Rediscover Paint – Investigating methods for the expansion of paint reuse in Ireland

Final Report
2016-ET-CP-82

EPA Research Report

End of Project Report available for download on www.rediscoverycentre.ie

Prepared for the Environmental Protection Agency

By

The Rediscovery Centre

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Finally, we would like to thank the entire team at the Rediscovery Centre who supported and facilitated this work with special thanks to Roger Warburton, Gerard Griffin, Dave Kavanagh & Grainne Lambert.

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The EPA Research Programme addresses the need for research in Ireland to inform policymakers and other stakeholders on a range of questions in relation to environmental protection. These reports are intended as contributions to the necessary debate on the protection of the environment.

EPA RESEARCH PROGRAMME 2014-2020

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1. Executive Summary
Paint waste is a significant international and national environmental problem which requires practical environmental, social and economic solutions to manage effectively. The issue, however, also offers significant opportunity to adopt circular economy innovations and demonstrate new business models. Waste paint can include water- and oil-based paint. In Ireland, water-based paint collected at recycling centres, if not reused, is combined with hazardous waste and exported for incineration at high cost to their operators. In 2016, 2,000 tonnes of waste paint was exported for incineration at an estimated cost of € 600,000 (Maeve Thornberry & Associates, RDC study 2017).

There are a number of varied and mixed international solutions to the problem of waste paint. Common practice includes

- Avoiding the production of waste paint by calculating the amount of paint needed and purchasing wisely. This waste prevention option is given preference in the waste management hierarchy.
- Redistributing leftover paint either directly or mixed with other paint before redistribution.
- Remanufacturing waste paint.
- Recycling in composite materials such as cement, plastics etc.
- Incineration with or without energy recovery.

Finally, as a last option in the waste hierarchy, the waste paint can be sent to landfill in solid form.

Building on the success of Rediscover Paint, a reuse project in Ballymun, this report reviews the opportunity for paint reuse and waste prevention in Ireland. In an attempt to identify best practice, the current and past operations at Rediscover Paint were reviewed, paint reuse and remanufacturing initiatives operating across the EU and internationally were studied and similar projects operating in the UK were visited. The research study created the following outputs:

- Research identified a number of successful paint reuse programmes operating worldwide.
- Assessment of UK, European and international practice presented appropriate business models for community-based paint reuse in Ireland based on paint production, H&S, capacity and legislative considerations.
- Opportunity to scale operations at Rediscover Paint were identified and applied.
- Changes in Rediscover Paint’s operations resulted in increased paint output and improved efficiencies.
- A study of Irish recycling centres confirmed a strong interest in engaging with reuse initiatives.
- Models for the development and scaling of paint reuse projects in Ireland were identified.
- A mentoring programme to assist with the development of new paint reuse projects was established under the Rediscovery Centre’s Circular Economy Academy.

The findings of this report are relevant to social enterprise organisations and groups interested in the reuse of surplus and leftover paint and those focussed on effective resource management and best practice reuse in support of the circular economy.
2. Project Background

2.1 The Paint Waste Problem

There is growing awareness that waste paint is a significant international and national environmental problem which, to address effectively, needs practical environmental, social and economic solutions (Maeve Thornberry & Associates, 2017). The problem also offers an opportunity to present circular economy innovations and implement new business models.

Waste paint includes both water- and oil-based paint. In Ireland, the majority of decorative (water-based) paint, left at recycling centres, is combined with hazardous waste and exported for incineration. This process is costly and unnecessary as this water-based fraction can be successfully reused within a community-based initiative as demonstrated by Rediscover Paint which has been operating successfully since 2007.

In a sampling study at a Bray recycling centre, carried out in conjunction with this project, approximately 25% of waste paint collected was water-based emulsion and potentially suitable for reuse. In 2017, the total weight for hazardous waste exported for incineration from Ireland was 3,600 tonnes, as reported by the National TFS Office in the public Amber register. Applying the results of the sampling study to this data indicates that up to 900 tonnes of this waste paint could have been prevented through reuse.

The scope of this project is limited to the reclamation of water-based paint and its effective reuse before it becomes waste. Leftover paint is a common element found in most household garden sheds with estimates ranging from 6-17 paint tins per household (AkzoNobel, 2015; British Coatings Federation, 2015a,b; Priestley & Baker, 2016). This paint if, and when, it eventually makes it to the recycling centre is for the most part treated as waste and sent for incineration in Europe. Additionally, paint can also find its way into the general waste stream and end up in landfill. Neither route is ideal and both are costly in terms of environmental impact and finances.

There are a number of solutions to address the problem of waste paint. As a preference this includes preventing its production by buying only what is needed and/or reusing “healthy” leftover paint through redistributing the paint as-is or by mixing with other collected reusable paint and distributing post-mixing. Solutions can be both commercially or social-enterprise led. Opportunities also exist for remanufacturing of paint involving reprocessing and the use of additives. Other uses include reusing paint within cement/road manufacturing and incineration with energy recovery.

In Europe, the disposal of waste paint falls under the EEC Landfill Directive (1999/31/EC) prohibiting the landfill of liquid waste, preventing land and water table contamination by waste paint in liquid form. Waste paint however still finds its way to landfill as solid waste or indirectly through general waste disposal. The fees applied for the disposal of waste paint at recycling centres in Ireland may encourage the identified hoarding of paint by householders but more worryingly may also contribute to the illegal disposal and dumping of waste paint. This report focuses on the reuse of water-based paint which is specifically donated to recycling centres and community-based projects for reuse and is prevented from entering the waste stream.
2.2 The Circular Economy

The circular economy is an economic system aimed at minimising waste at all stages of the economic cycle and making the most of our resources by keeping them in circulation for longer. This approach maximises the value of resources and is in contrast to the traditional linear economy, which has a ‘take, make, dispose’ model of production. The circular economy model is a perfect fit for Irish social enterprises and community organisations looking to establish a new project or expand operations whilst supporting climate action and environmental protection. It enables products to stay in circulation for longer through reuse, repair and innovation and prevents the creation of waste.

2.3 Policy implications

The Rediscovery Centre, as the National Centre for the Circular Economy, and its social enterprises promote reuse and sustainable living through their diverse range of activities. In its Circular Economy package, the European Union (EU) promotes sustainable production and consumption of materials to ensure that resources are used efficiently and will be sustained into the future.

A major cornerstone of the EU’s circular economy and waste policy is the waste hierarchy, presenting the most and least favourable option of waste disposal. Rediscover Paint diverts paint from landfill or incineration, thereby moving it up the waste hierarchy, away from the two least sustainable options to prevention & reuse. The research presented in this report investigates an expansion of the Rediscover Paint model in Ireland in order to reintroduce a larger amount of paint suitable for reuse back into the economy.

