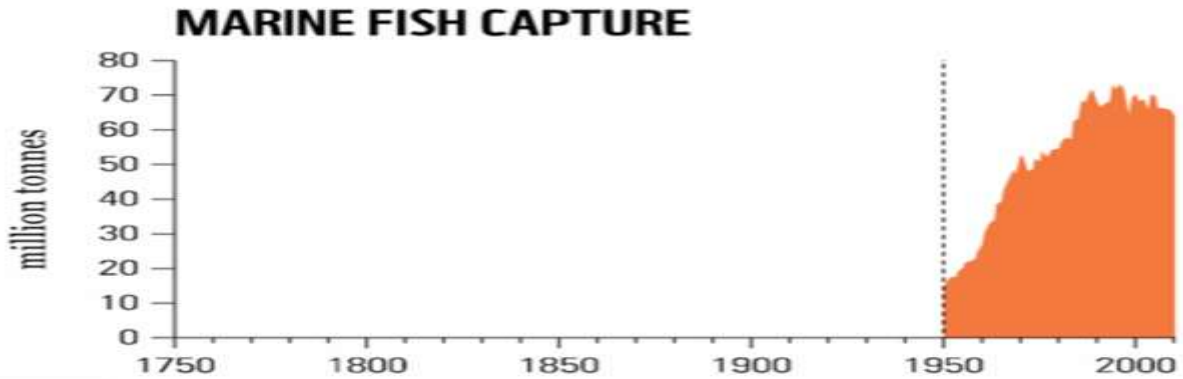
Fishing



What is size of the mouth of fishing nets now?

Overfishing has been bad enough...

we are already beyond peak fish catches



WWF 2019

Fish Farming

Organic farming:

1. standards,
2. welfare, and
3. productive and more sustainable

https://youtu.be/wN1G2oMFWoM

Insert video here:

Vegan Diet – Rice is carbon intense

Farming

Annual review of Climate Change Advisory Council recommended:

1. reduction in the national cow herd would deliver a significant decline in emissions
2. expanded and sustainable forestry sector

Farm income data from Teagasc:

1. extremely low or negative profit margins being made from beef
2. forestry is doing well especially broad leaf

It is important to stress that the replacement of beef farming with forestry is a win-win-win action. It increases farm income, reduces emissions and significantly increases carbon sequestration.

https://www.irishtimes.com/opinion/land-use-must-shift-from-beef-to-forestry-1.3979724?fbclid=IwAR3L-QuWzgMfSfnPqhpJ1wcLMcdKg84PLWxGN_16lvwgtaJtCP0rp4nzBms

Industrial farming depletes biodiversity and natures capital

Organic farming efficiencies are higher

Edible Landscapes, Green Way, Mayo

Growing in season food uses less fossil fuel energy
Organic – biodiverse and productive
Local food has zero or at least less packaging waste

Edible Landscapes, Galway City

Community farm, Cloughjordan

Tendency toward vegetarian diet
> 20 acres, 1 FTE job, part time work and CSA
Growing in season food uses less fossil fuel energy
Local food has zero or at least less packaging waste

Community supported agriculture, Loughrea

Growing in season food uses less fossil fuel energy
Local food has zero or at least less packaging waste

School Gardens, GAP, Ballymun

Growing in season food uses less fossil fuel energy
Local food has zero or at least less packaging waste
School projects are important

Foodture -

Foodture

DIG IN FAIR FOOD MAP SHOP

Fair Food fulfills our need for nutritious, ethical, affordable food without compromising the health of our planet or the livelihood of farmers

Social Media

https://www.youtube.com/watch?v=pj66rbie8KM

https://www.facebook.com/foodtureirl

Food Markets, Killaloe

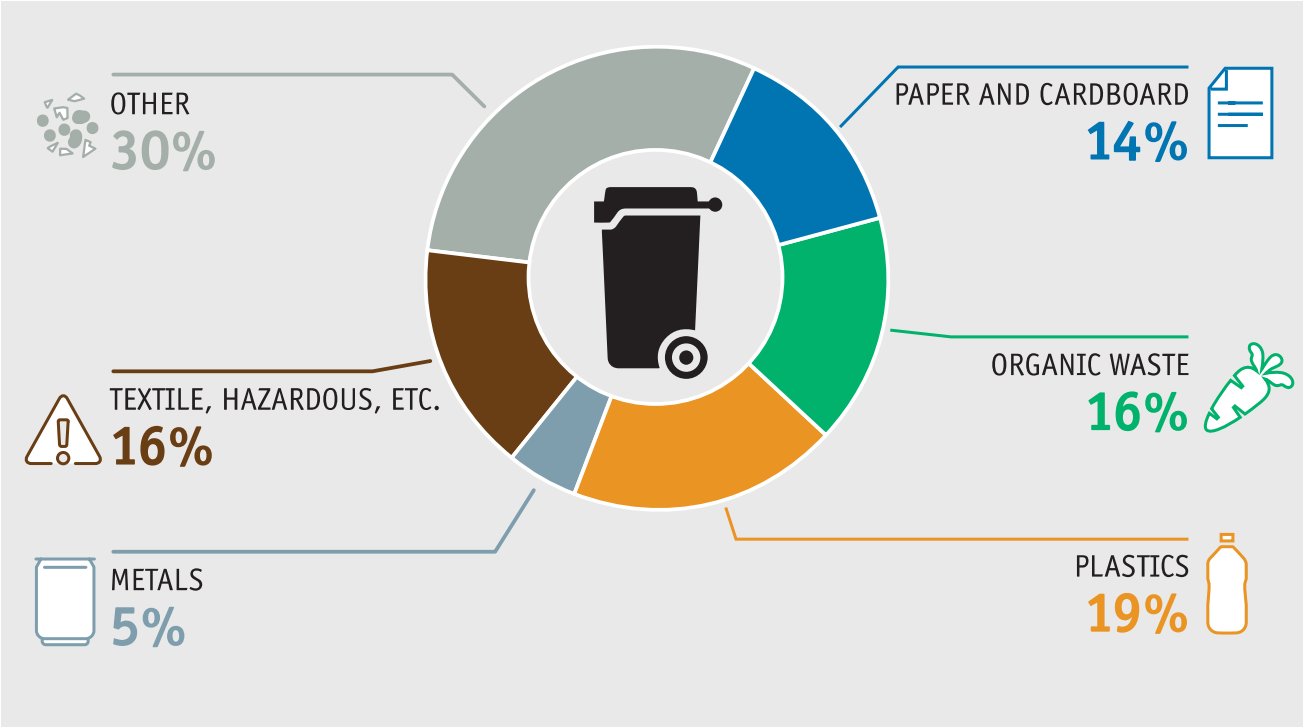
Growing in season food uses less fossil fuel energy
Local food has zero or at least less packaging waste

