# Public Consultation Response on the Waste Action Plan for a Circular Economy

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Jacobs

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Rialtas na hÉireann
Government of Ireland

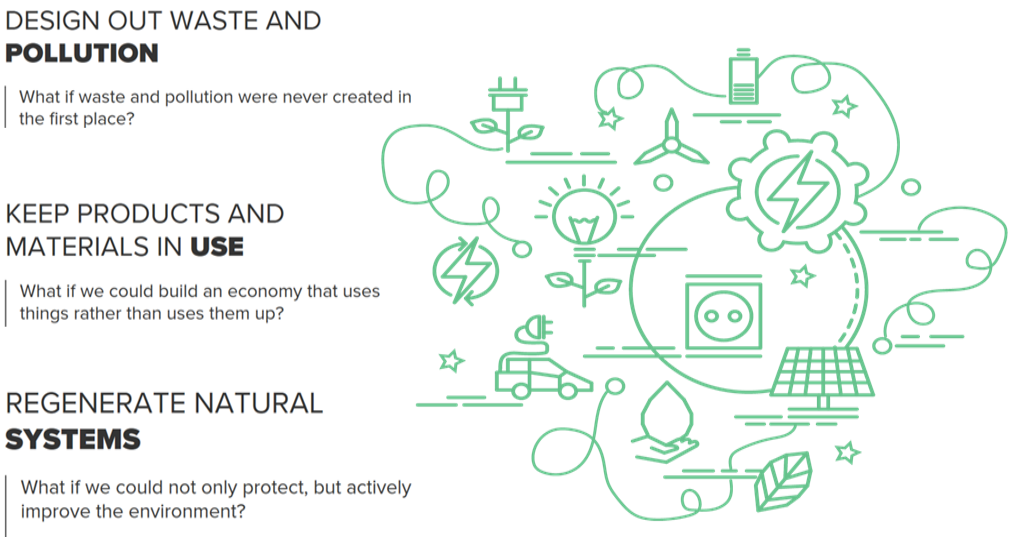
Contents

# 1. Introduction

Jacobs welcomes the opportunity to respond to *The Department of Communications, Climate Action and Environment* Public Consultation on the development of a new *Waste Action Plan for Ireland as part of the transition to a Circular Economy*.

Through our work delivering many of Irelands' key infrastructure and advanced facilities projects, coupled with our knowledge of other circular economy and waste policies being executed globally, we hope our recommendations aid the evolution of new policies and strategies to ensure that optimum measures are being taken not just at a strategic level but at an organisational level as well.

Jacobs vision for a circular economy aligns with international best practice, demonstrating that circular economy reveals and designs out the negative impacts of economic activity - those that damage human health and pollute; including the release of GHGs, hazardous substances, waste to land, air and water. We advocate that the circular economy favours activity that preserves value in the form of energy, labour and resources, which means designing for durability, reuse, remanufacturing and recycling and avoids the consumption of finite resource and favours use of renewables.



We are pleased to see an ambitious plan developing and recognising our Plan Beyond[1] goal for partnering across our value chain for growth and impact, we are delighted to offer comments and observations that may be of interest and value to the Department in shaping its future Waste and Circular Economy strategies. We have focused our response on the *circular economy*, *construction and demolition*, *waste data and waste flows*, *research and innovation* and the *bioeconomy*.

To accompany our response to the specific questions raised, we have summarised a series of key points we would suggest are considered in the development of the framework for circular economy in Ireland and also in response to the European circular economy legislative context to complement the plans for waste action. We recognise that some of the recommendations will require investment of resources to deliver however we believe that these are feasible based on international approaches and could benefit Ireland in the long term.

**Key Points**:

1. Consider widening circular economy action to include energy and water use and restoration of ecosystems or linking the waste plans to wider circular initiatives. A set of overarching principles, for example, for a circular economy is one where we regenerate natural systems, keep materials and products in use and design out waste and pollution. Other regions and jurisdictions, for example; Scotland, Denmark, Barcelona and New York City have considered this approach with benefits to the wider economy and developed these principles through transition reporting (opportunities, key strengths, gaps and public feedback), strategy development and implementation (partnering, capacity building, awareness raising, planning, asset management, public procurement, fiscal measures) programmes. Individual authorities have published outcomes of measures that have been adopted[2] ;

[1] https://www.jacobs.com/about/sustainability

[2] https://dakofa.com/element/denmark-and-the-circular-economy/ Denmark example of the benefits estimated from adoption of a circular economy toolkit;