In Ireland, the EU’s Circular Economy package is implemented through the EPA’s National Waste Prevention Programme (NWPP) and the three Regional Waste Management Plans. Rediscover Paint supports those policies in two ways. Firstly, the reuse of surplus paint results in the reduction of landfilled and incinerated waste with the materials saved for ‘a second lifetime’. Secondly, the sale of the paint and the activities of the Rediscover Centre (education, communications, research) all raise awareness about waste prevention and reuse to motivate positive behavioural change in citizen attitudes for environmental benefit.
3 Project Description

Although paint reuse is not a new concept, with over 65 schemes operating successfully in the UK, it has been slow to emerge as an activity here in Ireland. Additionally, despite the large numbers of schemes operating in the UK (supported by Community Repaint), the vast majority of schemes to date have only operated to a similar scale and model as Rediscover Paint. Large scale paint reuse and remanufacturing is only achieved at a couple of sites. This project sought to identify issues associated with paint reuse and building on the experience at Rediscover Paint explore opportunities for the expansion and scaling of paint reuse in Ireland. Rediscover Paint is still the only formal paint reuse scheme operating in the Republic of Ireland and therefore their expertise and knowledge in this area is useful in pushing the project forward. The development of business models to act as templates for the successful replication of additional paint reuse schemes is also important.

A number of key project tasks were identified within the project proposal. A summary of tasks and their status is presented in Table 3.1

Table 3.1: Summary and status of project tasks

<table>
<thead>
<tr>
<th>Project task</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Review and assessment of current paint reuse schemes</td>
<td>Complete</td>
</tr>
<tr>
<td>- Field trips to paint remanufacturing plants and paint reuse schemes</td>
<td></td>
</tr>
<tr>
<td>- Feasibility report and recommendations for the expansion of Rediscover Paint</td>
<td></td>
</tr>
<tr>
<td>• Review of ICT applications for online purchasing / distribution of paint</td>
<td>Complete</td>
</tr>
<tr>
<td>• Review of potential distribution partners / networks</td>
<td>Complete</td>
</tr>
<tr>
<td>• Preparation tasks for pilot implementation</td>
<td>Complete</td>
</tr>
<tr>
<td>- Consultant selection</td>
<td></td>
</tr>
<tr>
<td>- Equipment selection and purchase</td>
<td></td>
</tr>
<tr>
<td>- Workshop preparation</td>
<td></td>
</tr>
<tr>
<td>- Staff training</td>
<td></td>
</tr>
<tr>
<td>- Develop partnerships with local authorities to collect paint</td>
<td></td>
</tr>
<tr>
<td>- Develop partnerships with industry / waste contractors to collect paint</td>
<td></td>
</tr>
<tr>
<td>- Develop partnerships with paint manufacturers</td>
<td></td>
</tr>
<tr>
<td>- Develop partnerships with possible distribution locations (e.g. ICSA) and investigate online distribution channels</td>
<td>Complete</td>
</tr>
<tr>
<td>- branding and marketing strategy</td>
<td></td>
</tr>
<tr>
<td>- packaging</td>
<td>Complete</td>
</tr>
<tr>
<td>• Implement pilot programme</td>
<td>Complete</td>
</tr>
<tr>
<td>• Review and assessment of pilot</td>
<td>Complete</td>
</tr>
<tr>
<td>- Recommendations for further work</td>
<td></td>
</tr>
<tr>
<td>- Recommendations for replication if feasible</td>
<td></td>
</tr>
<tr>
<td>• Final report</td>
<td>Complete</td>
</tr>
<tr>
<td>• Reporting and dissemination as appropriate and required</td>
<td>Complete &amp; Ongoing</td>
</tr>
</tbody>
</table>
3.1 Project Management

The original team is presented in Table 3.2:

Table 3.2: Original project team

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tara Singleton</td>
<td>Project Coordinator with a focus on marketing, communications and education.</td>
</tr>
<tr>
<td>Roger Warburton</td>
<td>RDC Operations Manager will support the creation of the new facility in the Rediscovery Centre.</td>
</tr>
<tr>
<td>Ger Griffin</td>
<td>Programme Manager for Rediscover Paint involved in the day-to-day transition to the new paint facility.</td>
</tr>
<tr>
<td>Consultant</td>
<td>Expectation that a consultant from New Life Paints would be involved in the set-up of the new paint facility.</td>
</tr>
</tbody>
</table>

Due to changes in staffing, with the departure of Tara Singleton and the appointment of Grainne Lambert as Events and Marketing coordinator, the new project team, including operations staff, is tabulated below (see Table 3.3).

Table 3.3: Final project team

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarah Miller</td>
<td>Project Manager ensuring project delivery.</td>
</tr>
<tr>
<td>Roger Warburton</td>
<td>RDC Operations Manager will support the creation of the new capacity in the Rediscovery Centre.</td>
</tr>
<tr>
<td>Ger Griffin</td>
<td>Programme Manager for Rediscover Paint involved in the day-to-day transition to the new paint facility.</td>
</tr>
<tr>
<td>Graham Heap &amp; Laura Niessen</td>
<td>RDC research &amp; policy assistance – Responsible for research and completion of research and feasibility reports.</td>
</tr>
<tr>
<td>Grainne Lambert</td>
<td>Supporting the marketing plan and delivery for the new paint facility.</td>
</tr>
<tr>
<td>Dave Kavanagh</td>
<td>Day-to-day development of new paint capacity and for ongoing operations when the new facility is live. Dave has previous experience working with Rediscover Paint and helped to deliver a maximum paint reuse of over 9 tonnes of paint in 2015.</td>
</tr>
</tbody>
</table>
3.2 Project Methodology

In order to fulfil the tasks set out in the project proposal, the project team undertook the following research activities:

Research on different operational paint reuse schemes in Ireland, UK and internationally was undertaken by the RDC project team and the appointed consultants, Maeve Thornberry and Associates. The research resulted in a field trip to the United Kingdom, where the project team visited Community Repaint, Seagulls Reuse operation in Leeds and New Life Paints.

The different approaches to paint reuse and remanufacturing encountered at those organisations coupled with findings of the report produced on international practice informed the project team and helped shape the future business model for Rediscover Paint and highlight opportunities for scaling and replication.

Having regard to the findings of the research, a full review of Rediscover Paint was performed. Strengths and weaknesses of the project were identified. The review included an analysis of operational practice & historical modifications, sales & distribution channels, marketing and customer feedback. Workshops were held with the project team to brainstorm potential business models and recommendations to improve operational efficiency and effectiveness of the paint reuse project were identified. A pilot project implementing the recommendations was carried out and reviewed upon completion.

Having optimised the business models and considered appropriate operational scales, questionnaires were sent out to all local authorities in Ireland to assess the opportunity for, and potential interest in, paint reuse. Among other topics, the survey gathered information on the amount of waste paint collected at the centres, factors perceived as supporting or hindering paint reuse and the interest of recycling centres in participating in paint reuse programmes. In order to quantify the amount of waste paint produced in Ireland and to build a comprehensive picture of the potential for paint reuse expansion in Ireland, estimates of waste paint production were produced.

