

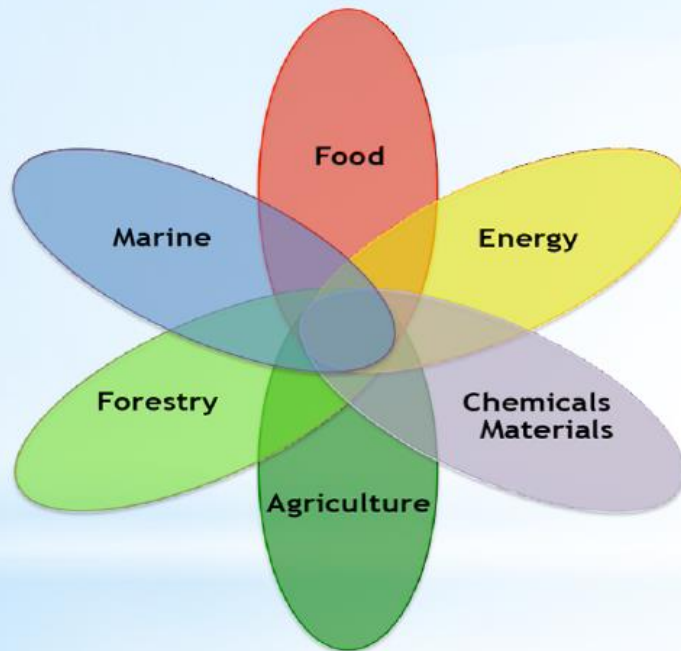
Bioeconomy Strategy Development: international learnings and progress to date

Dr. Laura Devaney and Vera Steinberg

CASA - SCAR National Meeting Spain

11th May 2017

THE BIOECONOMY



**THOSE PARTS OF THE ECONOMY
THAT USE RENEWABLE
BIOLOGICAL RESOURCES
(BIOMASS) FROM LAND AND SEA
SUCH AS CROPS, FORESTS, FISH,
ANIMALS, MICRO-ORGANISMS,
AND ORGANIC WASTE AND
RESIDUES
TO PRODUCE FOOD, FEED,
MATERIALS, CHEMICALS, FUELS,
AND ENERGY**

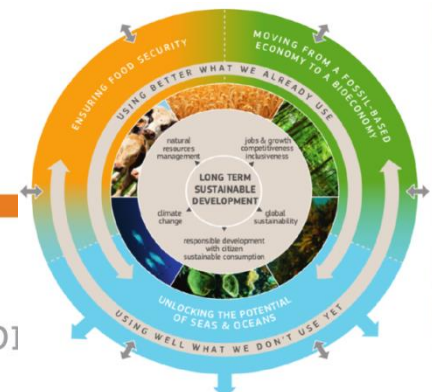
Source: SCAR (Standing Committee on Agricultural Research)

(Potocnik, 2015)

Towards a sustainable future...

Bioeconomy encompasses:

- “**The sustainable production** of renewable resources from land, fisheries and aquaculture environments and their conversion into food, feed, fiber bio-based products” (EC, 2015)
- “**Economic growth** driven by the development of renewable biological resources and biotechnologies to produce sustainable products, **employment and income**” (Rosegrant et al., 2013, p139)
- “All economic activity that is derived from the continued **commercial application of biotechnology**” (Bioeconomy Corporation, 2016)
- “That part of economic activities which captures latent value in biological processes and renewable bio-resources to produce **improved health** and sustainable growth and development” (OECD, 2009)
- “A future in which we rely on renewable biological resources to **meet our needs** for food, materials and energy” (EC, 2014)
- “A **vision for the future society**” (Socaciu, 2014, p1)



CASA – Work Package 3: Strengthening Strategic Advice

- CASA is supporting SCAR
- The objective of WP 3 is to strengthen the basis for SCAR to provide more and relevant high-quality strategic policy advice in the evolving landscape of the broader Bioeconomy
- Important to understand global connections and links
- Today, we have the great opportunity to hear first-hand information how the Bioeconomy Strategy is developed in other countries