2. Understanding what is involved in transitioning to a circular economy will benefit from a detailed transition study in its own right, i.e. a systematic assessment of material and waste flows as well as areas of economic activity to identify potential targets for the circular economy along with assessment of the barriers and enablers in the existing economy to realise the benefits – examples from Amsterdam[3] and Glasgow[4] point to the benefit of this approach;

3. Encompassing both points 1 and 2 above may point towards development of a standalone strategy for a circular economy – nesting circular economy initiatives under waste and climate change policy may dilute wider appreciation and uptake of the circular economy. A standalone strategy can also provide a reference point from which to communicate and engage on a roadmap to circular economy delivery;

4. Consider whether the circular economy Working Group or establishing a specific agency to drive the circular economy across key sectors of the Irish economy, bringing together stakeholders, business and the public will offer best route to drive impact. A specific agency working with municipal councils potentially supported with a legislative mandate can provide an excellent placemaking context for a of the circular economy across multiple target sectors and examples from Scotland[5], Catalunya[6] or Amsterdam Municipal Authority can provide illustration of this in practice;

[3] https://www.amsterdam.nl/en/policy/sustainability/circular-economy/
[4] https://circularglasgow.com/reports-and-publications/
[5] https://www.zerowastescotland.org.uk/our-work/circular-economy
[6] http://mediambient.gencat.cat/ca/05_ambits_dactuacio/empresa_i_produccio_sostenible/economia_verda/catalunya_circular/lobservatori/

5. Waste reduction measures are welcome. However, expanding the focus to consider reducing the hazard properties of materials is desirable. This will help address the central principle to design out pollution and make the reuse, recycling and recovery of materials more practicable. There are great examples such as Park 2020 [7]in the Netherlands that the Department could consider;

6. Data proposals set some valuable aims for waste flows and destinations particularly from construction and demolition wastes. Data on material consumption and waste flows are at the heart of the circular economy. Consider expanding data capture to collect information on materials and consumption as well as waste flows that can build a more powerful dataset for planning interventions that benefit the Irish Economy, reduce emissions and other harmful side effects of waste. A sectoral or placemaking approach can provide a suitable trial for a comprehensive data mapping exercise;

7. Linked to data, consider whether a systematic approach to consider and examine routes to accelerate end of waste status working with business and the environmental regulator will enable faster more efficient decision making on returning wastes into useful applications. One example for construction materials could be to consider programmes that enable reuse of appropriate excavated materials such as CL: AIRE[8] Definition of Waste: Development Industry Code of Practice or aggregate quality protocols particularly in the construction and bio-economy sectors;

[7] https://www.c2ccertified.org/news/article/park-2020-showcases-cradle-to-cradle-products-principles-in-action
[8] https://www.claire.co.uk/home

