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From: OpenLitterMap CitizenScience <openlittermap@gmail.com>
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To: wastecomments
Subject: Waste Action Plan for Circular Economy

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Dear DCCAIE,

Please consider our comments for recommendation.

My name is Seán Lynch and I am the founder and developer of

OpenLitterMap - an interactive and accessible database of the worlds litter and DrugLitter.info - a closed platform for local authorities and health institutions to improve decision-making to support and evaluate the introduction of contentious public services. This platform has been used by the HSE and Cork Local Drugs Task Force continuously for over 4-years and we have developed the most comprehensive database of drug-related littered paraphernalia in Ireland, if not the world.

However, please note that these services are new, under-developed and lack funding. I would like to invite you to consider my comments below; **and conclude that it makes sense for government to provide funding to develop these services significantly further, as citizen science has potential significant benefits for society that can reduce costs and improve services.**

Litter is an important yet significantly under-utilized characteristic of how much beverage, food and other types of packaging is ending up scattered throughout the country. Little is known about how a change in policy (eg. plastic bag tax, minimum alcohol pricing, smoking ban, introduction of an injecting center, opening hours, new commercial premises, new bin, ashtray, change in equipment, weather, consume preferences, fashionable trends) changes littering and problematic public consumer behaviour. This information can help public institutions save time, money and improve services.

To this regard, I have spent the last decade developing a citizen science litter mapping data collection experience that empowers anyone to map and log data on litter anywhere. Litter is ubiquitous, and everyone knows what the "species" are. This makes litter mapping **the most accessible form of data collection the world has ever seen** and a catalyst for citizen science and public engagement in STEM more generally. By building capacity in litter mapping, we can provide a bridge to bring more people into public consultation (transport, MSP) and other data collection activities (air pollution, biodiversity) more generally.

If you would like to read more about my work, here is a link to my paper
<https://opengeospatialdata.springeropen.com/articles/10.1186/s40965-018-0050-y>

Below are my comments

3. Municipal (Household and Commercial) Waste

3.5 "Awareness and education campaigns"

- Even though the context here is segregating domestic and commercial waste, Litter mapping has the potential to reveal what has become "normal" and invisible for many, and provoke thoughtful action about litter in the context of peoples backyards, neighbourhoods and daily lives.

3.6 Other Policy Options and Measures

- **“Separate litter bins for recycling waste (including organic waste) will be provided on streets and by commercial premises”** Where will authorities locate bins? How effective will they be? Should different types of bins be located elsewhere? What about DRS? By looking at the litter data, you will see certain radius or buffer zones from premises depending on how long it takes to consume an item. This data opens up new and largely unexplored characterisations of extended producer responsibility, as well as informing the location, implementation and evaluation of public policy & services.

- **A quality waste management assurance award scheme will be developed for businesses (including apartments serviced by management companies) to sign up to. Will this include how much litter is found nearby? Walk outside any Centra, Spar or Supermarket in the country and you can find litter in bushes, behind walls, scattered across car parks and everywhere else. Businesses can help reduce how much litter is ending up as an eyesore by embracing this technology and becoming an OpenLitterMap sponsor.**

3.7 Consultation Questions – Municipal Waste

- **What further measures should be put in place by Government, regulatory authorities (EPA, local authorities, etc.) and industry stakeholders in order to promote and incentivise waste prevention and improve proper segregation and recycling of waste by both households and businesses? Embrace open citizen science data on litter & plastic pollution. Become an OpenLitterMap sponsor and encourage people to use the app to generate data that can educate society out of littering and towards zero waste circular economic activity.**

- **What measures or practices are currently in place that could be improved? The Irish Business Against (who sell) Litter** could be amended to include an open data collection methodology. Unfortunately, by categorising the quantity of litter with a ABCD classification does not tell us anything about how litter moves across space & time, or what can be done to achieve more with less resources. Rather than over-generalizing and making inferences about how much litter is in an area, we can use citizen science to produce data in hyper-resolution and this can change consumer and institution behaviour.

