

Policies and tools for the bio-nutrient circular economy

Changing the directions incited by fiscal policies

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Trinomics

Outline

- * Background to the presentation
- * Key findings from our two studies on fiscal/ financial instruments to stimulate a more circular economy
- * Overview of relevant policy tools
- * Possible implementation for bio-nutrients

Background to the presentation

Trinomics

Our Areas of Expertise



Energy

- Energy Efficiency & Financing
- Energy Markets
- Infrastructure & Systems
- Renewable Energy



Climate Change

- Climate Policy & Strategy
- Climate Finance
- Climate Adaptation
- Carbon Market Mechanisms



Environment

- Resource Efficiency
- Green Economy
- Ecosystem Services
- Sustainable Development

Two recent studies on fiscal/ financial instruments to stimulate a more circular economy (CE)

The Scottish Government (2014)



- The opportunity of the CE and its potential benefits for the Scottish economy
- Mapping of the potential of existing and new fiscal instruments to stimulate a CE
- Focus on Scotland, but review of EU fiscal instruments
- Identifying key characteristics for new fiscal measures

The Dutch Government (2015)



- Which innovations are needed in 3 sectors (plastics, electronics, construction) for a circular economy?
- Which governmental instruments can provide the best incentives for such innovations?
- What are recommendations for an optimal application of these instruments, including the need for new instruments?

Key findings of our two studies

Conditions for a circular economy

Design						
Design for disassembly and reassembly is standard	Toxic materials are not used and recycled material content is high	Biological nutrients have replaced technical nutrients	Product modularisation is widespread to ease replacement	Durability is a core design factor	Waste in the production process is very low and easily recycled	Design information is shared throughout the supply chain

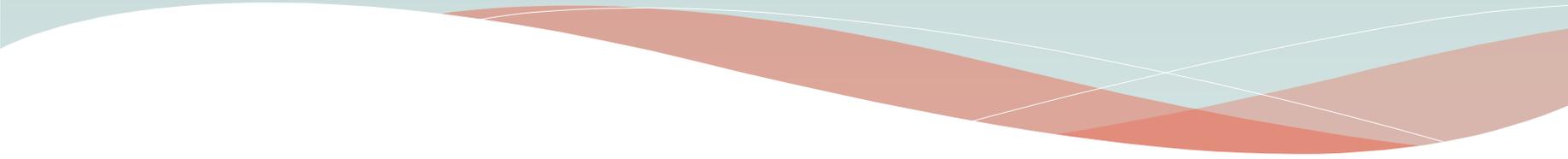
Innovative business models		
Performance based service models are the norm	Ownership of assets is retained by the producer	Warranties are offered on remanufactured/ refurbished items

Reverse logistics		
Logistics infrastructure supports flow of high quality product/material	Professional and specialised operations to process biological nutrients are widespread	Professional and specialised reuse, refurb and reman operations are widespread