Community Apple Press, Clonakilty

Growing in season food uses less fossil fuel energy
Local food has zero or at least less packaging waste

Reducing Waste Footprint

- Prevention is best
- Composting reduces methane decomposition
- Recycled items have a lower energy requirement for their production.



What could you do to reduce your waste footprint?

Its only 1 x bottle….

- Assume 1 x GMIT student, uses x 4 single use plastic water bottles per week,
- x 12 weeks of semester
- x 2 semesters
- x 3 years
- For each of the 7000 students

- **= a total of 2,016,000 plastic bottles**
- **~50 tonnes plastic waste….**

Waste Links with ideas

- Pax Food Shop
- Second Hand Shops
- Buy Quality
- Fix things, reuse
- Stop Food Waste

- Food Markets
- Depop exchnage
- Weshare
- Free Trade Ireland
- Camara

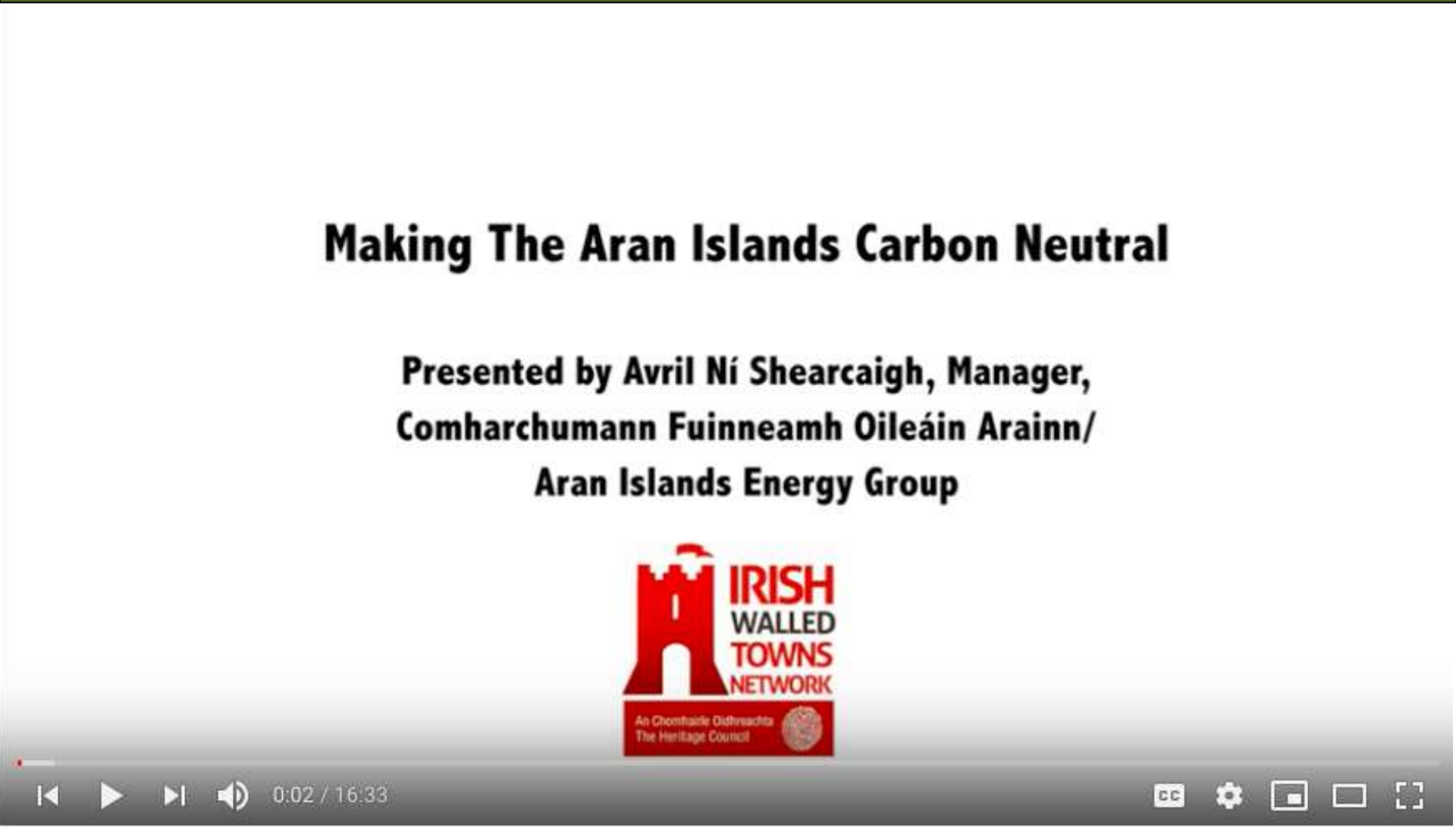
Waste Links with ideas

https://stopfoodwaste.ie
https://www.dccae.gov.ie/en-ie/environment/topics/sustainable-development/waste-prevention-programme/Pages/default.aspx
https://www.crni.ie
http://www.epa.ie/begreen/
https://www.mywaste.ie
@ZeroWasteCashel on facebook
http://www.epa.ie/livegreen/wasteprevention/, CRNI - https://www.crni.ie http://www.theupcyclemovement.com/workshops/
https://recreate.ie
https://www.freetradeireland.ie
https://www.weshare.ie
www.camara.org
www.rehabrecycle.ie
https://voiceireland.org/rap/
https://www.depop.com