Finally, recommendations for the roll out of reuse projects were presented along with opportunities to support their growth.
4 Project Results

4.1 Literature review

4.1.1 Overview

The British Coatings Federation (BCF) and AkzoNobel in the UK have both produced reports and action plans for recycling and remanufacturing waste paint in the UK in 2015 (AkzoNobel, 2015; British Coatings Federation 2015a, b). These reports highlight the successes in paint remanufacturing achieved by New Life Paints in West Sussex and a new Community Repaint remanufacturing centre in Cambridgeshire, also based on the New Life Paints model. The BCF have also produced a report documenting recommendations for creating a circular economy for leftover decorative paint in the UK (British Coatings Federation, 2015 a, b). These documents formed a basis for investigating the feasibility of an expansion of Rediscover Paint and for developing a model for replication of the scheme across Ireland. The project also addressed the feasibility of developing an Irish network of paint reuse schemes.

In November 2017, RDC commissioned a report on “Paint reuse in Ireland and abroad”. This report, after reviewing the existing paint reuse schemes in Ireland, the UK, and the rest of Europe, Canada, the United States, New Zealand and Australia makes the following conclusions:

“The lack of ambition of some schemes, in terms of reuse, came as a surprise; while any programme that diverts resources from landfill is to be welcomed, it was disappointing to learn that a lot of effort goes into collecting paint, for it to be incinerated or made into another carbon-heavy product such as cement. Moving leftover paint further back up the waste hierarchy, even to the recycling stage, where it gets remanufactured, would be preferable to incineration.” (Maeve Thornberry & Associates, 2017)

This report also identified that there are no active reuse programmes in Europe with the exception of the UK and Ireland, and those that are planned for central Europe will be extensions of existing paint initiatives in the UK for Belgium and the Netherlands. Other key findings of the report are:

- The UK has the most active paint recycling programmes in Europe, which facilitate community and local reuse of waste decorative paint. However, despite this, the UK has so far only achieved 2% reuse of the estimated 55 million litres of waste paint every year, with the remaining paint disposed of at a cost of £20.6m to local government (Priestly & Baker, 2016). Success in the UK is partly due to the Community RePaint support programme operated by Resource Futures and funded by Dulux.

- Canada, USA, New Zealand, and Australia all operate paint reuse and recycling schemes which are funded by a consumer levy on new paint purchased. This facilitates the collection points for paint and the simple return of the paint for reuse, normally at no cost to the consumer. These consumer levied schemes have so far not led to significant increases in the reuse of waste paint; for example, the Canadian scheme in operation for over 20 years achieved, on average, 2.8% reuse in 2016. However, it is worth noting that the producer responsibility programme has resulted in over 80% of all water-based paints being recycled in Canada.
4.1.2 The United Kingdom

Research work undertaken by AkzoNobel and the British Coatings Foundation estimates the problem in the UK at 55 million litres of paint wasted on a yearly basis. This paint is typically found in garden sheds containing on average 6-17 used tins of paint (AkzoNobel, 2015; British Coatings Federation, 2015a,b; Priestley & Baker, 2016). In the UK, there are two organisations which have created successful reuse: “Community Repaint” and “Seagulls Reuse”. There are also two organisations which specialise in the remanufacturing of paint: “NewLife Paints” and “Paint360.”

- **Community Repaint**
Community Repaint is a paint reuse initiative with operations in England, Wales and Northern Ireland, sponsored by Dulux. It currently has a total of 75 locations throughout the UK. Each location usually operates autonomously through existing community groups and not-for-profit, social enterprises, which have a service level agreement with the Community RePaint network. The network provides training, systems management, a nationwide brand, promotional material, local media advertising and an established social media presence. Essentially, the Community Repaint network provides a business model for community groups and social enterprises which wish to create a local paint reuse function. This scheme won the award for Best Community Recycling Initiative in 2017.

In 2016, the scheme collected 464,000 litres of paint (603 tonnes), redistributed 332,000 litres (431 tonnes) and remanufactured 26,000 litres of paint (33.8 tonnes). The network also supports 143 employees, 56 trainees and 132 volunteers.

- **Seagulls Reuse**
Seagulls Reuse is a social enterprise operating in Leeds since 2001. In 2016, Seagulls Reuse collected in excess of 300 tonnes of paint from Leeds County Council recycling sites and in addition to the two staff which created the company, the work is supported by approximately 50 volunteers.

Both Community Repaint and Seagulls Reuse have agreements with local county councils which include a charge for the collection of paint and both receive income from a consumer purchase charge for the reused and remanufactured paint.

- **NewLife Paints**
NewLife Paints has developed a method of re-manufacturing paint ensuring that finished product contains at least 50% reused paint sourced from recycling centres. This remanufacturing process involves the addition of new paint, pigments and additives which aim to improve shelf-life and final colour matching. In 2018, Community Repaint received funding to create two re-manufacturing paint sites (in Cambridgeshire and the Wirral). Community Repaint will licence the technology from NewLife Paints.

- **Paint360**
Paint360 is a commercial enterprise which collects paint (both water and oil-based) and remanufactures it for trade partners (rather than retail). This remanufactured paint contains at least 80% reused paint. They
earn income from the paint collected at recycling centres, offsetting the cost the local authority would have paid if the waste paint was incinerated or sent to landfill.

- **PaintCare (UK)**

PaintCare is a facilitation organisation run by the British Coatings Federation, which promotes reuse initiatives like Community Repaint and Seagulls Reuse and works with paint remanufacturers like NewLife Paints and Paint360. It may potentially fund future new paint remanufacturing plants in collaboration with industry and works with governments to support the reuse and recycling of paint in support of the circular economy.

### 4.1.3 Canada

- **Product Care Association**

For over 20 years, the Product Care Association has operated ReGeneration, a paint reuse recycling scheme funded by an "eco fee" charged to the consumer for the purchase of new paint. Once the customer is finished with the paint, they may drop off leftover paint at various locations: municipal county council sites, landfill centres and retailers. The waste paint is deposited at no extra charge. If identified as suitable for use the reuse paint can also be collected free of charge on an as-is, as-available basis at participating paint share sites. The unwanted waste paint is then sent for recycling/remanufacturing.

In 2016, the "eco fee" ranged from CN$ 0.35 per litre and generated more than CN$ 7 million. In the same year, the volume of paint collected was in excess of 3.3 million litres (4,290 tonnes) and was managed as follows:

- 2.8% of all paint collected was reused.
- 81% of all water-based paint was recycled into another paint product or a cement-based product.
- 17% of all water-based paint was sent to landfill.
- 100% of oil-based paint was incinerated for energy recovery.
- 100% of packaging (metal and plastic containers) recovered sent for recycling or energy recovery.

### 4.1.4 USA

- **PaintCare**

PaintCare is a not-for-profit operation created by the American Coatings Association and is supported by several paint manufacturers in several US states. Based on the success of an Oregon programme in 2009, this initiative has rolled out to another 8 states; and is supported by paint stewardship legislation. A paint levy is applied to the consumer cost of purchasing new paint. In 2016, the collection total for all 9 states was more than 22 million litres. As this programme grows across the USA, the collection figures of wasted paint are expected to exceed 100 million litres. Currently, out of 22 million litres collected in 2016, on average 3.5% of the paint was reused, the majority of the rest was recycled. Interestingly, some states achieved high levels is reuse e.g., Minnesota has a reuse rate of 12%. Success seems to be linked to the number of participating partners and education programmes. In addition to paint reuse, two very successful paint recycling

4.1.5 Australia

- **PaintBack**
  Launched in Australia in 2016, PaintBack is a paint stewardship scheme funded by a levy on all paint products of AU$ 0.15 per litre. It includes 21 industrial members and 50 collection sites and involves a collaboration between governments, commercial and social enterprise. The unwanted paint is returned to a PaintBack collection site and treated and separated from the packaging. The containers are 100% recycled and the wasted paint collected is treated to make suitable for energy recovery. A total of 4,000 tonnes of paint and their containers have been collected since the start of the scheme.