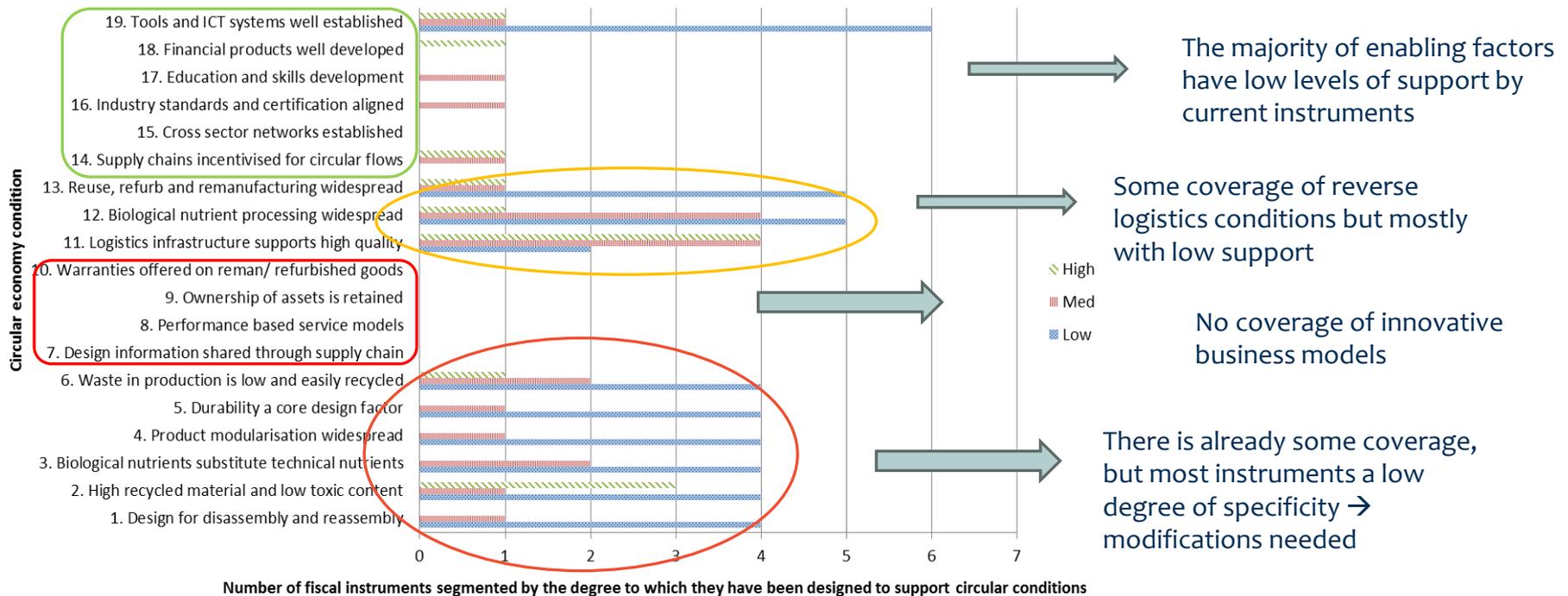
Enabling factors					
Supply chains are incentivised to facilitate circular flows	Cross sector networks are well established for repurposing, etc.	Industry standards and certification are aligned to support a circular economy	Education and skills development supports the circular economy at all levels	Financial products are well developed to support circular approaches	Tools and ICT systems are well established to support circular approaches

Source: Derived from the building blocks outlined in an Ellen MacArthur Foundation report

