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Assembly

## Research and Information Service Briefing Paper

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**Suzie Cave**

# Background for Study Visit: Resource Efficiency

## Introduction

The purpose of this paper is to introduce the concept of ‘resource efficiency’ promoted by ReNEW. From a Northern Ireland perspective, the Department of the Environment has used resource efficiency to develop its waste management strategy for Northern Ireland. The concept, albeit with some differences in specific definitions, is one which has been used by a number of ‘think tanks’ in their analysis of environmental issues and has become central to the development of waste management law and policy at the EU level.

The paper also introduces the related concepts of ‘resource efficiency’ and ‘the circular economy’ and provides an overview of how the promotion and development of resource efficiency and the circular economy is being pioneered through the Resource Innovation Network for European Waste programme (ReNEW).

## Resource Efficiency

Resource efficiency is about tackling overuse of resources and waste during the creation of products and services. The new NI Waste Management Strategy defines resource efficiency as

*using resources in the most efficient way while minimising the impact of their use on the environment*<sup>1</sup>

This is in line with the definition given in the European Commission's Europe 2020 Strategy (the EU's growth strategy for the economy)<sup>2</sup>. It also closely mirrors the description by WRAP<sup>3</sup> that it is a process for "gaining maximum output from minimum input"<sup>4</sup>

## Circular Economy

A mutual concept to that of resource efficiency is the idea of a circular economy. Under the EU's Resource Efficient Flagship Initiative, the Commission produced a Communication '*Towards A Circular Economy*'. According to the Commission, a circular economy means re-using, repairing, refurbishing and recycling existing materials and products so that what used to be classed as waste is turned into a resource. This is in an effort to move the economy away from the current linear system, so that resources are not thrown away once they are used, but put back in the production loop and used for longer.<sup>5</sup>

The communication recognises the importance of both resource efficiency and a circular economy. It plans to introduce resource efficiency targets and indicators (i.e. Europe to improve resource productivity by 30% by 2030), and incentives to business and consumers to facilitate the transition to a circular economy.

For more information on the circular economy see:

- The Green Alliance - a charity and independent think tank focused on giving support to businesses, NGO's and political communities on environmental solutions:  
[http://www.green-alliance.org.uk/page\\_816.php](http://www.green-alliance.org.uk/page_816.php)
- The Ellen McArthur Foundation - works in education, business innovation and analysis to promote the transition to such a circular economy:

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<sup>1</sup>DOE (2013) *NI Waste Strategy 2013*. Available at [http://www.doeni.gov.uk/waste\\_management\\_strategy](http://www.doeni.gov.uk/waste_management_strategy) (p.6)

<sup>2</sup>European Commission, *Europe 2020 targets* [online]. Available at [http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/targets/index\\_en.htm](http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/targets/index_en.htm)

<sup>3</sup>WRAP promotes waste reduction, use of sustainable products and resource efficiency among businesses, local authorities and communities. It is funded by Defra, Scottish Government, the Welsh Government, the Northern Ireland Executive, and the European Union. More information can be accessed here <http://www.wrap.org.uk/>

<sup>4</sup>WRAP Full report (2010) *Securing the Future: The Role of Resource Efficiency* <http://www.wrap.org.uk/content/meeting-uk-climate-change-challenge-0> (p.7)

<sup>5</sup>EC (2014) '*Towards a Circular Economy: A Zero Waste Programme for Europe*'. Available at <http://ec.europa.eu/environment/circular-economy/>

<http://www.ellenmacarthurfoundation.org/circular-economy/circular-economy/the-circular-model-an-overview>

## Importance of resource efficiency

This section considers the importance of resource efficiency in relation to its inclusion in EU legislation/strategies and how this has filtered down to the NI level.

## Legislation

The Waste Management Hierarchy of the Waste Framework Directive (WFD) has emphasised the importance of resource efficiency in relation to 'preparing for re-use', by placing it as the second most important stage of the Waste Management Hierarchy:

**Figure 1: Waste Management Hierarchy of the WFD**



Source: European Commission<sup>6</sup>

## Strategies

### NI Waste Management Strategy

The Waste Management Hierarchy of the WFD has underpinned NI waste strategies both past and present. The old NI strategy focused on waste or resource management, this means using resources in a way that reduces the quantities of waste produced, and where waste is generated, to manage it in a way that minimises its impact.<sup>7</sup>

<sup>6</sup> EC, *Directive 2008/98/EC on waste (Waste Framework Directive)*. Available at <http://ec.europa.eu/environment/waste/framework/>

<sup>7</sup> DOE (2006) *Towards Resource Management: The Northern Ireland Waste Management Strategy 2006 – 2020* <http://www.doeni.gov.uk/niea/waste-home/strategy.htm>

In relation to the hierarchy, the old strategy was largely focused on stages one, three, four and five, with a significant gap in the second most important stage ‘preparing for re-use’.

With this in mind, the strategy was revised in 2013 with a strategic shift in focus away from resource management, to a renewed focus on resource efficiency. The concept of resource efficiency is built around the idea of waste ceasing to be waste if it is prepared in a way that it can be re-used for its original purpose.<sup>8</sup>

This new direction taken in the Strategy may be of major significance for local authorities as it is the overarching framework for the preparation of waste management plans (WMPs) in NI. As a result the three regional waste management groups: ARC21<sup>9</sup>, Northwest Region Waste Management Group (NWRWVG)<sup>10</sup> and the Southern Waste Management Partnerships (SWaMP)<sup>11</sup> have had to revise their WMPs.