Library of Things, Galway, Rethink

Reducing consumption of unnecessary products – prevention
Start up on Sandy Road

Inis Mor, Coop – sort recycling, sell, export zero landfill



https://www.youtube.com/watch?v=KenG6XDsDjQ&list=PLIKz_D-MJSUkp6GnyanjZJl4YA2quVcWv&index=7&fbclid=IwAR3V2t6MNvbVyf1SzGc4for9ULOxSeARkUN6fm_7hZJVVkmECRxZlXpL-wE

Belturbet Zero Waste	
Description	A rural town with approximately 1300 residents
Location	Cavan
Website	Click here
Social Media	https://www.facebook.com/belturbetzerowaste/
Purpose	Belturbet Zero Waste a Tidy Towns group a charter, is reducing the waste impacts of its citizens and its businesses. commits to reducing its waste volumes by 50% over 5 years in 2024.
SDGs (broad)	“7, 8, 9, 11, 12, 13, 14, 15, 17.”
SDGs (3)	“12, 13, 14.”

Waste Initiatives, Westport

Bere Island, Cork

https://www.youtube.com/watch?v=NBgJVRog4Ws

Paper, carbboard, can balers – reduce transport

Glass reuse

Go Greener Grangecon	
Description	Rural settlement of about 200 residents
Location	Grangecon, County Wicklow
Social Media	https://www.facebook.com/gogreenerwithgrangecon/
Purpose	A community wide ecological-footprint campaign where the waste, water, household energy, food and transport impacts of their residents were measured, disseminated, discussed, and reinterpreted. They aim to reduce Grangecon's ecological-footprint by working together. Significant spin off campaigns and inititiatives have been inspired. Strong engagement and mobilisation of stakeholders.
SDGs (broad)	"1, 2, 7, 8, 9, 11, 12, 13, 14, 15, 17."
SDGs (3)	"11, 12, 13."