The Scottish study

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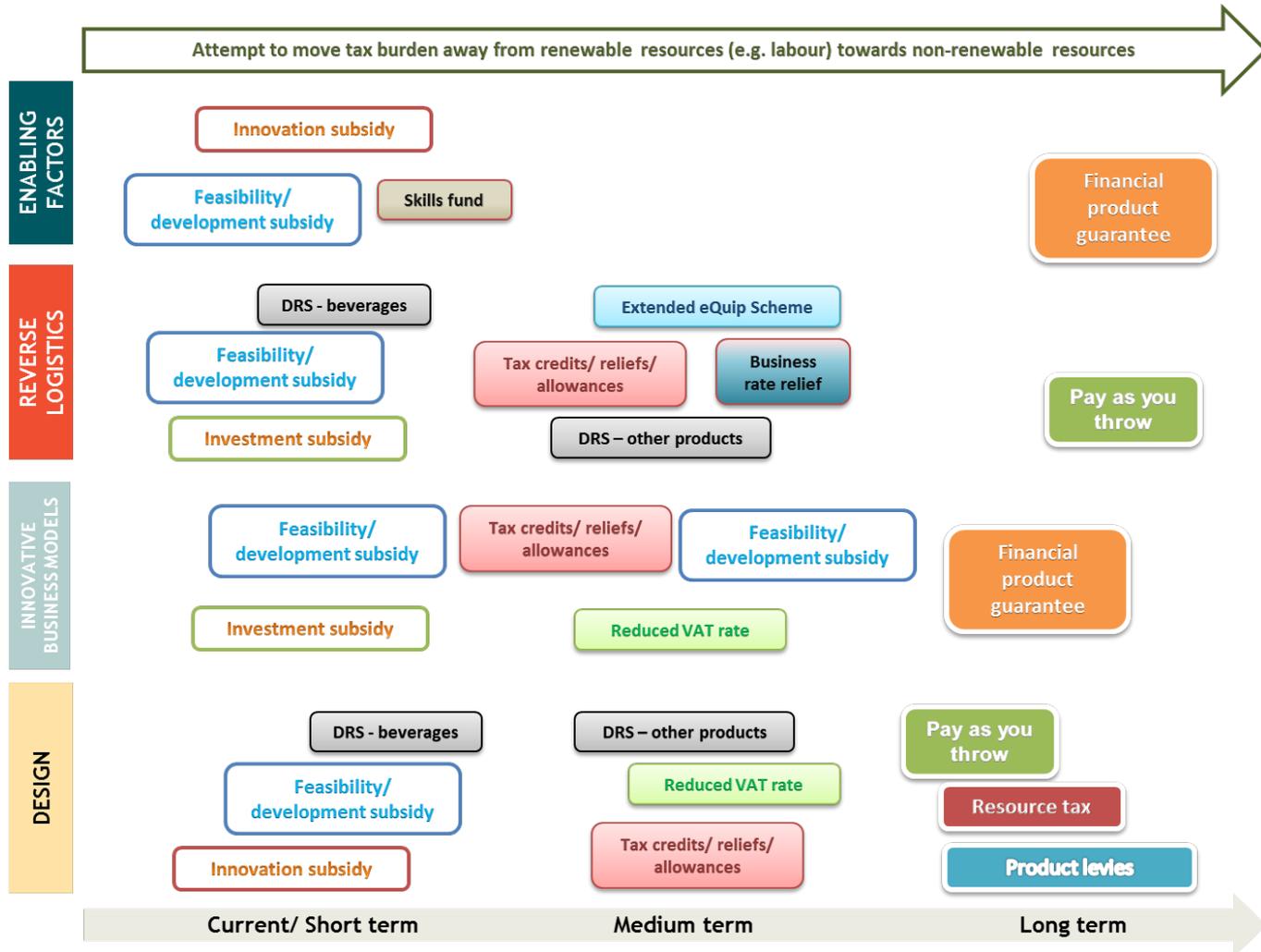
Current fiscal instruments of relevance – coverage (Scottish study)



Key messages

- * Several existing instruments can be adapted
 - * Funds, grants, loans → by extending eligible activities → low difficulty to implement but low impact
 - * Vouchers, feasibility studies → low difficulty but low impact
 - * R&D tax credits, landfill tax, enhanced capital allowances → medium difficulty to implement but medium impact
- * Some new instruments could be implemented
 - * Circular economy funds, a leasing guarantee, reduced VAT, product levies, etc. → medium/ high difficulty but high impact

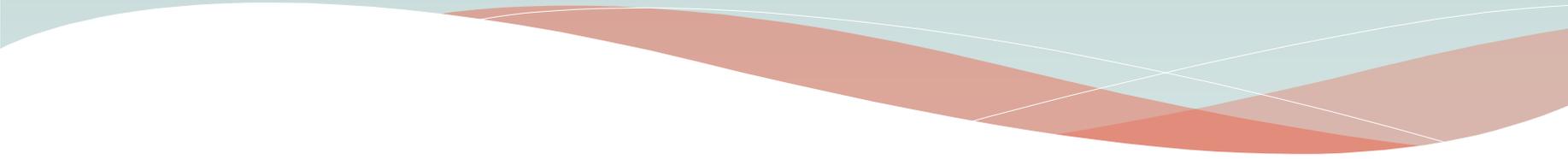
Approximate roadmap



Some implications

- * In the study we did not consider the overall tax burden of these instruments
- * The aim is to shift taxation of labour to taxation of non-renewable material.
- * The study provided an overview of a broad range of fiscal instruments in supporting this shift.