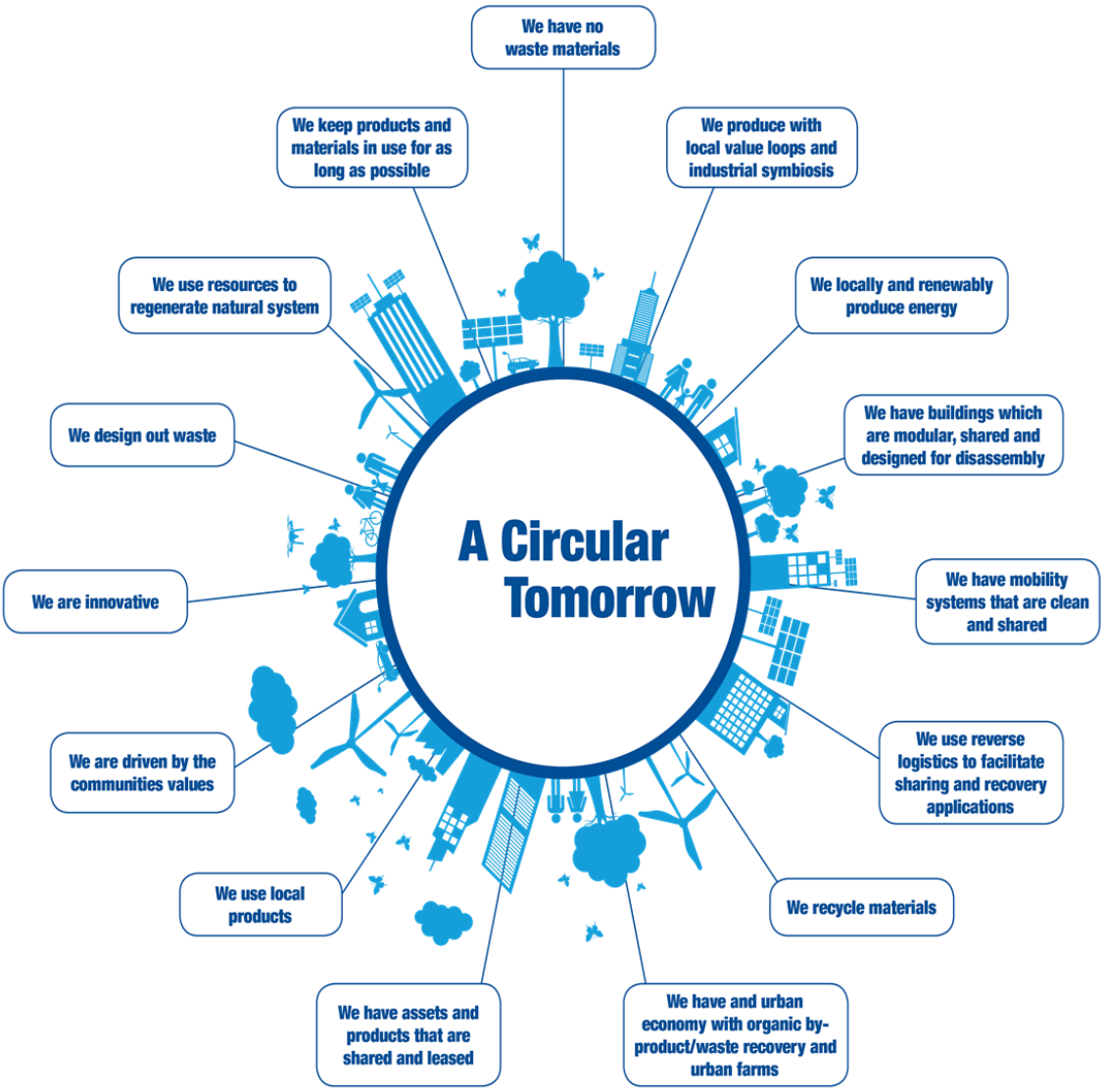
8. Focusing on one priority area for the Irish Economy, an accelerator scheme for the construction and demolition sector drawing on best practice to provide a repository of information and a hub for facilitating the sharing of materials across the Irish Economy. An accelerator scheme could include end of waste application for construction materials as suggested under point 7. There are numerous international examples that could help develop this concept for Ireland[9];

9. Legislating for circular economy requirements/performance/metrics within public procurement policy to enable the public sector, as a major investor and consumer in the Irish economy, to drive best practice and behaviours. The Circular Economy Bill in Scotland[10] would act as an illustration of approach to specifically legislate elsewhere; and

10. Finally, engagement with communities and stakeholders in delivery of a circular economy is essential. Building on the existing excellent proposals for awareness and engagement in the consultation document; a communication strategy for inspiring people, communities, businesses and industry by providing compelling case studies illustrating real benefits not only from waste reduction but also increased value to the economy and employment opportunities.

[9] For example https://cordis.europa.eu/project/id/821201
[10] https://www.gov.scot/news/circular-economy-bill/

The illustration below has been used by Jacobs in circular economy visioning and roadmap sessions with organisational clients to capture ambitions and initiatives. This approach or similar could help the Department to frame future conversations on the circular economy and can be utilised in transition studies, setting policy objectives and in setting specific initiatives in target sectors.



# 2. Selected Consultation Responses

## 2.1 Consultation Question – Circular Economy Jacobs' Response

### *2.1.1 What are the areas with greatest potential for transformation in Ireland under the Circular Economy?*

The Consultation document has identified four target sectors:

- Industry and enterprise;
- Research and innovation;
- Public sector bodies; and
- Representative bodies and networks.

Priority areas for engagement with these sectors are:

- Food Waste;
- Construction and Demolition;
- Plastics;
- Agriculture;
- Resources and Raw Materials; and
- Local Waste Prevention.

The consultation sets out a comprehensive range of target sectors and priority areas for engagement. Based on international experience with circular economy programmes, Ireland will benefit from including the public as a target sector and expanding the priority areas to include energy and energy infrastructure. We suggest that a transition study for adopting the circular economy be developed to include a review of international circular economy experience to aid identifying easy wins; that can successfully be implemented within Ireland and used to showcase circular economy principles across Ireland. A review may also identify areas that are difficult and those areas where it is a work in progress (for example, food waste). This will help identify lessons learnt, good practise and will aid delivery of a circular economy.

Due to the cross overs between different sectors with circular economy (e.g. one sectors wastes may be another industry's resource), an ambitious approach is to implement circular economy on a geographical basis. The circular economy lens can support infrastructure, where cities/regions can consider use of material, keeping them in value for longer, minimising pollution externalities to developing and restoring natural systems which will support wider sustainability and net zero aspirations for cities and regions. A comprehensive transition study has benefited other locations and municipalities, for example Amsterdam or Glasgow to identify evidence to support a cross sectoral approach to adopting the circular economy. These approaches have also been valuable in identifying measures that are needed to inform governance and management of future plans.