Policy and strategy implications: lessons from Ireland and Canada

Dr. Laura Devaney

11th May 2017



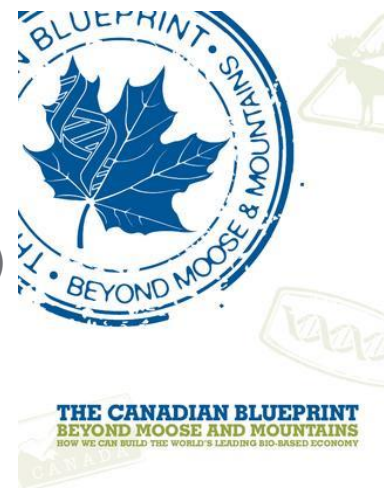
Bioeconomy developments happening already BUT challenges remain....

- Key question/challenge now = what to focus on from national perspectives
- No coherent national bioeconomy strategy in Ireland; industry-led blueprint in Canada
 - Need to connect up quickly – innovation and ideas out there
 - Draw on domestic strengths
 - Identify priorities for development
 - Highlight stakeholder groups for engagement
- Value chain development in the bioeconomy must be fully supported by suite of policy measures (e.g. taxation, public procurement, sustainability and safety standards etc.)

Bioeconomy Policies around the World



The Canadian Bioeconomy Context



- **No** Federal bioeconomy strategy or vision
 - 2006 strategy for renewable energies (timber dominance)
 - “Growing Forward” (2013-2018) agricultural strategy
- Canadian Blueprint – Beyond Moose and Mountains
 - BIOTECCanada Submission to Review of Federal Support to R&D
 - Developed by national biotechnology association – discussed at a roundtable with policy makers but not adopted as a federal strategy
- Some provincial activity
 - e.g. British Columbia appointed Bioeconomy Council in 2011 (with big focus on bioenergy)
 - e.g. Alberta something similar with strong agriculture focus—bioenergy too though with mention to biochemicals

The Canadian Context

- Dobbin Atlantic Scholarship, Nova Scotia, April 2017
- Faculty of Agriculture, Dalhousie University



Bioeconomy governance: a comparative between Ireland and Nova Scotia

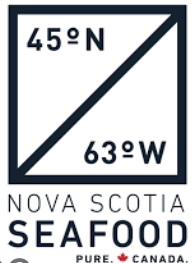
- SWOT analysis – strengths, weaknesses, opportunities, threats
- Federal Level and Provincial Level
- Literature, policy, website and media analyses: desk-based
- Interactions and international learnings
 - Guest Lecture
 - Panel Discussions
 - Council of Leaders, NS Federation of Agriculture