The Dutch study

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Scope of the Dutch study

- * **Technological innovations** relevant for Circular Economy in 3 sectors (**plastics, electronics and construction**), their TRL levels and whether the examined financing/ fiscal instruments could support these innovations (to commercialisation)
- * **14 financial instruments:**
 - * 3 tax instruments of the Ministry of Infrastructure and Environment (IenM) – 2 ‘tax deductions/ relief’ + 1 ‘green soft loan’
 - * 11 financial instruments of the Ministry of Economic Affairs
 - * 2 tax deductions/ relief, 4 state guarantees for loans, 4 credit financing/ investment funds, 1 loan
- * Based on the identified gaps, we proposed **a set of recommendations**

Findings

- * Existing financial instruments in the Netherlands **cover in principle design, logistics, ICT conditions** for a CE with respect to technological innovations, covering all TRL levels
- * The **instruments are rather general and broad** → more targeted communication needed (as they are not used sufficiently enough)
- * **Innovative business models and enabling factors are not adequately covered**

Recommendations

- * Improve the communication towards active actors (in particular SMEs) about the potential to use the existing instruments for CE technological innovations
- * Focus more on supporting innovative business models (e.g. by variable VAT, specific funds, guarantees)
- * Agree on concrete quantitative targets and indicators that would help monitor progress towards a more CE

Overview of relevant policy tools

Relevant tax instruments and charges (1)

- **Landfill/ incineration taxes and fees** - taxes focusing on the end of life stage of a product with the intension of moving the treatment of material up the waste hierarchy.
- **Resource taxes** – taxes focusing on the extraction phase, e.g. on aggregates (sand, gravel and rock) to incentivise the use of recycled material. In some cases the resource tax can be hypothecated to provide funding to support enabling actions (for example the development of quality protocols for recycled material).
- **Water taxes** – a charge per unit of water used (or abstracted from the ground).
- **Product taxes/ fees** – for example, the Plastic bag levy (or Single Use Carrier Bag Charge as it is known in Scotland) – This applies a charge to the use of single use products to incentivise consumers to use more durable versions of the product, such as long-life carrier bags.
- **Packaging taxes** – to encourage product manufacturers to reduce the volume of packaging they use on their products and improve the level of recycling of the remaining packaging.

Relevant tax instruments and charges (2)

• **Deposit-refund schemes for packaging waste** – e.g. for beverage containers.

• **Pay as you throw schemes** – i.e. a collection and disposal charging system based on a charge per unit (weight or volume) of waste.

• **Corporation tax** - For example, the Enhanced Capital Allowance Scheme for energy efficient plant and equipment incentivises the production of products that meet specified standards of energy efficiency performance.

• **Employers National Insurance Contributions** - used in the past to offset the introduction of a product levy (e.g. In the UK when the Aggregates Levy was introduced ENIC rates were reduced to make the measure revenue neutral). This is an example of moving the tax raising base from renewable resources (labour) to non-renewable resources (virgin aggregate).

• **Value Added Tax** has been used in the UK to incentivise demand for energy saving materials and equipment by reducing the VAT rate applicable to a list of pre-defined materials and equipment.

Subsidies and other supporting economic instruments (1)

- **Local Business Rate Relief** – This instrument is delivered through the local business rates system and can be used to incentivise activity supportive of Government policy.
- **Recycling Fund** – A loan fund to support the development of sorting, reuse, repair, refurbishment and remanufacture. Mainly, but not exclusively to support capital expenditure and so typically used in infrastructure development.
- **Loan Fund** – More general loan funding scheme covering capital expenditure, working capital, exporting, etc.
- **Grant funding** to support feasibility and first stage implementation of increasing recycled material use in the production process.
- **Recycling Innovation Fund** – Grant support to encourage the development and use of new recycling equipment.
- **Market Development Capital Grant** – Grant to support capital expenditure for dry recycle recycling.