### *2.1.2 What measures are required to increase understanding of Circular Economy principles and their uptake by relevant actors?*

Stakeholder engagement is fundamental to developing understanding circular economy principles. A wide-ranging engagement strategy including the public, to raise awareness and disseminate best practice in circular economy that also targets business and industry, specific target sectors and decision makers should be considered to deliver the Waste Action Plan.

From international experience, a systematic approach to the development of an engagement strategy is advisable. It will also require best practice from other parts of a circular economy strategy for Ireland in order to provide compelling stories to further inspire people, organisations and businesses to engage to take action.

### *2.1.3 What might be a meaningful national waste reduction target and how could it be achieved?*

Measuring a total national waste reduction is a valuable headline figure. Further benefit could be realised by setting waste reduction targets in each of the priority sectors. This will allow targets to be tailored to the specific requirements of sectors which should facilitate better engagement if targets are realistic.

In the context of adopting circular economy principles for Ireland, waste reduction targets could be expanded to provide more holistic consideration of the circular economy. Broadly considering the pillars of a circular economy as described in international literature as regenerating natural systems, keeping products and materials in use and designing out waste and pollution, Ireland may benefit from moving from a waste reduction target to a broader resource reduction target(s). This would enable Ireland to consider wider aspects of the circular economy including:

- Reduction of hazardous materials or hazardous waste arisings in different sectors;
- Reduction in energy consumption in different sectors; and
- Reduction in input resources and materials including waste and waste water usage.

### *2.1.4 Have you any other comments or suggestions on how you would like to see Ireland transition to a more resource efficient and circular economy by improving our waste management practices?*

Similar to the previous question, waste management is a fundamental component of circular economy principles, however taking a wider interpretation of the circular economy will enable Ireland to target resource efficiency with the commensurate benefits that could arise in energy efficiency, carbon reduction and climate action for Ireland. Examples that Ireland may consider that have been implemented in other jurisdictions include;

- Moving away / reduction from hazardous materials in products;
- Changing to long lasting energy efficient equipment (for example light bulbs); and
- Reuse of suitable construction and demolition waste for example in roads and flood defence facilities.

## 2.2 Consultation Question – Construction & Demolition Waste Jacobs' Response

### *2.2.1 What other measures need to be put in place to encourage all players to prevent and recycle waste from construction?*

From an inspection of waste statistics[11] we know Construction & Demolition wastes represent the largest single waste stream by weight generated within Ireland. As such, measures focusing on waste minimisation should be a key focus and where the largest gains may be able to be made. We recognise that consideration for these measures would likely need to link into other industry aspects for example fiscal incentives or procurement requirements however this should be feasible.

There are many approaches focused on construction to minimise the potential for generation of waste in the first instance, which can also align with circular economy principles and approaches;

- Design for flexibility - Designing buildings to be adapted for different uses in the future. Helps to maximise assets' utility;
- Modular design - Designing building and structures in modules to allow component modules to be added, removed or replaced as required;

[11] https://www.epa.ie/nationalwastestatistics/constructiondemolition

- Off-site prefabricated construction - The practice of assembling components of a structure in a factory or other manufacturing site and transporting complete assemblies or sub-assemblies to the construction site where the structure is to be located;

- Lightweight construction - The use of less construction materials to conserve natural resources. Less material means less embodied energy in the building; and

- Modular construction - The use of factory-produced pre-engineered building units that are delivered to site and assembled as large volumetric components or as substantial elements of a building.

Ireland may benefit from a focused programme of resource efficiency for the construction sector that has been implemented in UK devolved administrations or creating an innovation centre for construction excellence that can provide facilities for implementing the above referenced measures and for providing consultancy services to businesses in Ireland. Such initiatives have demonstrated both financial and carbon savings in other countries and could also align with wider circular economy intervention in other priority areas identified in this consultation.

When infrastructure organisations, construction and demolition companies are questioned about waste generation within the industry, or surveys conducted of wastes being generated it becomes apparent that there was a significant amount of 'waste' material being generated, which could be used by other users. However, there is lack of connection between the generators and these potential users. The use of circular economy Principles and practices can enable resource users to co-create to reduce waste generation and develop optimal solutions. For example, Amsterdam municipal authority has successfully linked demolition of one building with construction of another within the city centre by bringing contractors together reducing demand for raw materials, vehicle movements, reducing carbon emissions and creating local economic opportunities.