Zero Waste Cashel

Compost Tumbler made By Men's Shed following Workshop

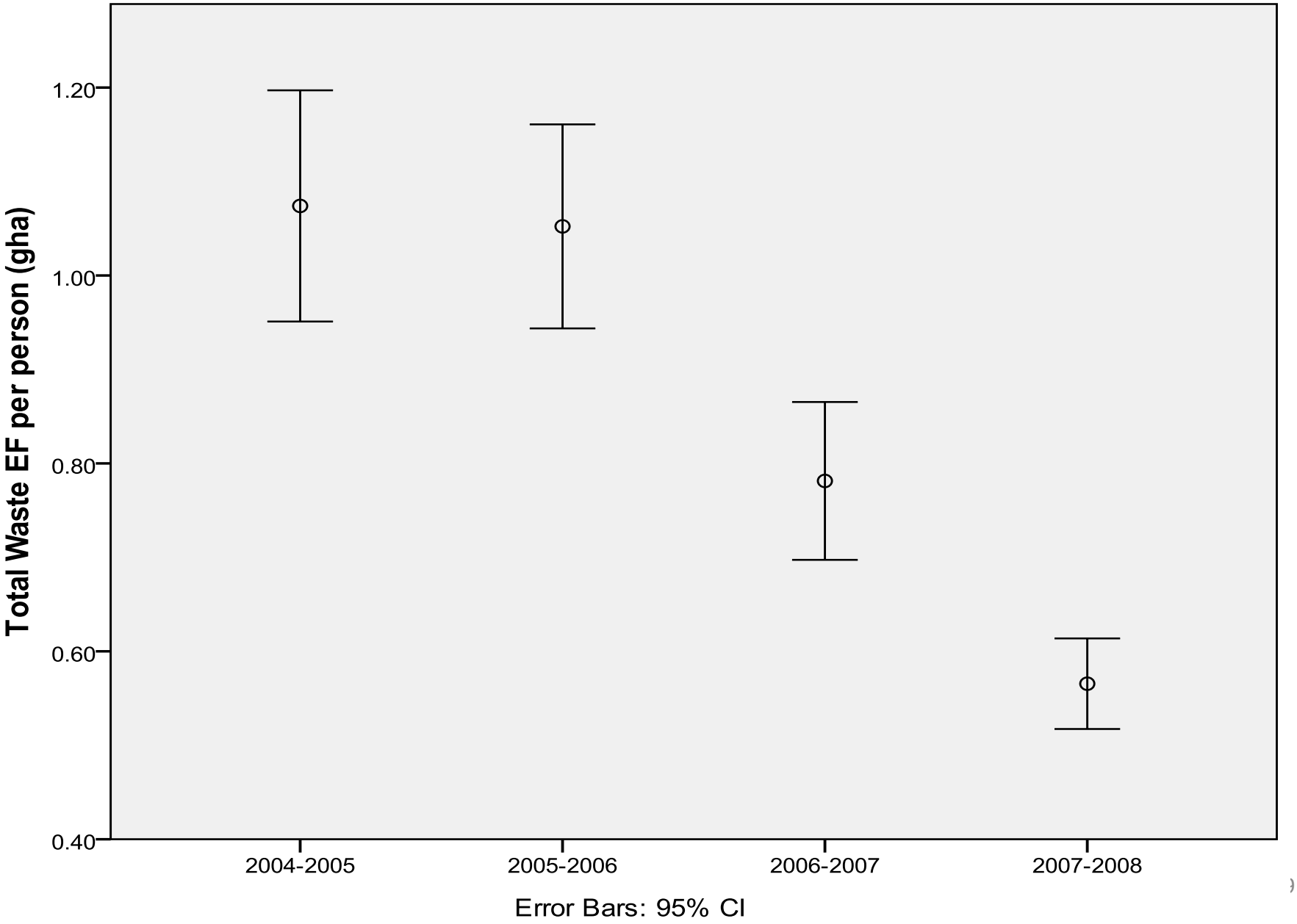
Birdhill Community Composter

Knitting communities together, Wicklow Town

Counteracts fast fashion and builds social capital and resilience

Low Carbon Solution: Ecological Footprint Campaigns

Ballina Waste EF Data Over Four Years



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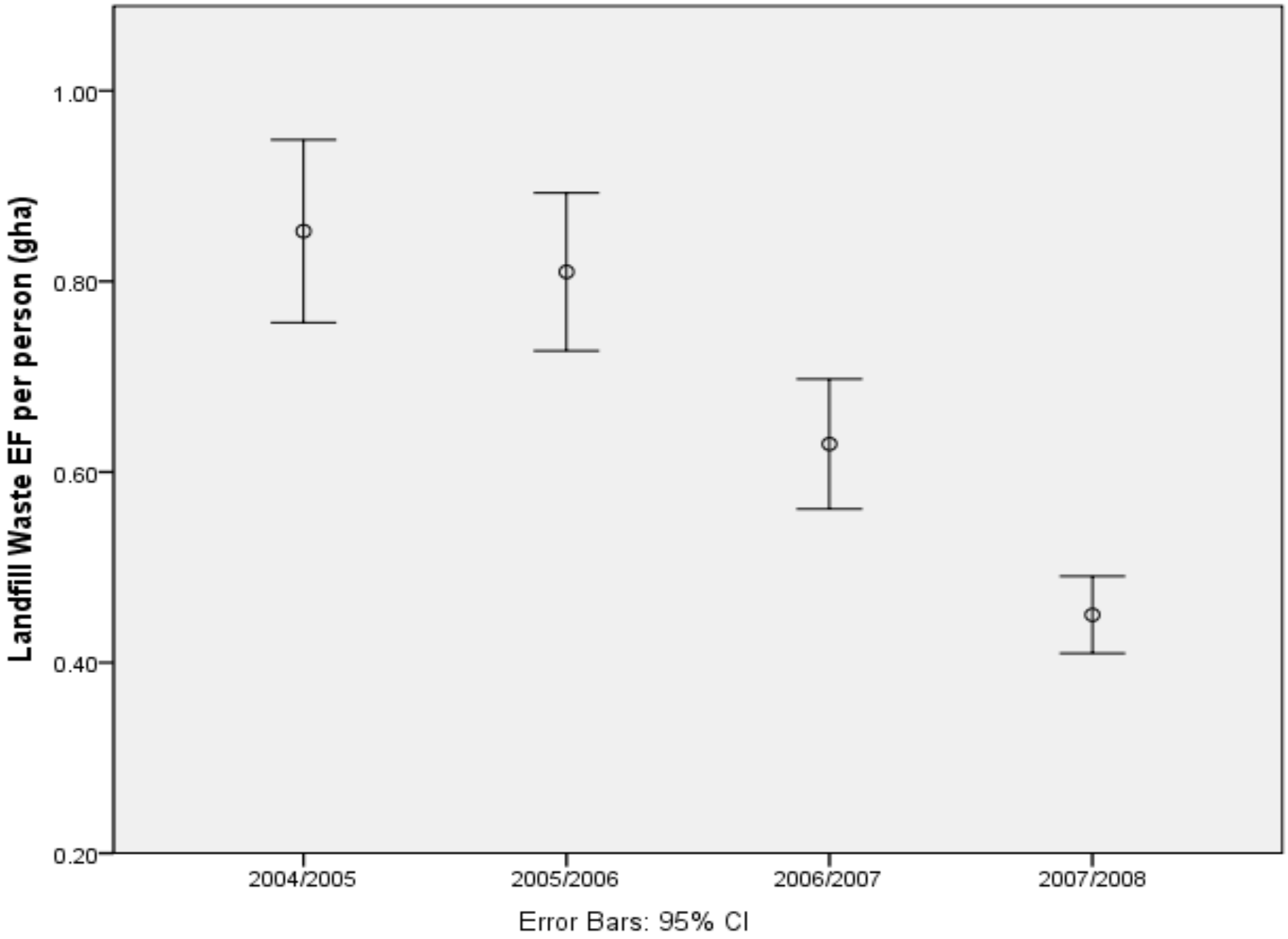