Subsidies and other supporting economic instruments (2)

- **Market Feasibility Studies** – Grant support for feasibility studies into additional landfill diversion.
- **Resource Efficient SME Loans** – Loan funding to support companies improve their own energy, material and water efficiency performance.
- **Innovation Vouchers** – Small levels (circa £5K) of grant support for general innovation projects.
- **Regional Selective Assistance** – General grant for capital expenditure projects that create and/or safeguard jobs in specific geographical areas.
- **Low Carbon Skills Fund** – Supports training for company employees in various areas including waste management, reuse and renewable energy.

Subsidies and other supporting economic instruments (3)

- **R&D Tax Credits** – A system of credits operating within the Corporation Tax regime. Offers tax credits for eligible R&D expenditure.
- **Feed-in tariffs** – Production incentives to promote renewable electricity generation. Different tariffs provided for different renewable generation types and scale (including anaerobic digestion).
- **Renewable Heat Incentive** – Production incentive to promote renewable heat generation (including from biomass).
- **eEquip Scheme** – WRAP leasing scheme providing financial support for companies investing in new or second hand recycling equipment.
- **Horizon 2020** – EU framework programme for innovation. Current and future thematic calls relevant to a number of circular economy conditions.

Possible implementation for bio-nutrients

Key issues

- * EU heavily depended on the imports of phosphate rock
 - * Significant amounts of bio-nutrients are lost due to human activities → negative environmental impact
 - * Soil and land deterioration → need of an effective nutrient management → bio-waste generated not sufficiently recycled → loss of nutrients + loss of energy that could be extracted as biogas
- Professional and specialised operations needed to process biological nutrients (**one of the conditions of a Circular Economy**)
- Logistics is also important - how to fund/ balance the costs for mineral vs bio-nutrient fertilisers

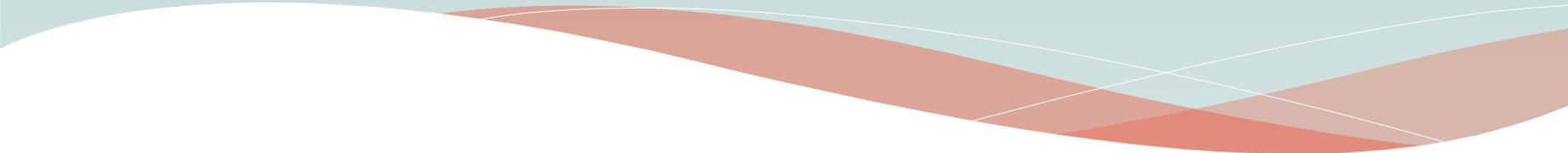
Possible instruments to be applied (open to discussion)

- * Processing requires the development of infrastructure to support biomass reuse, bio-refining, bioenergy and land restoration
- * From a fiscal perspective - needs:
 - * innovation subsidy support and infrastructure financing support → at national level mostly, but possibility for EU level funding (e.g. H2020)
 - * Innovation funds (grants, loans)
 - * Reduced VAT for circular products
 - * Product levy for non-circular products (e.g. a virgin phosphate levy to stimulate demand for fertilizers with recycled biological nutrients)

Possible instruments to be applied (open to discussion)

- * How can we deal with the logistics issue of mineral vs. bio-nutrient fertilisers?

Thank you for your attention!

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More information...