4.1.6 New Zealand

- **Resene Paintwise**
  Resene Paintwise, supported by Resene and Dulux, is the only paint reuse scheme in operation in New Zealand. The scheme is partially funded by charging for non-Resene paint which is returned to one of the 50 drop off sites across the country. Paint is sorted on these sites and leftover paint which can be reused is placed in new containers and provided to community groups free of charge. Any remaining left over paint is sent to local authorities to be used in other building materials and all other paint is treated as hazardous and sent for solvent recovery followed by incineration. All packaging is recycled.

4.2 Review of Rediscover Paint

The Rediscovery Centre (RDC) operates the only official paint reuse programme in Ireland called ‘Rediscover Paint’. It has been in operation since 2007 and over the years it has partnered with a number of local County & City Councils in the Dublin Region, including Fingal County Council, Dun Laoghaire Rathdown and Dublin City. The objectives of the programme are to:

- prevent waste paint from being generated,
- provide affordable reused paint to local communities and the public and
- demonstrate effective reuse and support the development of the circular economy.

Operating on a reduced scale, over the past five years, Rediscover Paint has prevented on average more than 6¹ tonnes of waste paint being produced each year. At full capacity c.9t per year can be reused through the current operations. The social enterprise is successful and the opportunity and interest exists to expand the operations to enable the collection of paint donated for reuse from all 4 Councils concurrently given an increase in throughput capacity and operational scaling. This would significantly increase the volume of paint reused by Rediscover Paint and prevent unnecessary waste paint generation within the region.

¹ Operational data: 2013, 5.3t; 2014, 6.8t; 2015, 9.1t; 2016 5.4t and 2017, 4.7 t (Average 6.3)
At the start of this research project, Rediscover Paint collected paint donated for reuse from the Estuary Recycling Centre once a fortnight. This paint was checked by RDC staff onsite and taken to the Rediscovery Centre for reuse. There, paint would be mixed, sieved and poured into the original containers and distributed through a membership scheme. In reviewing this system a number of limitations were noted and detailed following:

1. Mixing procedures
All paint was mixed in a 30 litre barrel. Paint was poured into the barrel from each paint container by hand, then mixed and poured into new containers, also by hand. Each batch therefore produced either 12 x 2.5, 6 x 5 or 3 x10 litre containers of paint, or a combination of sizes to make up the 30l. The method involved rigorous manual handling which is time consuming and at most produced only 30l batches of the same colour.

2. Collection & Distribution
Rediscover Paint on average collected 400 kg of paint donated for reuse from the Estuary Recycling Centre every two weeks. The van used for collection was small and was shared across the organisation which includes three other social enterprises and a very active outreach education programme. The Rediscovery Centre is located in the Dublin City Council area and the majority of the Rediscover Paint scheme members were located there. Outside of Ballymun, small successful distribution trials were conducted with Recreate, a reuse social enterprise in Ballymount and at farmers markets in the south of the city.

3. Marketing/Branding
Paint suitable for reuse was decanted into old paint containers for distribution. The paint tins were partially covered with a new label depicting the Rediscovery Centre logo and a sample of the paint colour. Feedback from the farmer’s market highlighted customers were more likely to have reservations about the quality of the paint when presented this way. A review of packaging options was warranted having regard to this, the use and reuse of metal/plastic containers and general presentation. New branding, to appeal to the customer base, was also recommended.

4. Paint Colours
At the time of review, Rediscover Paint created colours to meet client requests. Although for the most part this was successful, it was highly dependent on the availability of well-trained and experienced staff in the workshop to mix paint colours to order and to match colour by eye. As social enterprise in Ireland is built on labour activation with business success measured on staff progression rates, resulting in high staff turnover, this model presents ongoing and repetitive issues. The process is also consumer led and time consuming.

5. Paint life expectancy
Rediscover Paint recommends that all paint produced should be used as soon as possible. This is because the original date of manufacture of the paints mixed is not always known and water-based paint does have a limited shelf life after which it expires evidenced by a strong odour on application. Whilst this has not been an issue for Rediscover Paint (only once has paint been returned due to expiry), it is an on-going concern for paint reuse in general and solutions to address it are available to be explored.
6. Economics
Income streams for Rediscover Paint at the project start were twofold: firstly, there was income from the collection of paint from recycling centres and also from members of paint recipients. Membership fees were deliberately kept low to enable the scheme to be accessed by community groups, charities and those on low incomes, however were based on repeat and frequent use which have a tendency to limit membership to locally-based clients. Income received from local authorities was based on historical fees and did not cover the cost of collection and processing.

7. Waste legislation
The paint reuse operations at Rediscover Paint did not require any licensing or registration with the EPA as the paint had not yet been deemed waste having been donated for reuse. Any modification to the scheme’s operations would require a review to ensure the licensing or permitting requirements remained unchanged.

4.3 Field Trip to assess UK Paint Reuse Operations
In January 2017, members of the project team visited key paint reuse operations and paint reuse innovators in the UK. Sites of interest included Community Repaint in Liverpool (Recipro), Seagulls Reuse operations in Leeds and NewLife Paints. Discussion were also held with Paint360, however, site visits were not possible at the time.

Observations made by the team follow:

- Community repaint schemes operate in a similar manner to Rediscover Paint and experience the same challenges relating to colour matching, paint tin recycling etc.,
- Seagulls Reuse provide colour mixing similar to Rediscover Paint but also use concentrated colour pigments to achieve desired results.
- Both Seagulls Paint Reuse and Community RePaint had very strong and recognisable branding.
- Both organisations provide repackaged paint alongside old tins for direct reuse.
- Neither reuse projects operated as a membership scheme but instead charged per litre for reused paint.
- Seagull Reuse managed all paint generated in the Leeds Council area and they have a good relationship with them.
- The success of the reuse operations in the UK depends on a high number of volunteers.
- Extending the life of used paint with additives as demonstrated by Newlife is still in its infancy.
- The technology demonstrated by Newlife was not significantly different to that operating in Rediscover Paint, however, the scale enables larger batch production.
- The chemical content of the additives for longevity and their safety data were not available.
- No unique novel technologies or observations were witnessed during the field trip.
- Remanufacturing of paint, requires the use of significant volumes of new paint which is costly. Specialist equipment is also required necessitating capital investment which is most likely beyond the capacity of small-scale social enterprises. It may however be suitable for some of the larger urban programmes.
4.4 Review of Paint Operations at Local & City Council Recycling Centres

In May 2018, questionnaires were sent out to all local authorities to gather information relating to paint reuse. In addition to enquiring about the amount of waste paint collected, the surveys also gathered information regarding the perceived barriers and drivers for paint reuse. The questionnaires were also used to investigate potential interest in future collaboration with, or adoption of a paint reuse programme. Questionnaire responses received are presented by location, in Figure 4.1.