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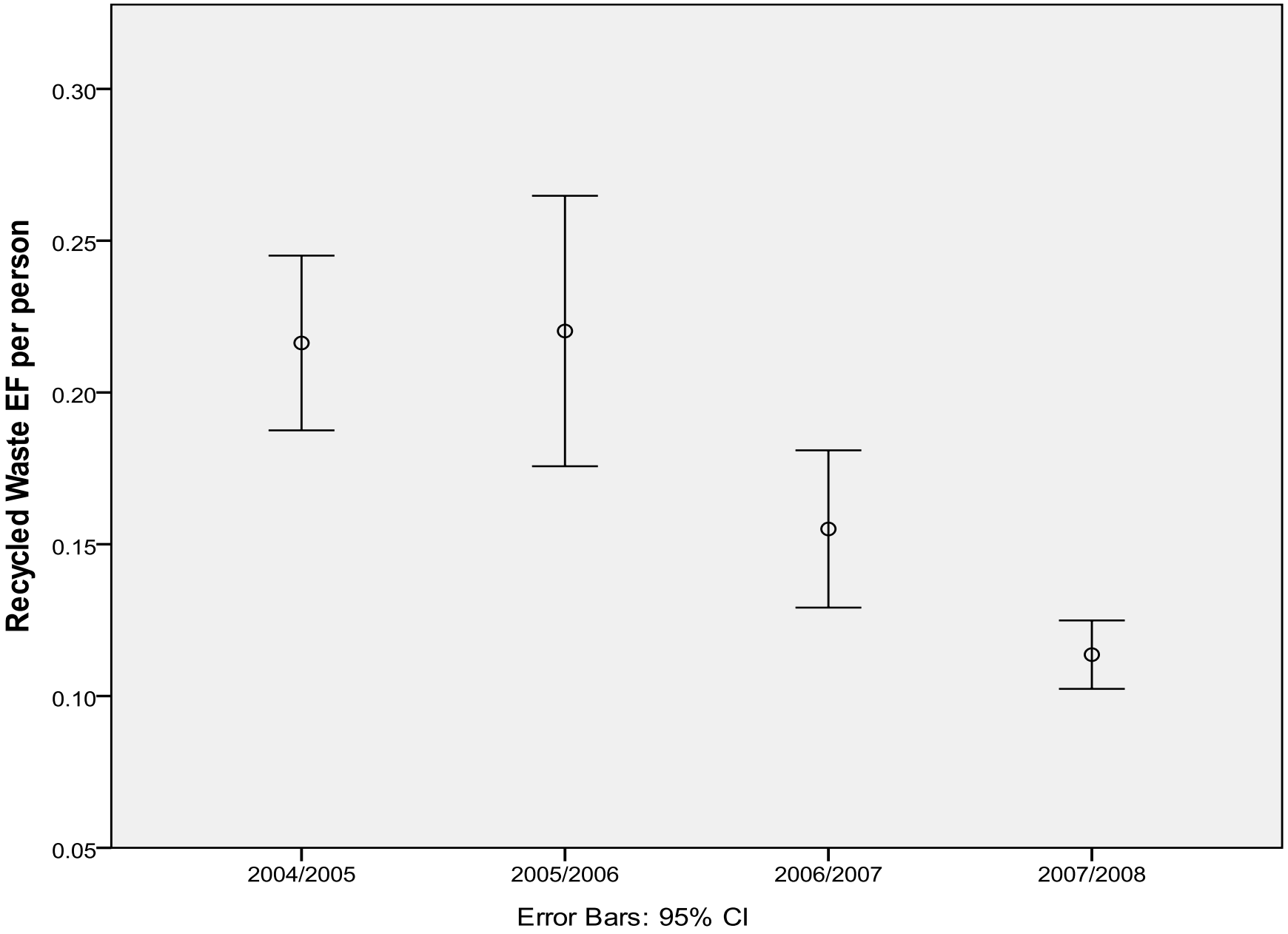