A further example of bridging this gap was achieved at Houston, Texas by establishing a 'Reuse Warehouse'. The Reuse Warehouse, initiated by the Mayor's Environmental Programming team and included key stakeholders from the City's Solid Waste; Public Works and Planning Departments accept materials from individuals, supply companies and builders, the free take-away is limited to non-profit organizations, schools, universities, or government agencies. The program is reported to have diverted 4,500 tonnes of material from landfills. The Reuse Warehouse has provided 90% of diverted construction materials to over 700 non-profit organizations, schools, universities, and government agencies.

### *2.2.2 What existing measures are in place that could be improved?*

The Environmental Protection Agency has issued its first licence to process large volumes of Irish construction and demolition waste[12]. In addition to licencing, gains may be achievable using mechanisms similar to the UK's Definition of Waste: Code of Practice (DoWCoP) which could provide basis for the EPA to extend schemes whereby materials are re-used without becoming a waste.

The DoWCoP enables:

- the direct transfer and reuse of clean naturally occurring soil materials between sites;
- the conditions to support the establishment/operation of fixed soil treatment facilities; and
- the reuse of both contaminated/uncontaminated materials on their site of origin and between sites within defined Cluster projects.

[12] . (https://www.irishtimes.com/news/environment/first-licence-issued-for-facilitating-reuse-of-construction-waste-1.4128946)

The DoWCoP is administered through CL: AIRE[13] who also provide a Register of Materials and services which might fall within the DoWCoP. Another approach that has proven beneficial in other authorities is the development of a quality protocol for recycled aggregates.

Critically, a cross agency approach between resource efficiency programmes and regulators has enabled standardised procedures to be developed which can produce recycled aggregate materials that meet required engineering specifications whilst also demonstrating protection of the environment to relevant standard is maintained.

### *2.2.3 What incentives could be introduced to increase the use of recycled materials?*

Long-term incentives may not be required where profitable enterprises can be set-up with funding support at the initial start-up phases, trialled initially on pilot scale projects. For example, in Austria, the City of Vienna have provided support to a demolition consortium. This consortium has developed a range of services for the dismantling of large-scale buildings, defining standard methods for demolition, based on new standards introduced by Austria promoting greater (material re-use/recycling as illustrated below).

The consortium works with property developers, planning the demolition phases removing selected materials and products to make them available for new buildings or users. As an additional benefit, the consortium employs disadvantaged workers from social enterprises, providing employment and upskilling.

The scheme has reported success on a number of pilot scale projects for example; on a former bottling plant resulting in a new revenue of €100,000 and prevented 450,000 kg of waste (nearly 1% of the total demolition mass); a former data centre resulting in a turnover of €50,000, and recycling of 74,000 kg of material.

[13] https://www.claire.co.uk

Overall, the project team estimated up to 10% of the demolition mass could be diverted from waste by reuse, and 9,000 jobs created in Austria.

Where an appropriate nexus of development is identified in Ireland, e.g. in relation to delivery of Project Ireland 2040 objectives, a similar incentive approach could provide an effective framework to develop use of recycled materials across a district or infrastructure development nexus.

### *2.2.4 Should levies be applied to the use of virgin material where a recycled material is available as an alternative?*

By way of example, the United Kingdom has recently commissioned a review of the impact of the UK aggregate levy. The review has been commissioned to assess its suitability as an environmental tax on commercially exploited virgin aggregate (i.e. rock, sand and gravel), consider the number of exemptions which have become associated with the levy over time and to consider whether the mechanism can be simplified, and to consider whether the mechanism is suitable for devolution.

With a backdrop of the aggregates levy within the UK recycled and secondary materials are estimated to represent nearly 30% of the aggregates market (whereas Europe is approximately 10%). However, there are other influencing factors within the UK for example the Landfill Tax.

Based on a broad assumption that the Irish context, with respect to materials availability, recycling capacity, and markets could be similar to that within UK, then it would appear that there should be value in the adoption of a levy. The levy could also provide significant revenue which could be diverted into circular economy, waste management or environmental initiatives. The levy in the UK is cited as historically having brought in between £240 and £410 million of annual revenue.

Should the timescales allow any relevant conclusions from the review of the levy within UK should be drawn into the Government's consultation and assessment of whether a levy is appropriate.

### *2.2.5 What are the best approaches to raising awareness and education?*

Circular economy programmes will require a diverse range of methods for raising awareness, providing effective training and building capacity. The packages will need to support a number of activities from awareness raising, to skills development, to embedding advanced circular economy practices within businesses and will need to be tailored for specific audiences such as government departments, utilities companies, large construction firms and SME's.