The data is represented graphically to illustrate the response rate across Ireland and helps to compare the scale across different regions. The identifiers for some locations represent aggregate locations for example the Donegal County Council, location 20, on the map represents a number of recycling centres e.g. Letterkenny, Carndonagh, Milford, Dungloe, Stranorlar, Laghey. Some responses are from different locations within one local authority area e.g. both the Estuary and Coolmine are within Fingal.

<table>
<thead>
<tr>
<th>Key</th>
<th>Name (Local authority)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Estuary (FCC)</td>
</tr>
<tr>
<td>2</td>
<td>Coolmine (FCC)</td>
</tr>
<tr>
<td>3</td>
<td>Ringsend (DCC)</td>
</tr>
<tr>
<td>4</td>
<td>Northstrand (DCC)</td>
</tr>
<tr>
<td>5</td>
<td>Ballymount (SDCC)</td>
</tr>
<tr>
<td>6</td>
<td>Powerstown (Carlow)</td>
</tr>
<tr>
<td>7</td>
<td>Dunmore (Kilkenny)</td>
</tr>
<tr>
<td>8</td>
<td>Youghal (Cork)</td>
</tr>
<tr>
<td>9</td>
<td>Rossmore (Cork)</td>
</tr>
<tr>
<td>10</td>
<td>Castletownbere (Cork)</td>
</tr>
<tr>
<td>11</td>
<td>Millstreet (Cork)</td>
</tr>
<tr>
<td>12</td>
<td>Athlone (Westmeath)</td>
</tr>
<tr>
<td>13</td>
<td>Mullingar (Westmeath)</td>
</tr>
<tr>
<td>14</td>
<td>Mulleadys (Longford)</td>
</tr>
<tr>
<td>15</td>
<td>Mohill (Leitrim)</td>
</tr>
<tr>
<td>16</td>
<td>Tuam (Galway)</td>
</tr>
<tr>
<td>17</td>
<td>Rathroe (Mayo)</td>
</tr>
<tr>
<td>18</td>
<td>Derrinumera (Mayo)</td>
</tr>
<tr>
<td>19</td>
<td>Tubbercurry (Sligo)</td>
</tr>
<tr>
<td>20</td>
<td>Letterkenny (Donegal)</td>
</tr>
</tbody>
</table>

Figure 4.1: Map marking location of respondents to the questionnaire on paint waste and reuse. Local authority abbreviations: FCC (Fingal County Council), DCC (Dublin City Council), SDCC (South Dublin County Council).

Table 4.1 presents data gathered from the questionnaire. It is assumed for various reasons, paint sales etc., that not all Irish paint suitable for reuse is being collected. Where quantitative data has not been provided, it is assumed that this is either because the local authority does not accept paint at that particular recycling
centre or it did not have the data for 2017 at the time for collation. In addition, some of the recycling centres have third parties operating the recycling centre and the questionnaire may not have been received by them.

Table 4.1: Reported waste paint and estimated cost for disposal

<table>
<thead>
<tr>
<th>Recycling Centre Name</th>
<th>Local authority</th>
<th>2017 Paint Waste (t)</th>
<th>Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estuary</td>
<td>Fingal County Council</td>
<td>180</td>
<td>€54,000</td>
</tr>
<tr>
<td>Coolmine</td>
<td>Fingal County Council</td>
<td>129</td>
<td>€38,700</td>
</tr>
<tr>
<td>Ringsend</td>
<td>Dublin City Council</td>
<td>69.64</td>
<td>€20,892</td>
</tr>
<tr>
<td>Northstrand</td>
<td>Dublin City Council</td>
<td>63.21</td>
<td>€18,963</td>
</tr>
<tr>
<td>Ballymount</td>
<td>South Dublin County Council</td>
<td>179.94</td>
<td>€53,982</td>
</tr>
<tr>
<td>Powerstown</td>
<td>Carlow County Council</td>
<td>4</td>
<td>€1,200</td>
</tr>
<tr>
<td>Dunmore</td>
<td>Kilkenny County Council</td>
<td>4.2</td>
<td>€1,260</td>
</tr>
<tr>
<td>Youghal</td>
<td>Cork County Council</td>
<td>4.38</td>
<td>€1,314</td>
</tr>
<tr>
<td>Rossmore</td>
<td>Cork County Council</td>
<td>16.38</td>
<td>€4,914</td>
</tr>
<tr>
<td>Castletownbere</td>
<td>Cork County Council</td>
<td>4.62</td>
<td>€1,386</td>
</tr>
<tr>
<td>Millstreet</td>
<td>Cork County Council</td>
<td>5</td>
<td>€1,500</td>
</tr>
<tr>
<td>Athlone</td>
<td>Westmeath County Council</td>
<td>11.68</td>
<td>€3,504</td>
</tr>
<tr>
<td>Mullingar</td>
<td>Westmeath County Council</td>
<td>0.3</td>
<td>€90</td>
</tr>
<tr>
<td>Mulleadys</td>
<td>Longford County Council</td>
<td></td>
<td>€0</td>
</tr>
<tr>
<td>Mohill</td>
<td>Leitrim County Council</td>
<td></td>
<td>€0</td>
</tr>
<tr>
<td>Tuam</td>
<td>Galway County Council</td>
<td></td>
<td>€0</td>
</tr>
<tr>
<td>Rathcroghan</td>
<td>Mayo County Council</td>
<td>1.1</td>
<td>€330</td>
</tr>
<tr>
<td>Derrinumera</td>
<td>Mayo County Council</td>
<td>7.58</td>
<td>€2,274</td>
</tr>
<tr>
<td>Tubbercurry</td>
<td>Sligo County Council</td>
<td>9.5</td>
<td>€2,850</td>
</tr>
<tr>
<td>Letterkenny</td>
<td>Donegal County Council</td>
<td>19.78</td>
<td>€5,933</td>
</tr>
</tbody>
</table>

Table 4.1 shows the reported paint collected by Recycling Centre’s in 2017, and the estimated cost of disposal. As all paint left is classed as hazardous waste, higher cost are applied to its disposal by incineration (an estimated fee of €300 per tonne is applied here for calculation purposes).

The table reports on data provided by less than half of the Recycling Centres and one third of County/City Councils in Ireland i.e., only those who responded to the questionnaire. Only 13 of a potential 31 authorities responded and therefore the data cannot be taken to be representative of national practice. Paint collected in 2017 at the responding recycling centres is presented graphically in Figure 4.2.

From the data we can see that Dublin’s regional paint collection is significant at over 621 tonnes. This includes the local authorities of: Dublin County Council, Fingal County Council and South Dublin County Council. The report notes that Estuary and Ballymount seem to have the highest volumes of paint collected in 2017, based on the responses received to the questionnaire. Significant opportunity exists here to prevent waste paint being generated through increased recycling and reuse. The potential savings indicate that long-term
investment in processing and/or remanufacturing processes would be warranted. Given the nature of this study, this information is encouraging for Rediscover Paint’s expansion ambitions.