Lessons from Canada



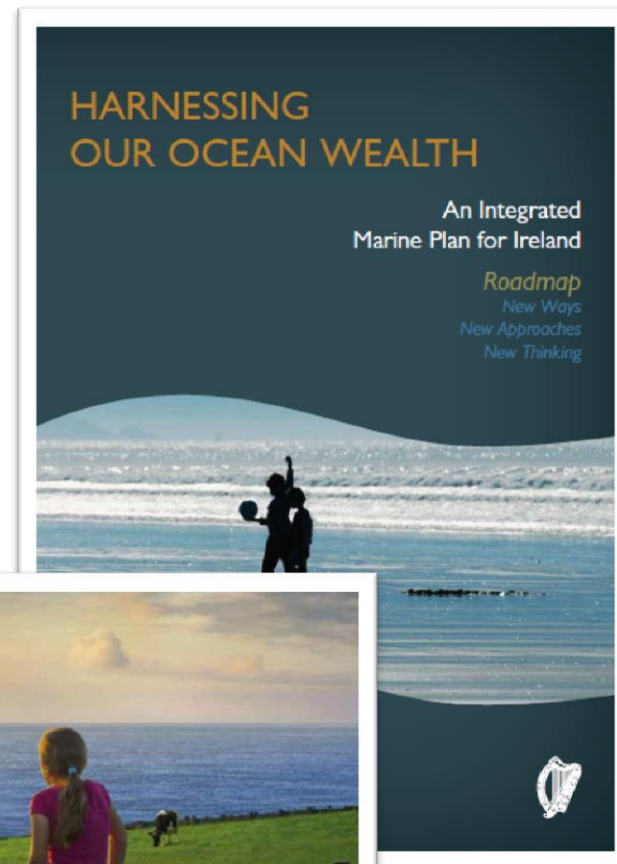
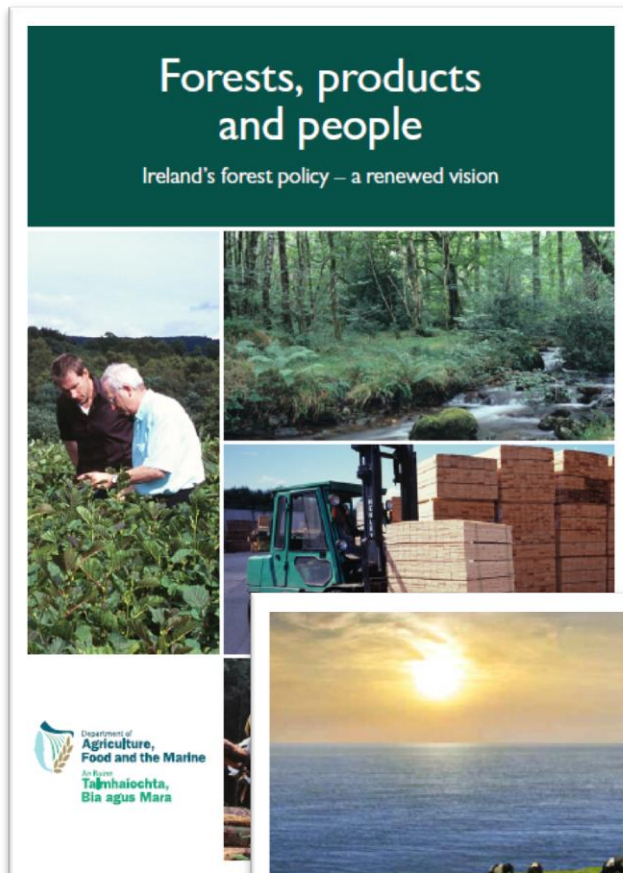
- Language of bioeconomy not yet infiltrated consciousness at NS scale
- Focus on bioenergy and biofuels in research, policy & practice:
 - By virtue of policy and environmental context
 - Novelty of cascading principle
- Novel Bioeconomy Supports
 - E.G. Biomass Availability Calculator; Industrial Bioproducts Value Chain Roundtable
 - Business development and educational programmes e.g. ThinkFARM, Perrenia, Nova Scotia Agricultural Awareness, 4-H
 - Coordinated financial and funding programmes e.g. dedicated Farm Loan board to support diversification of farms
 - Nova Scotia branding schemes
- Beyond federal: need for provincial bioeconomy strategies in diverse Canadian context



The Irish Bioeconomy Policy Context



Policy Context in Ireland: sectoral



Draft Bioenergy Plan

October 2014



Róinn Cumarsáide, Fálannais agus Acmhainne Náisiúna
Department of Communications, Energy and Natural Resources



Department of Communications,
Marine and Natural Resources
*An Roinn Cumarsáide,
Marra agus Acmhainne Náisiúna*

BIOENERGY ACTION PLAN FOR IRELAND

REPORT OF THE MINISTERIAL TASK FORCE ON BIOENERGY



Department of Communications,
Marine and Natural Resources
Roinn Cumarsáide, Marra agus Acmhainne Náisiúna

Ocean Energy in Ireland



Marine Institute
Foras na Mara

seai
SUSTAINABLE
ENERGY
IRELAND

seai
SUSTAINABLE
ENERGY AUTHORITY
OF IRELAND

Methodology for
LOCAL AUTHORITY
RENEWABLE ENERGY
STRATEGIES



Policy Context in Ireland: sectoral

BioÉire: a bioeconomy for Ireland

- Launched April 2015 (DAFM/Stimulus Research Grant) to assess the feasibility and facilitate the pursuit of bioeconomy opportunities in Ireland