A key for engagement and delivering information and training is understanding the need of the audience and using this to determine the objectives of the training. In the context of the Irish Government this should also build on training and principles previously relayed to ensure that what comes next is fresh and useful in terms of re-engaging the construction sector and building demand for the programme support mechanisms. Circular Economy and waste programmes should also carefully consider the way in which information is packaged for specific audiences and disseminated in the most appropriate way including choice of digital media.

One approach that has worked in other jurisdictions is the development of an education programme that links to the development of a major construction programme, for example the Forth Queensferry Crossing in Scotland[14].

Any scheme will require careful development; working with Skills and Education Agencies, however it can create a legacy of skills and education that goes beyond the timescales of the construction programme.

[14] https://www.jacobs.com/projects/queensferry-crossing
https://www.gov.scot/news/a9-pupils-on-road-to-success/

## 2.3 Consultation Question - Waste Data & Waste Flows Jacobs' Response

### *2.3.1 Do you believe it would be beneficial to have all/most waste data available on at least a quarterly basis?*

It would be beneficial but may be cost prohibitive. It would need support and resource from all stakeholders, including the private sector if including commercial and industrial and construction and demolition wastes, and potentially be beyond the budget/resource of some. For data to be accurate, and useable, it requires adequate investment at all levels.

Having confidence in the quality/ reliability of the data is more important than having the most up to date information that has not been validated properly and can't be trusted. Decision makers need to be confident that the statistics they are basing their decision on is of high quality and can be trusted.

### *2.3.2 What resources are needed to validate this data more quickly and what are the barriers?*

For over 10 years Jacobs has managed the collection of data through an existing online survey system known as WasteDataFlow (WDF)[15] on behalf of the UK Department for Environment Fisheries and Rural Affairs. The purpose of WDF is to provide good quality timely data on the collection and treatment of Local Authority waste, and supply data to the Waste Framework Directive reporting targets on

[15] https://www.wastedataflow.org/

household recycling and supplies data towards the Waste Statistics Regulation (2002/2150/EC).

The collation and validation of the data collected from Local Authorities requires significant resource on a quarterly, and annual basis. There is also on-going support required for Local Authorities, training and maintenance of the site and reporting tools.

One of the major barriers for the project has been the uptake, timeliness and consistency of reporting from the local authorities. As part of the programme WasteDataFlow User Group for local authorities in England has been established. The overall aim of this group is to make WasteDataFlow a successful data capture system with a high level of timely good quality data returns. The Group is responsible for:

- Identifying barriers to the effective use of the WDF system by local authorities;
- Proposing practical solutions to these barriers;
- Identifying and sharing good practices in waste data management; and
- Facilitating communication within the WasteDataFlow community.

The User Group meets twice a year, and these meeting are chaired by Defra and hosted by Jacobs. The systems for data management will evolve, digital technologies and internet of things tagging could be considered to provide mechanisms to capture and validate data more quickly. Such an approach however will require significant investment in time and resources to develop and test an operating system. We would expect that the Irish Government are fully engaged with data counterparts in other European Countries and recommend that consultation with these agencies would provide value in defining efficient balance of waste data gathering and validation for Ireland.

### *2.3.3 How would you balance the need for validated reporting data for EU reporting against the desire for more up to date statistics?*

Whilst WDF collects data quarterly, our experience in other waste related projects we would typically use annual data for firm interpretation for example projects looking at the availability of waste infrastructure, benchmarking of performance or defining business cases. WDF enables Local Authorities to benchmark their recycling and waste management performances with similar and neighbouring authorities along with them being able to monitor their own performances and this is typically done on an annual basis.

Having said this, there can be a lot of seasonal variation in waste arisings so for some projects it may be beneficial to maintain that level of data granularity through quarterly reporting, for example projects investing in biological waste treatment infrastructure, looking at collection contracts or sizing house hold waste recycling centres.

Consideration of different sectors and the variability of data over seasonal or financial cycles could be used to justify additional frequency of data capture but with annual reporting retained for addressing EU data reporting requirements.

### *2.3.4 Are there confidentiality or other issues for industry in reporting on waste flows?*

Some commercial and private sector ventures may seek confidentiality for commercial reasons. However, if the Irish Government were to anonymise data for benchmarking purposes this could be a valuable tool that will incentivise businesses to share actual waste data in exchange for access to benchmarking in the first place.

### *2.3.5 What changes need to be put in place to facilitate better reporting?*

Some suggestions include standardisation of terms and categories for waste reporting. Training of local authorities, waste management companies and other stakeholder's and users of any reporting systems to provide increased understanding of those terms and what they encompass.