- **What other new measures or practices could be put in place? Adopt and promote open citizen science data on litter and plastic pollution.**

- **What do you see as the barriers/enablers to these measures? A lack of grant or public crowdfunding support to develop the technology to meet society's high technological expectations.**

- **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? Promote open citizen science data on litter & plastic pollution.**

5.7 Consultation Questions – Plastic and Packaging Waste

- **How can we make it easier for citizens to play a role in delivering on our targets? Provide funding that empowers society to map and share data on litter & plastic pollution.**

- **Do waste collectors have a role to play? Waste collectors (including tidy towns and local authorities) can become more efficient by gaining access to real time litter picking routes generated by crowdsourced data.**

- **What is the role of retailers? Retailers are increasingly becoming legislated to adhere to extended producer responsibility. Is 1 bin outside a premises enough? Or should retailers be made to share the responsibility for producing the packaging rotting everywhere that non-participants have to deal with on a constant daily basis?**

- *Is there a role for voluntary measures (individual or by sector) and if so, what might they be?* **Producers of pollution can embrace OpenLitterMap as a sponsor and recognize that litter is a problem that we can fix by educating society with maps, and allowing unrestricted legal, educational and scientific progress with data. This could result in a mass education of society and elimination of litter that might even lead to responsible plastic use.**

- *Are there targets other than EU that we should be striving towards?* **Much of EU policy is complex and differs in each state. For example, the MSFD recognizes >80% of marine litter is land-based, but the WasteFD, WaterFD, B&H FD, does not account for the transportation of litter from one environmental jurisdiction to the next. We should strive for a basic target - is it possible to go for a simple walk in Ireland without having to look at litter everywhere? Currently it is not possible.**

- *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?* **Promote and develop open citizen science data on litter & plastic pollution.**

6 Single Use Plastic

6.2 State of Play *"The effects of plastic on our marine environment have been well highlighted recently."*

In 2015, Jambeck et al. inferred there is an average of about 900 tonnes of plastic going into the ocean every hour. However many authors of such studies, including Jambeck, recognize there are large uncertainties with these figures because of a lack of data. I believe that these studies are **not an appropriate characterization of plastic pollution**, which is everywhere. Little is known about the pre-marine terrestrial characteristics of plastic pollution, which could be used to stop 100s of tonnes of plastic going into the ocean every hour, improve public health & services and reduce public expenditure.

6.6 Consultation Questions – Single Use Plastics

"What measures could be considered to reduce the amount of single use food containers we use" **As mentioned, promote and develop open citizen science data on litter and plastic pollution, and educate society about the amount of litter everywhere. This data can change human and institutional behaviour. More educated and demanding consumers will lead to better retail practice.**

"What data is necessary for measuring consumption reduction of these specific products and any new products suggested?" <https://openlittermap.com/world/Ireland/download>

"Do you believe a levy would affect behavioral change?" **It is hoped that certain behaviours can be measured with OpenLitterMap data.**

"Are there other SUP items that cause litter and for which there are sustainable alternatives available, which Ireland should consider banning?" **The data available can list what needs to be earmarked.**

"What role can an Extended Producer Responsibility Scheme play in delivering on these targets?" **Encourage CSR and EPR to sponsor the development of open citizen science data. By doing so, brands can improve CSR and find & more favourable customers.**

7 Circular Economy

"What are the areas with greatest potential for transformation in Ireland under the Circular Economy?" **The amount of litter rotting in the environment.**

- **What measures are required to increase understanding of Circular Economy principles and their uptake by relevant actors? OLM are encouraging open citizen science data on litter and plastic pollution. Litter everywhere is the opposite of a circular economy. By mapping this data we can improve policy targets and lead to improved CE.**

What might be a meaningful national waste reduction target and how could it be achieved? Is it possible to go for a walk in Ireland without finding litter everywhere? This can be achieved by educating society with maps & data.

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? Provide further funding for citizen science.

8 Citizen Engagement – Awareness & Education

8.7 Consultation Questions – Citizen Engagement

What campaigns would better assist householders and businesses in preventing and segregating waste properly? Showcase the amount of litter in peoples neighbourhoods and backyards. Bring the message of ocean plastic home by mapping and revealing what is under peoples footsteps and in their local environment.

Should this be funded by Government or should the sector play a role in funding campaigns? Government support can help speed up the development of this technology dramatically. However, this IP is not for sale as it may be released open source under a public license.