Figure 4.2: Waste paint collected in 2017 as reported in questionnaire

Other interesting findings and comments from the survey follow:

- **Only 25% of the total number of Recycling Centres responded to the questionnaire.**
- **Over 50% of recycling centre’s surveyed were operated by the Local Authority.**
- **74% of recycling centre respondents accepted paint.**
- **100% of recycling centre respondents not reusing paint would like to see a programme introduced.**

  - “The public do not like paying for recycling paint. A PRI should be introduced.”
  - “Paint should be sold in smaller quantities.”
  - “Due to high volumes, paint collections (reusers) would need to be regular to be effective.”
  - “Procedures, EPA licencing, traffic management requirements, cost to dispose v cost to recycle and where to recycle are all barriers.”
  - “Producers should take responsibility.”
4.5 An Estimation of Ireland's Waste Paint Problem

The data collected from recycling centres as part of this study does not represent the total amount of paint arising nor the amount suitable for reuse in Ireland. In an attempt to quantify the scale of the problem in Ireland, the following discussion is of interest.

In 2015, AkzoNobel published research, [2,3,4], regarding UK waste paint arising and the potential for reuse. The study reports that in the UK (2015) about 400 million litres of paint is sold per annum. An estimated 13% (52 million litres) is discarded as waste primarily to landfill or incineration.

Table 4.2 presents the estimates for UK Paint applied to the Irish market. The estimate is then applied to the top five urban populations in Ireland - Dublin, Cork, Limerick, Galway and Waterford. The simple metric of 0.85 litres of paint per person is used as a starting point to estimate paint waste in Ireland and the potential for its reuse and recycling. We also estimated that a litre of paint is on average 1.3 kg in mass, which is used to work-out average tonnage (t).

<table>
<thead>
<tr>
<th>Urban Catchment</th>
<th>Population</th>
<th>Waste Paint (L)</th>
<th>Kg (1.3/L)</th>
<th>Tonnes</th>
<th>Estimates of WB paint suitable for reuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK (2015)</td>
<td>65,110,000</td>
<td>55,000,000</td>
<td>71,500,000</td>
<td>71,500</td>
<td>17875</td>
</tr>
<tr>
<td>Ireland (2016)</td>
<td>4,757,976</td>
<td>4,019,178</td>
<td>5,224,931</td>
<td>5,225</td>
<td>1306</td>
</tr>
<tr>
<td>Dublin</td>
<td>1,173,179</td>
<td>991,013</td>
<td>1,288,317</td>
<td>1,288</td>
<td>322</td>
</tr>
<tr>
<td>Cork</td>
<td>208,669</td>
<td>176,268</td>
<td>229,148</td>
<td>229</td>
<td>57</td>
</tr>
<tr>
<td>Limerick</td>
<td>94,182</td>
<td>79,558</td>
<td>103,425</td>
<td>103</td>
<td>26</td>
</tr>
<tr>
<td>Galway</td>
<td>79,934</td>
<td>67,522</td>
<td>87,779</td>
<td>88</td>
<td>22</td>
</tr>
<tr>
<td>Waterford</td>
<td>53,504</td>
<td>45,196</td>
<td>58,755</td>
<td>59</td>
<td>15</td>
</tr>
<tr>
<td>Urban Catchment</td>
<td>1,609,468</td>
<td>1,359,557</td>
<td>1,767,424</td>
<td>1,767</td>
<td>441.75</td>
</tr>
</tbody>
</table>

The estimated total waste paint produced in Ireland in 2018 was 5,225 t and urban waste paint estimated is 1,767t. To put this into perspective, the maximum capacity of Rediscover Paint was reached at 9 tonnes of waste paint diverted in a year. Therefore, a clear need and opportunity exists for an increase of Rediscover Paint activity and national scaling or replication of the reuse process.
5 Discussion

In this report, we have identified that there are no active paint reuse programmes in Europe with the exception of the UK and Ireland, and those that are planned for central Europe will be extensions of existing paint initiatives in the UK for Belgium and the Netherlands. This research has shown that operations in the UK and Ireland with respect to paint reuse are well developed and replicable as proven by the community repaint programme.

Canada, USA, New Zealand, and Australia all operate paint recycling schemes which are funded by a consumer levy on new paint purchased. This facilitates collection points for surplus paint and direct reuse through the direct exchange of surplus paint at no direct cost to the consumer. These consumer-levied schemes have resulted in varying levels of success for paint reuse with rates of 2-13% being achieved. More notable, however, are the high recycling rates for paint in countries with PRI schemes with >80% of waste paint recycled, a practice not yet evident within the Irish Market. The introduction of a PRI for paint in Ireland could facilitate the development of this market and result in increased efficiencies for recycling centres.

Remanufacturing of reused paint requires the addition of new paint and is essentially reprocessing. Whilst the use of reused paint in this manner complements circular economy principles and industrial symbiosis, waste hierarchy principles favour prevention and reuse which are additionally less resource intensive.

The amount of surplus paint which could be available in Ireland for reuse is still unclear. Two estimations are presented in this report. Firstly, the TFS figures for 2017 show in excess of 3560t of waste exported. Assuming 25% of this is suitable for reuse, almost 1000t of paint could be prevented from entering the waste stream at a cost saving of approximately 300K per annum. Secondly, the estimation of waste paint for Ireland, based on the UK arising’s is 5,225 tonnes per annum. Once again assuming 25% is suitable for reuse more than 1300t could be prevented from entering the waste stream.

Given that Crown Paints has quantified the carbon footprint, of a 5L can of paint, as 13.58kgCO2e the potential carbon saving through paint reuse is significant and can assist in addressing climate breakdown.

5.1 Recommendations and implemented actions for the expansion of Rediscover Paint

As part of this research project, Rediscover Paint’s operational model was reassessed having regard to inputs from the literature review and learnings from the reuse field trip in the UK. The research showed that, in principle, the operating social enterprise model of Rediscover Paint was best placed to fulfil the Rediscovery Centre’s mission of establishing a centre of excellence for resource management, an exemplar of reuse and supporting the circular economy. The idea to implement paint remanufacturing was abandoned and the following recommendations for the expansion and improvement of the project emerged:

- **Mixing procedures:**
  In order to scale operations, a new system that increased throughput, mixing capacity and paint pouring was necessary. This included increasing the onsite storage and mixing capacity by expanding Rediscover Paint
within the existing workshop and within the facilities reservoir. The new paint mixing operation includes a chain pulley block and lifting equipment that facilitates particularly strenuous activities such as pouring paint, mixing and repotting. The new production line is housed on a frame which supports semi-automated pouring and mixing. A heavy duty mixing blade was also introduced to the line along with 3 x 110L mixing drums for increased throughput. The frame is large enough to hold five to six barrels at any one time enabling the production of up to (six colours) 660L at any one time. The mixing station and frame is situated on an elevated plinth and the barrels are fitted with taps to enable more efficient decanting of mixed paint. Figure 5.2.1 presents a graphic of the new production process.