Better use of basic reporting and computing tools within Local Authorities may also prove useful. This could be through the development of robust system architecture, standard data capture forms using mobile enabled data inputting to ease data input for users. Any such consideration should be planned carefully and involve suitably experience waste and data management specialists to develop approach.

### *2.3.6 What uses can be made of having more detailed, accurate, timely data?*

More timely and accurate data can strengthen the statistical evidence for developing and monitoring government waste policies and programmes. This results in more robust decision making for waste strategies, and the development of sound business cases.

The data can also be used by industry and the private sector for advanced investment decisions and strategy, particularly for government related bids to enable trading of resources between developments. Providing greater certainty of data (and strategy based on that data) results in improved bankability for large scale waste related projects, and therefore influence project costs during procurement.

## 2.4 Consultation Question - Research & Innovation Jacobs' Response

### *2.4.1 What are the research areas you would consider to be important in developing a circular economy?*

Development of circular economy roadmaps for the construction and manufacturing sectors covering materials, energy, water, ecosystems and resilience. The Espon programme[16] provides guidance on how to assess the circular economy opportunities and develop such guidance.

Development of / best practice in industrial symbiosis tools and construction and demolition materials market tools such as that developed for the construction material exchange for Resource Efficient Scotland – see https://cme.resourceefficientscotland.com/

Research into leasing arrangements for consumables such as white goods and electronic equipment to drive 'reparability' and 'upgradeability' in product design.

### 2.4.2 What new research programmes/initiatives do you think could be put in place?

The education and engagement of the public sector in waste / resource management / circular economy procurement to drive the market and present viable opportunities CE initiatives. The public sector is a major consumer and is therefore in a strong

[16] (https://www.espon.eu/circular-economy)

position to drive innovation in this sector. Programs such as the EU funded PPI4Waste programme[17] are useful references.

Development of publicly and commercially available tools for the recording, management and marketing of manufacturing, construction and demolition waste as Secondary Raw Materials (SRMs). Studies such and the EU funded http://www.smart-ground.eu/index.php provide useful background to setting up such initiatives.

Development of guidance for circular economy building design such as the Reversible Building Design Protocol[18].

### 2.4.3 What do you see as the main barriers/enablers to fostering a positive research culture around the circular economy?

Key barriers to foster a positive research culture would include:

- A lack of simple collaboration mechanisms for the research community to work directly with business on real world challenges/situations; and
- A lack of awareness of the cross-disciplinary metrics that need to be considered in assessing the performance of a circular economy application. For example, testing of a new building component manufactured from recovered materials needs to consider the economic impact, job creation, skills needs and management change impacts that will result from development of the component alongside its technical suitability.

[17] (https://www.ppi4waste.eu/)
[18] (https://www.bamb2020.eu/wp-content/uploads/2018/12/Reversible-Building-Design-guidelines-and-protocol.pdf)

Key enablers to consider:

awareness raising of the benefits of circular economy and the role of research and innovation for the research and business community. Particular emphasis on engagement of senior leadership in this regard;

- Clear signposting of circular economy and more generic research funding opportunities to make targeted professionals of the routes available to fund work; and

- Assistance to bring parties together and help facilitate efficient preparation of applications for funding and collaboration, for example through creation of a knowledge partnership support service or similar.

**2.4.4 Have you any other comments or suggestions on how you would like to see Ireland transition to a more resource efficient and circular economy by improving our waste management practices?**

We have outlined a number of suggestions through our question responses however in response directly to this question:

- Shift the emphasis from 'waste management' to 'resources management' which covers measurement, recording and management of the raw materials, energy use, water consumption, and impacts on ecosystems through the full lifecycle of the product / development. This should be through all project stages from design and manufacture / construction through to maintenance for continued use, reuse, recycling and recovery for future products / developments; and

- Consideration of expanding public procurement requirements to incorporate requirement for circular economy and resource efficient products and services. This in turn can drive behaviours towards more sustainable waste management practices. For example, public requirement for refit of office furniture to incorporate a high recycled content or a minimum level of refurbished desks or chairs will drive industry towards greater recovery of materials.

## 2.5 Consultation Question - Bioeconomy - Jacobs' Response

### 2.5.1 What kinds of activities to increase the financial support for bioeconomy development in Ireland?

Investigate European Union funding pathways for pilot programmes and demonstrator projects. EU funding sources such as the European Bank for Reconstruction and Development (EBRD), the European Structural and Investment Fund (ESIF), the research and innovation programme Horizon 2020 (H2020), the European Fund for Strategic Investments (EFSI), and the European Investment Bank's (EIB's) EU Finance for Innovators programme (InnovFin). The report 'Access to EU Financial Instruments suitable for the implementation of large Bio-based Industry investments' at https://biconsortium.eu/sites/biconsortium.eu/files/downloads/BIC_Financial_Instruments_web.pdf. Although slightly out of date (2017) this is a good reference for sources of European financial support during the development stages of the bioeconomy in Ireland. Commercial (bank) funding will become more available as programmes and infrastructure become more 'proven' through pilot and demonstrator projects.