- To identify up to **8 value chain opportunities**, assess their technical, economic and environmental **viability** for development in the short-medium term = knowledge base for national strategy
- Make recommendations on the **development frameworks** necessary to underpin their exploitation
- During lifetime of project:
 - Bioeconomy mentioned in Action Plan for Jobs 2016 and Action Plan for Rural Development 2017
 - Establishment of Interdepartmental Group on the Bioeconomy
 - Scoping exercise undertaken
- Collaborations with Department of an Taoiseach including **design thinking workshop** in Feb 2017 with 58 research, policy, support agency & private sectors

Lessons from Ireland: BioÉire Headline Results

Implications for strategy development



BioÉire

A Bioeconomy for Ireland

- Irish resource **supply** base is renowned worldwide in terms of its quality and abundance, however is subject to challenges of scale and a fragmentation of feedstock that will need to be addressed for successful bioeconomy development.
 - New business models, centralised facilities and indeed decentralised options may provide some solutions across diverse opportunity areas.
- Bioeconomy **markets** are diverse worldwide but hold significant potential tapping into consumer demands for healthy and more sustainable products: different motivations at different stages of the adoption cycle
 - **Public engagement** from the outset of bioeconomy development will be essential to mitigate concerns of consumer acceptance particularly regarding the use of waste streams in the bioeconomy

Lessons from Ireland: BioÉire Headline Results

Implications for strategy development



BioÉire

A Bioeconomy for Ireland

- **Top value chains** identified included the use of 2nd generation feedstock for the production of biochemicals; dairy processing sidestreams for sports nutrition products; horticultural by-product for biocompostable packaging; marine discard for functional food and feed applications; agricultural and food waste for bioenergy production; seaweed use for food and healthcare applications and forestry residues for decentralised heat generation.
 - **Regulatory issues** re waste use need to be addressed however to realise opportunities, including re environmental licencing
- Complementarities between sectors = bioeconomy value chains now need to be connected into a more comprehensive **value web**
 - Potential to apply cascading & circular economy thinking to determine the most sustainable resource uses and address fuel, feed, food, fibre debates



Lessons from the Irish and Canadian experience

- Need to move beyond sectoral silos: practically and politically
- Value Web Approach....residuals for energy
- Cannot assume the inherent environmental sustainability of the bioeconomy....continuous monitoring and evaluation required
- Need for robust governance framework....beyond government
- Need for objective bioeconomy governing principles
- Importance of national and even provincial strategies: place and context.... to de-risk opportunities for stakeholders across sectors and professional spheres



Challenges in developing a bioeconomy strategies

- Potential conflicts of interest
 - Economic, social and environmental objectives
 - Use of biological resources for industrial purposes vs food security vs environmental safeguards
- Potential conflicts between sectors
 - Food, feed, fibre, fuel debate
- Unintended/unforeseen consequences
 - Rebound effect
- Complex policy environment