![Figure 5.2.1. New mixing station at Rediscover Paint](image)

- **Collection and Distribution:**
The amount of paint collected from the Estuary Recycling Centre can vary from week to week but on average is around 400kg per collection; this roughly equates to 308 litres of paint for reuse. With increased capacity at the centre presented by the new mixing station, the recommendation to engage with other Local authorities was made. New arrangements were instigated in the first instance with:
  - Coolmine Recycling Centre
  - Ringsend Recycling Centre
  - Northstrand Recycling Centre
  - Ballymount Recycling Centre

The increase in collections should, in the short term, increase capacity from 400 kg to 1600 kg (c.1230 litres) per fortnight with a resulting increase in annual paint targets from 6t to 40t (c32,000) litres per year assuming staffing and transportation requirements are met. In order to increase the collection and serve several
recycling centres, the transport capacity needed to improve. The purchasing of a larger vehicle (from the original capacity of 500 kg to 1000 kg) was recommended.

Regarding distribution, a review of distribution channels was recommended which resulted in the introduction of online ordering. The system was designed to enable the customer to browse available paint, order online for collection or delivery via courier and eventually to enable the collection of paint at nearby distribution sites in the Dublin region.

- **Marketing/Branding:**
  Following research of successful paint reuse schemes & customer feedback about the impact of packaging, the decision to refill into new containers was taken. The idea was to assess customer reactions and impact on direct sales from the shop and online as a result of the change. See-through pots that show the colour of the paint inside were chosen as they make labelling easier and customers can see the colour before purchasing.

Through the research, new branding for Rediscover Paint was recommended. Based on successful campaigns reviewed, materials would be designed and developed to appeal to the customer base and match the updated Rediscovery Centre branding. A new instore retail display was also recommended, designed and installed. Rediscover Paint will continue to theme marketing outputs through the use of original images and hand-made/crafted promotional materials.

- **Paint Colours:**
  Rediscover Paint receives a wide range of colours in paint collections. The practice of consolidating colours to meet individual customer requirements was identified as time consuming and highly dependent on the skills of the project technicians. Moving away from this practice, it was recommended that a pallet of colours would be created each season and offered alongside the normal base colours of white and magnolia. Colours must be on-trend in order to appeal to the customer base and be capable of being reproduced easily. Whilst somewhat determined by colour availability and general home décor trends, initial colours included grey, dark blue and earthy greens. To ensure Rediscover Paint can produce the paints from any colours donated, three primary colours paint pigments were purchased to be used for mixing with blends to produce paint colours offered. The process also has the benefit of avoiding the production of non-trend colours which could lead to waste production in the longer term.

- **Paint Life Expectancy:**
  Additives to extend the life of paint were considered in this research project. However, the decision was made that as neither the benefits of the additives nor their potential environmental impact were clear, Rediscover Paint would not use them to extend the paint life at this point.

- **Economics:**
  Income for Rediscover Paint is generated through fees paid by local authorities for waste paint prevention and reuse. Income is also generated through membership fees of Rediscover Paint, however as margins are so small, the administrative burden in managing membership almost outweighs the income generated. As a
result of this research, it was identified that a membership scheme for Rediscover Paint is unnecessary and over complicated given the transaction. With the introduction of the European General Data Protection Regulation (GDPR) which came into force in May 2018 additional administrative burdens were applied. As a result it was recommended that the paint membership scheme should be dissolved and Rediscover Paint would sell reused paint directly through the store and online.

- **Waste Legislation**
  At the completion of the research project, Rediscover Paint has not affected any significant operational changes and therefore no alterations to comply with legislation and/or licensing requirements were necessary.

### 5.2 Status of Recommendations

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixing procedure</td>
<td>A new mixing station has been designed, installed and implemented. The station is working well and enabling greater throughput on a daily basis.</td>
</tr>
<tr>
<td>Collection &amp; Distribution</td>
<td>At the time of writing, paint collection had commenced with Dublin City Council (at Ringsend and North Strand recycling centres). Discussions were ongoing with Ballymount (SDCC) and Ballyogan (DLR). Both online sales and courier services are now established and will be introduced when capacity demands. At present all paint is sold very quickly from the Ecostore within the Rediscovery Centre.</td>
</tr>
<tr>
<td>Marketing &amp; Branding</td>
<td>Branding actions have been completed. Rediscover Paint now uses new paint pots for the redistribution of paint. They have been unable to source a recycled option and as an alternative have introduced a takeback scheme to ensure that the containers are reused appropriately through the project. Paintbrushes feature heavily in the projects branding. Paint colours are displayed on a paint brush on the label as seen in image below. The use of paint brushes in the branding also follows through to the online shopping page.</td>
</tr>
<tr>
<td>Paint colours</td>
<td>The Rediscover Paint has now limited its colour range to six main colours per season.</td>
</tr>
<tr>
<td>Paint expectancy life</td>
<td>Rediscover Paint has not implemented shelf life additives to its reused paint and does not intend to do so in the medium term.</td>
</tr>
<tr>
<td>Economics</td>
<td>The removal of the membership scheme has been welcomed and all paint is now offered at €1 per litre.</td>
</tr>
<tr>
<td>Legislation</td>
<td>There has been no significant changes to Rediscover Paint’s Operations. Policy requirements remains the same.</td>
</tr>
</tbody>
</table>
5.3 Results of Rediscover Paint’s Expansion pilot

In January 2018, Rediscover Paint began implementing the key recommendations of the research project. New payment structures were introduced and membership abandoned. This change resulted in a much more efficient project; reducing administration tasks and enabling the sale of paint through the shop and at other venues.

The introduction of new paint pots resulted in increases in the sale of paint sold directly through the shop and an increased interest in the project generally. The introduction of pre-mixed paint for sale ‘off-the-shelf’ and the move away for paint mixed-to-order resulted in further efficiencies, specifically for the technical team at Rediscover Paint who witnessed a reduction in time spent on administration and customer service. Whilst one or two orders for bespoke colours were still received and fulfilled, the majority of people were happy with the colour choices and there was a steady demand for restock from the shop.

During Q3, the new mixing station and associated equipment was installed. This enabled larger volumes of reuse paint to be generated at the same time and for larger paint batches to be produced. In Q4, an MOU was negotiated with Dublin City Council for the recommencement of paint collections from the recycling centres at Ringsend and North Strand. These collections began in Jan 2019 and provided the test bed for assessing the newly designed project. Technicians report that the new mixing line is working well with the larger volumes. Paint throughout is steady along the supply chain with no build up in collection, mixing, redistribution or sales witnessed. Impact with respect to paint reuse achieved can be seen in Figure 5.4.1.