# 3. Conclusions

Our emphasis on a wider circular economy context are prompted by the demands being placed on natural factors and resources to meet the needs of society now and in the future. When Jacobs undertook an outreach exercise, as part of developing our *PlanBeyond Strategy*, circular economy was referenced by an array of clients and partners, as a key sustainability issue they have to address and adopt into their operations. We are in a unique position to combine our domain experience, delivery experience and digital expertise to facilitate the transition to a circular economy.

Accordingly, we have drawn out issues of cooperation and implementation that we consider are important to enable resource and waste management to fully integrate in a circular economy which can be summarised as:

- New forms of collaboration;
- Systemic approaches;
- Multi stakeholder cooperation;
- Agile Government and policy;
- Use of new technologies; and
- Enhanced accountability and transparency of reporting.

In this context we hope our comments are constructive, of use and we would welcome the opportunity to discuss any points raised further.

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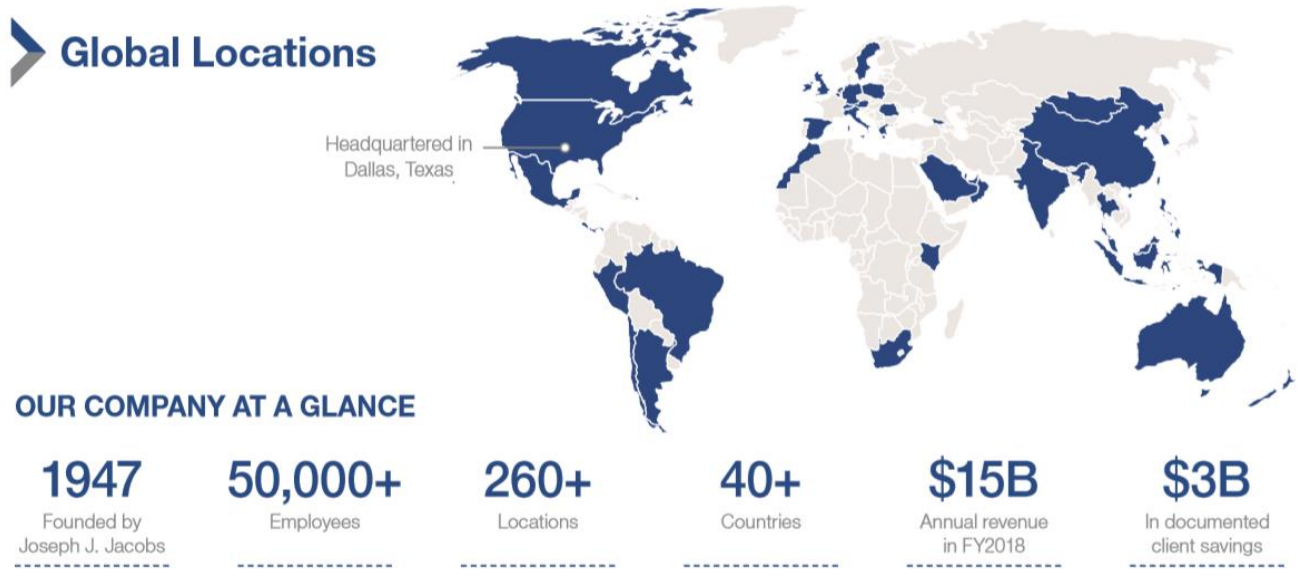
Jacobs

## 4. About us

Jacobs provides technical, professional and construction services, as well as scientific and specialty consulting for a broad range of clients in Ireland and globally; including companies, organizations, and government agencies.

We help clients operate more efficiently, achieve cost savings, better manage risk, improve quality of life, and improve their social, economic, and environmental position. With our experience in sustainability strategy creation and delivery, Jacobs leverages our engineering and professional services to assist in setting tangible priorities, goals, and milestones while measuring and reporting results. We integrate sustainability from strategy and vision, to planning, design, implementation, and operations, and to sustaining the project or programme over time; delivering whole of life benefits. Our work across the value chain in the raw materials, manufacturing, and services sectors gives us valuable expertise and a unique system view to help clients meet their goals by uncovering opportunities for smarter operations. Please see our sustainability journey here: https://www.jacobs.com/about/sustainability



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