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Summary of potential modified/ new instruments

Potential modified/new instrument	Relative Difficulty Ranking: 1=Low, 2=Med, 3=High						Overall Difficulty Ranking	Potential Relative Impact	Comments
	Political difficulty	Level of collaboration	Set up cost cost	Additional ongoing administration cost	Technical, monitoring and enforcement difficulty	Uncertainty of outcome			
Scottish Recycling Fund	1	1	1	1	1	1	6	Low	Extend eligible activities
RETRieve Scotland	1	1	1	1	1	1	6	Low	Extend eligible activities
Recycling Innovation Fund	1	1	1	1	1	1	6	Low	Extend eligible activities
Market Development Capital Grant	1	1	1	1	1	1	6	Low	Extend eligible activities
Market Feasibility Studies	1	1	1	1	1	1	6	Low	Extend eligible activities
Resource Efficient Scotland SME Loans	1	1	1	1	1	1	6	Low	Extend eligible activities
SMART: SCOTLAND	1	1	1	1	1	1	6	Low	Challenge based support
R&D Grant Scheme	1	1	1	1	1	1	6	Low	Challenge based support
Innovation Vouchers	1	1	1	1	1	1	6	Low	Challenge based support
TSB Small Business Research Initiative	2	2	1	1	1	1	8	Low	Further challenge based support
TSB Feasibility Studies	2	2	1	1	1	1	8	Low	Further challenge based support
TSB Demonstrators	2	2	1	1	1	1	8	Low	Further challenge based support
TSB Catalysts	2	2	1	1	1	1	8	Low	Further challenge based support
TSB Collaborative R&D	2	2	1	1	1	1	8	Low	Further challenge based support
Circular Economy Skills Fund	1	1	2	2	1	2	9	Med	Funding for company based skills
R&D Tax Credits	2	2	1	2	2	1	10	Med	Higher rate for circular R&D
Local Business Rate Relief	2	1	1	2	2	2	10	Med	Relief for targeted company activities
Landfill Tax	2	1	1	2	3	2	11	High	Higher rate for non-circular products
Enhanced Capital Allowances	2	2	1	2	2	2	11	Med	Higher rate for circular products
eEquip	2	2	2	2	2	1	11	Med	Extend eligible equipment type
Pay as You Throw	3	1	3	2	2	2	13	High	Targeted and variable charges
Reduced VAT	3	3	1	2	3	2	14	High	Incentivise circular products
Corporation Tax CE Relief Scheme	3	2	2	2	3	2	14	High	Incentivise circular business models
Product Levy	3	2	3	3	2	2	15	High	Disincentivise non-circular products
Circular Economy Levy Fund	3	2	3	3	2	2	15	High	Support circular economy measures
Insurance backed Warranty Scheme	3	2	3	2	2	3	15	High	Lower risk/cost of warranty provision
Leasing Guarantee Scheme	3	2	3	2	2	3	15	High	Lower risk/cost of leasing
Deposit Refund Scheme	3	2	3	3	2	2	15	High	Targeted refund to incentivise return

Instruments examined

- | | |
|--|---|
| <ol style="list-style-type: none">1. VAMIL2. MIA3. Groen Beleggen4. WBSO5. RDA6. Borgstellingskrediet (BMKB)7. Groeifaciliteit | <ol style="list-style-type: none">8. Garantie Ondernemingsfinanciering (GO)9. Qredits (Micro- en MKB-krediet)10. Innovatiekrediet11. Innovatief borgstellingskrediet (BMKB)12. Innovatiefonds MKB+: Seed Capital-regeling13. Vroegefasefinanciering14. Dutch Venture Initiative (DVI) |
|--|---|

Example

- * Combining product levies with hypothecated levy funds to support a range of actions could be considered. This approach has been proven to be successful in the UK with the link between the Aggregates Levy and Aggregates Levy Sustainability Fund. This approach improves acceptance of the measure and provides a source of revenue for a range of support actions.
- * The Employers National Insurance Scheme (a revenue generating measure linked to labour resources) has already been used as a revenue balancing measure to ease the introduction of a product levy (Aggregates Levy).