![Figure 5.4.1 Rediscover Paint monthly reuse data.](image-url)

As the project continues to grow, new collection and distribution pathways will be implemented. Ongoing market research will be required to ensure alignment with the most popular paint colours on the Irish market. Ongoing analysis of the amount of paint available for reuse will continue. In particular the amount of paint available in Dublin will shape Rediscover Paint’s future operations which will continue to expand and evolve to meet market demands.
5.4 Recommendations for the Replication of Rediscover Paint’s Reuse Model

Rediscover Paint’s success is based on the following factors:

- Capacity to collect, store and mix paint - requiring staff, physical space, paint mixing facilities and transport.
- Working relationship with local authorities who engage in, and support the process and provide a collection fee for paint collected.
- Local access to significant amounts of paint suitable for reuse.
- A ready market for the sale of affordable reuse paint.

Reproducing the same model at other urban sites would require the same factors to be present and resources to be applied. Initial findings from the questionnaire and estimates on the volumes of paint suitable for reuse in Table 4.2 indicate that replication of the newly expanded Rediscover Paint model of paint reuse would be most suitable for replication in the larger urban areas (Cork, Limerick, Galway and Waterford). Table 4.2 estimates the potential tonnage of water-based emulsions based on population estimates, however, it is worth noting that not all of this paint will be suitable for reuse and the quality of paint varies widely between recycling centres.

Figure 5.4.1 suggests key considerations & stages involved in assessing the viability for a paint reuse project. The considerations are based on research findings and Rediscover Paint’s experience of operating paint reuse project with different local authority partners.

1. Identify potential scale of project based on paint available
2. Assess recycling centre site design, operations and management
3. Design project plan considering findings of 1&2
4. Identify interest in project coordination & partnership. Assess capacity/resources to deliver
5. Identify market for paint and potential sales channels

Figure 5.4.1.Key considerations in developing a paint reuse project
The most appropriate model will be guided by the knowledge gained in considering the key steps. With this in mind and building on the findings of this research a scalable model for paint reuse is proposed in Table 5.4.1

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>DETAILS</th>
<th>REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct reuse onsite</td>
<td>Staff on site facilitate the segregation of water-based paints (WBP) for direct reuse by recycling centre users or community organisations</td>
<td>Training: 1-2</td>
</tr>
<tr>
<td>Small scale Reuse - off site</td>
<td>Direct off-site reuse by third party (Community group, social enterprise). No mixing required.</td>
<td>Training: 2-8</td>
</tr>
<tr>
<td>Medium scale Reuse-offsite</td>
<td>Mixing and cleaning of paint optional using small hand tools. Relabelling or repotting as desired</td>
<td>Training: 5-20</td>
</tr>
<tr>
<td>Large scale reuse project</td>
<td>Large scale reuse off-site. Requires installation of handling equipment, dedicated staff etc.,</td>
<td>Training: 10-50+</td>
</tr>
</tbody>
</table>

Table 5.4.1 Proposed scalable models for paint reuse

Small-scale schemes can be designed as less resource- and labour-intensive through direct reuse. Such a scheme would be best suited in areas where small amounts of waste paint are generated. Direct reuse can be done by simply setting aside water-based emulsions donated for reuse in a designated area at the recycling centre for the public to take or by donating it to community groups, for instance Men's/Women's Sheds, for use in their projects. Direct reuse is already in place at the Mungret recycling centre in Limerick and has also operated at the Bray Recycling centre in the past.

Medium-scale paint reuse models might consider paint redistribution through a social enterprise, with or without remixing the paint. Since paint remixing and colour matching requires considerable resources, a medium-scale scheme might consider redistributing the paint in an unmixed form. Such redistribution could be channelled through a membership based scheme, as was previously done in Rediscover Paint, or could use existing distribution channels, such as local charity shops. The social enterprise model has proven successful in its operations since 2007 and can deliver real social benefits (employment, training) to the local area.

At a larger scale, the replication of a model similar to that now operating at Rediscover Paint is advisable. The large scale model, however, requires sufficient resources, space, and expertise and is therefore mainly recommendable for areas with higher populations and access to larger volumes of paint and where projects can take advantage of the economies of scale to payback investment costs.
5.5 Rediscovery Centre’s Circular Economy Academy supporting Paint Reuse

In June 2019, the Rediscovery Centre, as the National Centre for the Circular Economy launched a free mentoring and support programme to assist social enterprises and community organisations in any part of Ireland to move their activities towards sustainability and embrace the circular economy. Enterprises participating in this first stage of the ‘Circular Economy Academy’, receive assistance from the Rediscovery Centre and their circular economy collaborators in areas relating to circular business planning, financing options, training, sustainable material sourcing, technical support, incubation, access to market, networking and diversification strategies.

Key to this research, the Academy also works with interested parties to replicate paint, furniture, fashion and furniture reuse initiatives in their locality. This element of the Academy was specifically designed to support the opportunities identified through this research and is facilitating the expansion of paint reuse in Ireland.

The Circular Economy Academy is delivered through the Rediscovery Centre’s strategic partnership with the Environmental Protection Agency’s National Waste Prevention Programme and funded by the Department of Communications, Climate Action and the Environment. The aim of the Circular Economy Academy is to facilitate Ireland’s transition to the Circular Economy through Collaboration, Inspiration & Education.

The Academy will enable a network of paint reuse organisations delivering services nationwide, maximising material reuse and preventing waste generation. Expressions of interest are currently being sought from interested parties.
6 Conclusions

Paint reuse is a practical solution to the environmental problems associated with the management of waste paint in Ireland. As waste technologies search for new ways to treat waste paints, waste prevention and reuse offer significant social and economic benefits to the communities in which they operate.

This project has reviewed paint reuse practice across the globe and identified opportunities to increase the prevalence of paint reuse initiatives in Ireland. Models have been produced to estimate the amount of waste paint produced and disposed of in Ireland, however as the estimates show, there is clearly ambiguity around actual quantities of waste paint and paint suitable for reuse. Despite this knowledge gap the fact remains that a significant opportunity exists for Ireland to increase paint reuse and the prevention of waste paint generation through community based initiatives.

The research project set out to review, optimise and expand the operations of Rediscover Paint in Dublin, informed by a comprehensive literature review and a field trip to operating reuse facilities in the United Kingdom. Key changes were applied to Rediscover Paint’s operations which resulted in increased paint throughput, operational efficiency, reduced administration and improved work practice. The learnings from this exercise are relevant to the development of new paint reuse projects and those projects looking to scale.

The project further investigated the possibility of expanding the Rediscover Paint model to other parts of Ireland. The potential to create a network of new initiatives across the country, offering high quality reuse paint and preventing paint from being disposed of through landfill or incineration has been identified and supported by high amounts of waste paint estimations in Ireland and recognising the interest shown by the local authority recycling centre operators. The expansion depends on several factors, including the scale of operations, expertise and space available, as well as resources. In this research report, different models were presented based on the outcome of the various considerations.

Further research is needed to assess the costs and opportunities for each of the paint reuse models. The presence of the Circular Academy support programme will provide the assessment and support of potential projects in a timely and structured manner and provide much needed mentoring and training for early stage projects. Longer term plans for the future funding of a supported network of paint reuse organisations such as this should be considered and dialogue with relevant stakeholders should be initiated to discuss paint reuse expansion in the absence of the EPA and DCCAE’s support. The consideration of PRI for paint in Ireland could be reviewed alongside industry support programmes.
7 References