## European Commission 2020 Strategy

The EU 2020 Strategy supports the shift towards sustainable growth through promoting a resource efficient, low carbon economy with its Resource Efficient Flagship Initiative.<sup>12</sup> The initiative aims to support the shift to a resource efficient and low carbon economy by creating a framework for policies to boost economic growth while reducing resource use and its impacts on climate change and the environment.<sup>13</sup>

A fundamental part of the flagship initiative is the *Roadmap to a Resource Efficient Europe*, produced by the European Commission in 2011. The Roadmap Communication sets out the framework to achieve a sustainable economy by 2050. It takes into consideration the design and implementation of future actions, outlining the changes required by 2050, with interim milestones by 2020.<sup>14</sup>

## Possible Impacts

Using resources in a “resource efficient” manner may generate fewer greenhouse gases (GHGs) while still obtaining the same level of output. WRAP looked at resource efficiency’s possible contribution to the UK reaching its targets. It demonstrated that implementing 13 specific resource efficiency strategies (See Table 1) could provide 10% of the target reduction in UK domestic GHG emissions by 2020.

<sup>8</sup> DOE (2013) *NI Waste Strategy 2013*. Available at [http://www.doeni.gov.uk/waste\\_management\\_strategy](http://www.doeni.gov.uk/waste_management_strategy)

<sup>9</sup> For more detail see <http://www.arc21.org.uk/opencontent/?itemid=21&section=About+arc21>

<sup>10</sup> For more detail see <http://www.northwestwaste.org.uk/about-us/waste-management-plan/>

<sup>11</sup> For more detail see <http://swamp2008.org.uk/news-events/2014/08/waste-management-plan/>

<sup>12</sup> European Commission, *Europe 2020 targets* [online]. Available at [http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/targets/index\\_en.htm](http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/targets/index_en.htm)

<sup>13</sup> European Commission, *A resource-efficient Europe – Flagship initiative of the Europe 2020 Strategy* [online] [http://ec.europa.eu/resource-efficient-europe/index\\_en.htm](http://ec.europa.eu/resource-efficient-europe/index_en.htm) p.3

<sup>14</sup> EUR –Lex, Communication from European Commission on a Roadmap to a Resource Efficient Europe [online]. Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52011DC0571>

However, the impacts were not considered to be confined to addressing climate change alone. A more recent report by WRAP, in 2010, demonstrated that the 13 resource efficiency strategies could also reduce the UK's water use, reliance on specific materials and ecological footprint.<sup>15</sup>

**Table 1: Summary of 13 resource efficiency strategies**

<b>Production strategies</b>	<b>Consumption strategies</b>
<ul style="list-style-type: none"> <li>■ Lean production (e.g. light weighting)</li> <li>■ Material substitution</li> <li>■ Waste reduction</li> <li>■ Waste recycling</li> <li>■ Dematerialisation of the service sector (e.g. implementing resource efficiency measures)</li> <li>■ Sustainable building (e.g. new build)</li> <li>■ Efficient use of existing infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>■ Lifetime optimisation (e.g. using goods for their technical lifetime)</li> <li>■ Goods to services (e.g. renting instead of buying some products)</li> <li>■ Reducing food waste</li> <li>■ Dietary changes</li> <li>■ Restorative economy (e.g. reuse and refurbishment)</li> <li>■ Public sector procurement</li> </ul>

Source: WRAP (2010)<sup>16</sup>

According to the United Nations Environment Programme (UNEP), there are a number of international scientific assessments that demonstrate the importance of resource efficiency with regards to achieving a sustainable planet and economy.<sup>17</sup>

Assessments such as the Millennium Ecosystem Assessment<sup>18</sup>, the Global Environmental Outlook<sup>19</sup> and the 4<sup>th</sup> Assessment Report of the Intergovernmental Panel on Climate Change<sup>20</sup>, contribute to the public's understanding of the way ecosystems and the atmosphere are responding to patterns of unprecedented consumption and production. They highlight the importance of the need for innovation in more resource efficient production and consumption in order to secure sustainable economic growth.

<sup>15</sup> Ibid (p.7)

<sup>16</sup> Ibid (p.20/21)

<sup>17</sup> UNEP, Resource Efficiency Programme [online]. Available at <http://www.unep.org/resourceefficiency/Home/UNEPsResourceEfficiencyProgramme/tabid/55552/Default.aspx>

<sup>18</sup> UNEP, Millennium Ecosystem Assessment [online]. Available at <http://www.unep.org/maweb/en/about.aspx>

<sup>19</sup> UNEP, Global Environmental Outlook [online]. Available at <http://www.unep.org/geo/geo5.asp>

<sup>20</sup> IPCC, 4<sup>th</sup> Assessment Report of the Intergovernmental Panel on Climate Change Summary report. Available at [http://www.ipcc.ch/publications\\_and\\_data/ar4/syr/en/contents.html](http://www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html)