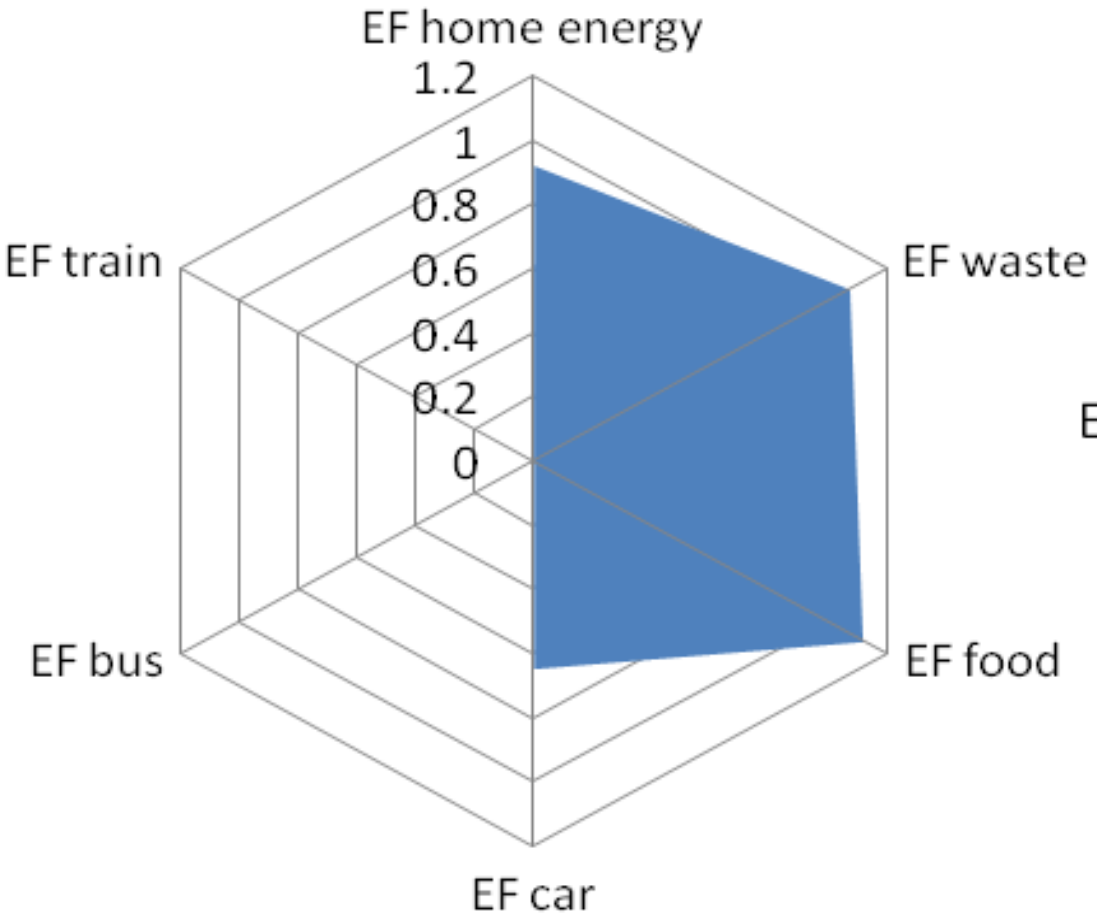
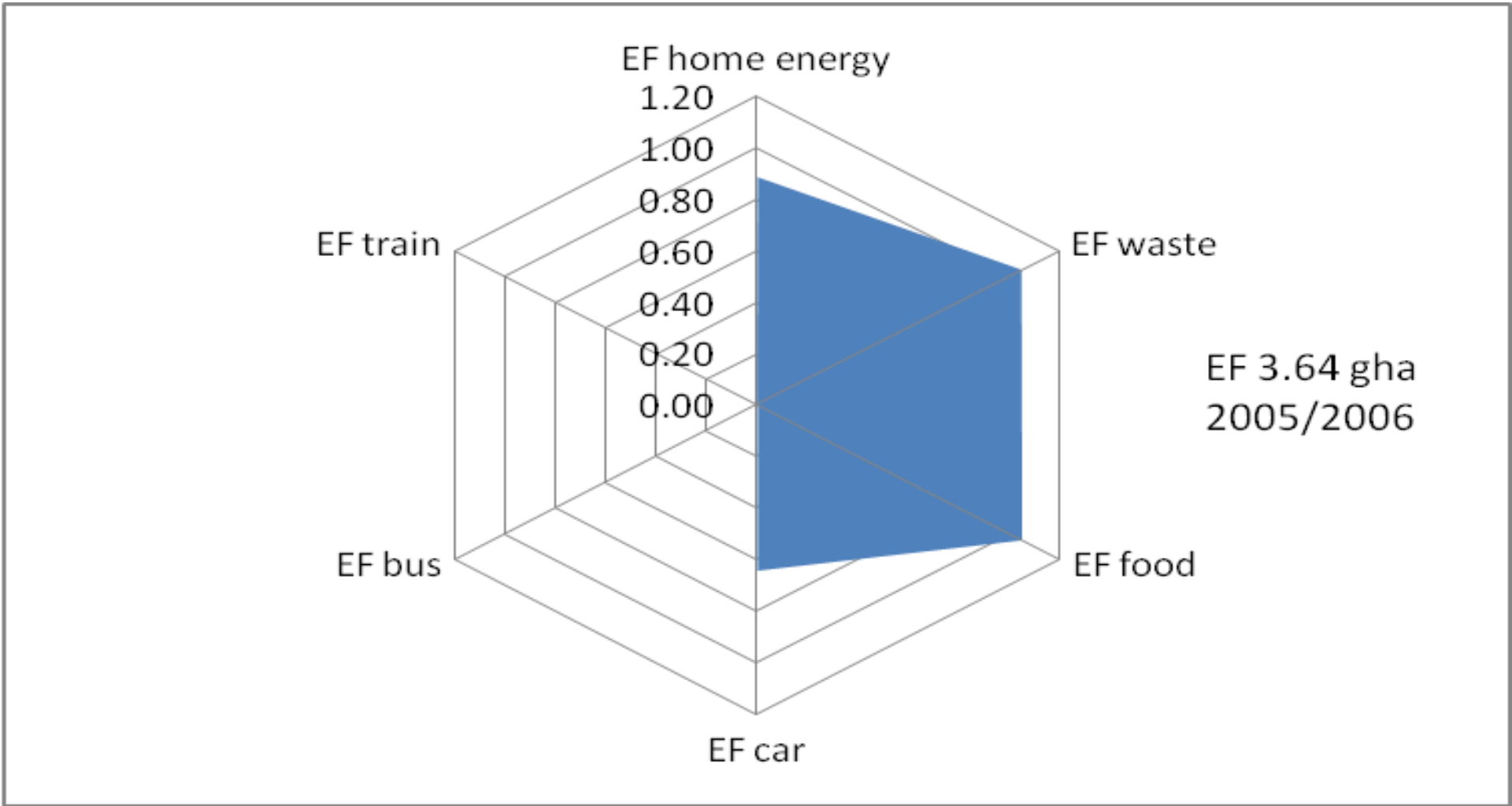