Complex policy environment

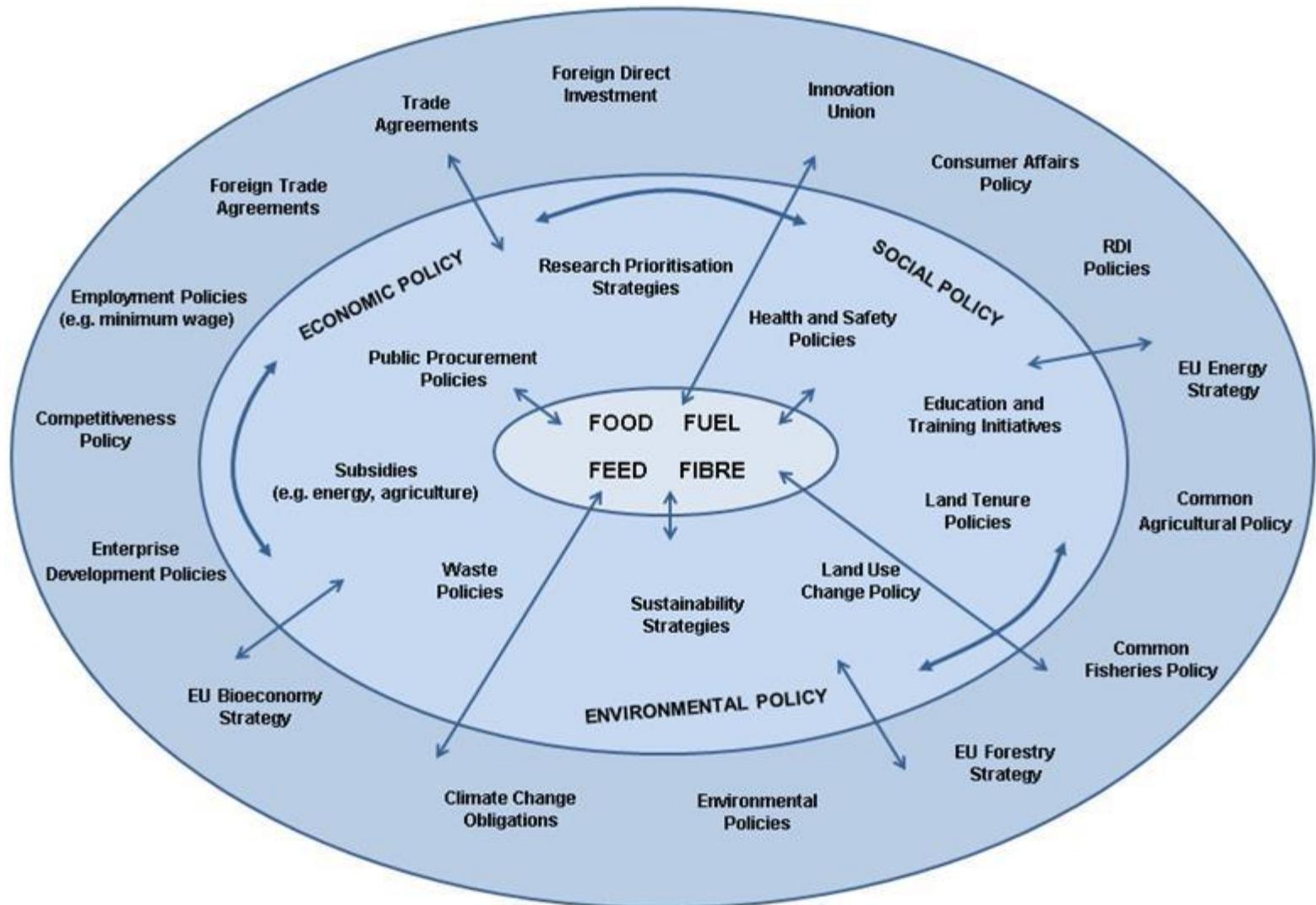


Figure 1 Irish bioeconomy policy illustration (taken from Devaney and Henchion, 2016)

Concluding thoughts...What will all of this mean for bioeconomy strategy development worldwide?

Key question now = what to focus on from national perspectives

- How will global and supranational bioeconomy principles be translated to national contexts?
- Who needs to be involved? Who will benefit?
- Who will define them?
- What should countries, regions and areas prioritise?
- What scale should we be focusing on? Role for regional, provincial and/or local scales and strategies?
- Power and politics involved

Importance of establishing guiding bioeconomy principles and supportive framework conditions in this opportunity context



Conclusions

- Involving value chain actors in the identification of development pathways is crucial for future bioeconomy buy-in, commitment and success, establish interconnected relationships and translate research into practice
- Identification of common areas of consensus, caveats and conditions represents the first step in this process, providing initial starting points for collaborative discussions, stakeholder participation and consultation
- Importance of bioeconomy definition chosen in the first place
 - What is the focus? What are the drivers? Who is involved?
 - Balanced and systematic deliberation of all options available backed by evidence base
- Towards Irish and Canadian bioeconomy principles
 - e.g. food first, grass first, pharma strengths...
 - e.g. rural development, big business, farmer roles...



Thank you!

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BioÉire

A Bioeconomy for Ireland

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