Do you think information stickers for bins showing what's accepted in each bin should be rolled out to all households? At a waste management conference in Wales recently, local authorities are using laser scanners to attach serial QR codes and other relevant information onto bins which last longer than stickers.

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? Encouraging more initiatives on open citizen science data on litter and plastic pollution.

16 Waste Enforcement

16.5 Consultation Questions - Waste Enforcement

- What, in your view, are the factors leading to waste crime (please tick one box)

- Ineffective enforcement by the authorities
- Ineffective penalties
- Waste Market Factors
- Lack of awareness **THIS**
- Other (please specify)

What measures are required to respond to the links between waste crime and other forms of serious criminal offences, such as organised crime? Educate society about the ubiquitous distribution of litter that is under their feet and right outside their door.

What changes could make the regulatory or industry response to serious and organised waste crime more effective? Empower society to share data, knowledge tools, forming civil society networks and public and private partnerships (PPPs)

What other penalties could be considered for illegal dumping by households/members of the public. Litter fines appear to be somewhat regressive. It is may be more effective to educate society.

Are there examples of existing good practice to prevent illegal dumping? FixMyStreet and the EPA's "See it Say it" app were ahead of its time but the data collection experience are inferior. We are putting these on steroids with "snapchat for litter" and "pokemon go for tidy towns"

What contribution to the cost of the enforcement system should the waste industry make? Creating extra funding sources for open data. Provide funding for software development.

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? Develop open citizen science data on litter & plastic pollution.

17 Waste Data & Waste Flows

17.7 Consultation Questions - Waste Data

Do you believe it would be beneficial to have all/most waste data available on at least a quarterly basis? OLM releases most of our data as open data almost immediately. However, OLM plans on selling access to real time data to local authorities who can develop smarter services for collection routes & public engagement.

What resources are needed to validate this data more quickly and what are the barriers? Software development & machine learning which we are working on at the moment.

How would you balance the need for validated reporting data for EU reporting against the desire for more up to date statistics? Embrace, promote and develop open data and support the development of a democratic research community who can pioneer this new and unexplored field of science to get the most value from the data and drive down the cost of intervention significantly beyond expectations.

Do you believe that all waste should and could be tracked from site of creation to final destination? Yes, and this is inevitable and it will be put on an permissionless, decentralized and immutable distributed ledger.

Are there confidentiality or other issues for industry in reporting on waste flows? Yes, there are significant privacy concerns to be considered when engaging in citizen science, however no support exists to educate society on these concerns.

What changes need to be put in place to facilitate better reporting? Provide a basic level of support to develop citizen science.

What uses can be made of having more detailed, accurate, timely data? Please read paper attached for a deeper analysis.

What penalties should be in place for the non-provision of data? The penalty is 900 tonnes of plastic going into the ocean every hour.

Should there be voluntarily reporting on particular waste streams and its treatment destination prior to legislative changes being put in place? Yes, empower society to collect data on the ubiquitous distribution of plastic rotting across the country.

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? OLM feels more needs to be done on promoting open citizen science data on litter & plastic pollution

18 Research & Innovation

18.6 Consultation Questions - Research & Innovation

What are the research areas you would consider to be important in developing a circular economy? **Litter is characteristic of how much packaging leakage is ending up rotting in the environment. It is detrimental to mental health, and can be impacted significantly simply by embracing open citizen science data.**

What new research programmes/initiatives do you think could be put in place? **Extra funding pillars for open citizen science data on litter & plastic pollution.**

What do you see as the main barriers/enablers to fostering a positive research culture around the circular economy? **Unfortunately, OLM feels a lack of funding continues to be the main barrier for citizen science for litter & plastic pollution in Ireland or the EU.**

Do you think research on waste, resource efficiency and the circular economy could be better publicised and more readily accessible? How? **OpenLitterMap data is open data for this reason. Anyone can download the data, and use it, for any purpose, without restriction.**

What further incentives could be put in place to encourage research? **We are also developing Littercoin to reward data collection and put new consumers in touch with innovative zero-waste brands to incentivize circular economic activity.**

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? **Download the OpenLitterMap app, walk outside and see what you can find.** Thank you very much for considering these comments. I would love to speak more over the phone or in person if you would like to speak in more detail. GRMA Seán