EF Data Year 1

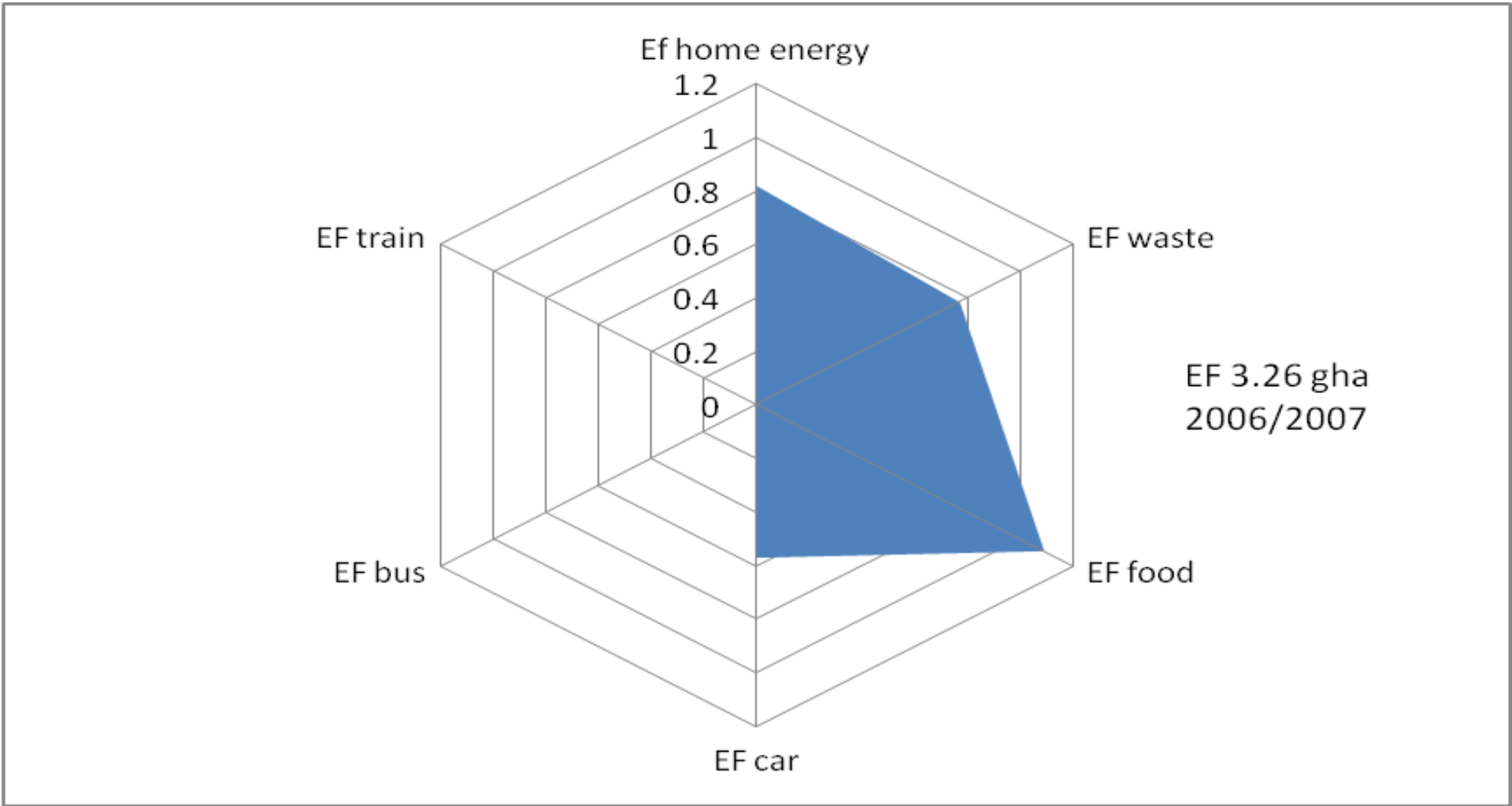


EF 3.77 (gha)
2004/2005

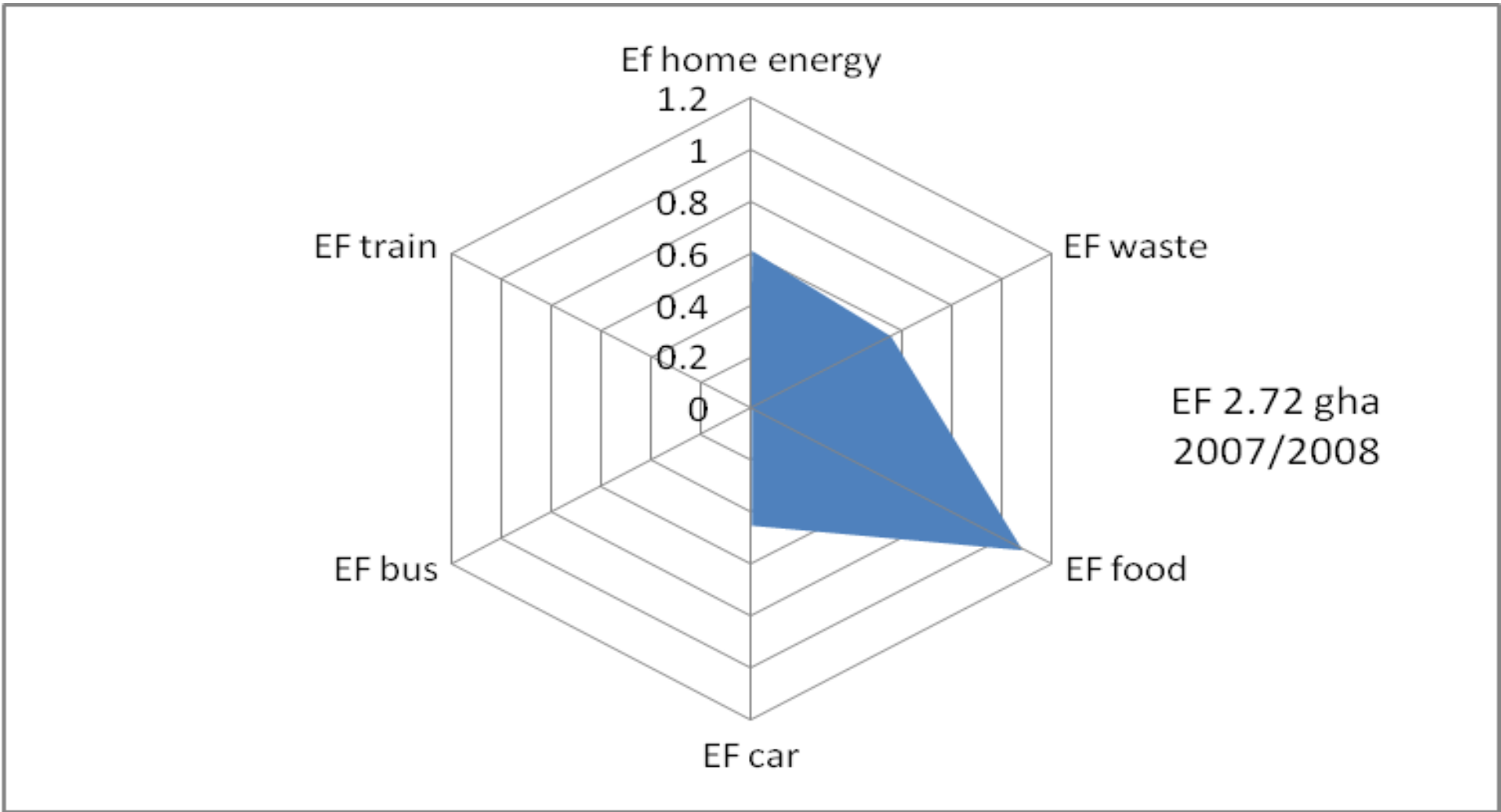
EF Data Year 2



EF Data Year 3



EF Data Year 4



International Blueprint

Developed an EF method for Irish communities. 95 community EFs now.
Presented results of 5 year intervention.

- 1800 residents.
- Reduced its emissions by 28%.
- Equates to 4,900t $CO_{2.}$
- Validated by ISO 14064.
- PDD issued for verification.
- Started the trading of energy savings Nationwide.

So do you think 4,900 tCO_2 would fill Croke Park?

It would fill it 5 times!

International Blueprint

This is recognised as a blueprint for community sustainability by SEI, Swedish and Japanese governments and by IGES. Japan and Sweden are recognised as leading countries in relation to decarbonization. Presented in New York at the High Level Political Forum, 2018. Involves a community, CBOs, a skilled facilitator and our research team. Householders are facilitated to measure their ecological footprint and then to reflect on their learning and share their low carbon solutions as stories. They interact, craft new knowledge and advance the development of their understanding within a co-learning experience. Trusted messages.

Link: https://doi.org/10.1080/13549839.2018.1434493

International Blueprint

https://www.tandfonline.com/doi/abs/10.1080/13549839.2018.1434493

https://www.tandfonline.com/doi/full/10.1080/13549839.2018.1481021

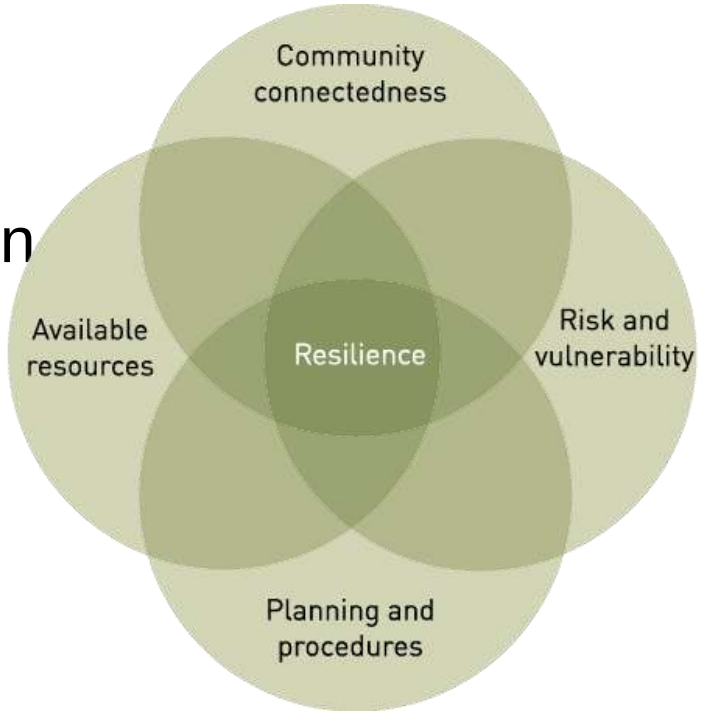
http://www.epa.ie/pubs/reports/research/econ/Research_Report_238.pdf

https://www.sparkchange.ie

Plans, Targets and Achievements

Resilience is strengthened when you work with your Local Authority and generate and submit to plans, local, regional and national:

1. Biodiversity Management Plan
2. Peatland Management Plan
3. County Development Plans
4. Climate Mitigation Strategy Plan
5. Local Economic and Community Plan
6. Conservation Action Plan (CANN)
7. Surface Water Management Plan
8. Neighbourhood Climate Action Plan
9. Community Futures Plans
10. Business Continuity Plan
11. Community Resilience Plan
12. Invasive Species Management Plan

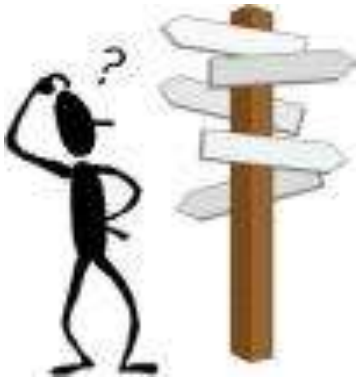


Arbon, 2014. Developing a model and tool to measure community disaster resilience https://ajem.infoservices.com.au/items/AJEM-29-04-04#sthash.DitYa9i5.dpuf

What can we do to reduce waste and food footprints?

Breakout Session – What can we do?

What can individuals and communities do to reduce these footprints?



Your ideas?

Extra Reading

- https://www.irishtimes.com/opinion/land-use-must-shift-from-beef-to-forestry-1.3979724?fbclid=IwAR3L-QuWzgMfSfnPqhpJ1wcLMcdKg84PLWxGN_16lvwgtaJtCP0rp4nzBms

- https://www.theguardian.com/environment/2019/nov/05/europe-must-act-on-intensive-farming-to-save-wildlife-scientists-say?fbclid=IwAR1GlGoVVmsx_FaCs2KXkBlEFFpf--0zfpR_thRHFv2mgCVfnIUHRpLbEWg

Energy Co-operatives Ireland
Building community energy networks
energyco-ops.ie

Please complete the workshop evaluation

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