

Milieu 2024

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*Thanks to Gerard McCarthy for sending in photographs from the MSc
Climate Change Wexford field trip*

Foreword

Stephen McCarron, Head of Department

It is an honour once again to be asked to provide a short foreword to this year's *Milieu*, the Department of Geography long standing and greatly prized publication. *Milieu* stands proudly as a great testimony to the quality of our students, their progression as learners and writers through Maynooth University and the hard work being put in by faculty members to provide those opportunities for engagement in the countless fascinating topics Geography has to offer to study.

In particular I think it worth noting the welcome general absence of definition of this edition by the emergency health crisis, namely COVID-19, that befell us all in the academic years 2020-21 and 2021-22. The majority of students that have penned the contributions making up this year's *Milieu* entered college during those very disruptive times and this publication in a small way is a credit to their resilience and progression since.

On that note, I finally wish (selfishly and Course Co-Director too!) to note the strong presence of the first cohort of MH203, BSc in Biological and Geographical Sciences students on the Geography Society committee. As the first group through this new programme and having entered in the aforementioned September 2020, they have shown great strength and patience. As I said to them nearly 4 years ago, they will have their names on the future of this programme as all original casts do.

My warmest regards,
and the best of luck to all our students in the future,

Dr Stephen McCarron,
Head of Department,
Maynooth, May 2024.

Editorial

Adrian Kavanagh

Welcome to *Milieu 2024*. I will start by stating the obvious. There would be no *Milieu* without different students and staff members taking the time to submit their articles (and photographs), so an especial thanks to everyone who did so.

Shauna, Michelle, Amy, Daniel, Saoirse, Adam, Katie, Róisín, Kerry-Ann, Tadhg, Beth, Sam, Emma, Ciarán, Lionel and Andrew – thank you very much for your efforts and for making this year’s issue of *Milieu* yet another example of the quality work that is produced by our undergraduate students. Hopefully what is probably your first experiences of getting your work published in a journal, such as *Milieu*, will whet your appetite for further research/geographical writing. Maybe we will hear again from some of you in the not-so-distant future as you begin to carve out a career as lecturer/researcher in Geography!

Thank you also to Gerard for sending on photographs from the Wexford fieldtrip, as well as to Ronan for his “Tracing Health through the Map” article. As some of you may know (and will regret), this week saw Ronan’s last lectures to our undergraduate student cohort, as he is retiring in September. Given this, Ronan has been allocated the final position in the *Milieu* running order this year, which, as the students in GY310B Option Group 7 should be able to tell you, is the prime slot to get! Ronan will be sadly missed, not only because of his contributions to the Department and Geography students over the past twenty one years, but also because he has been one of the most faithful contributors to *Milieu* over his time in Maynooth Geography. Thank you also to staff members who encouraged their students to submit work to *Milieu*.

This year I asked the Final Year Geography students, if they wished, to contribute their favourite memories of their time with us in Maynooth Geography, and you can see these contributions later on in the journal – thanks to all the students who contributed. For me, *Milieu* should be important to all students and staff, but should be especially so for our final year undergraduate students, many of whom will be leaving us for pastures new in the next few days and I wanted to get as many of the voices of those students represented in this year’s edition. To our final year students, can I say thank you for all of your hard work and

dedication over the past number of years. I may seem that we underestimate this, but we, as staff, are always conscious of the level of engagement and quality of work produced by our students, most of whom have other personal issues to also be working through at the same time. Please never under-estimate the level of work that you have produced over the past few years, but also do not forget the degree of skills, some of which would be geographical, that you have learned, and practiced, in your time with us (and, looking ahead, do make sure to give these full justice on your CVs). Hopefully we have also helped you become more critical and fair-minded and more willing to take on board a diversity of viewpoints; vital skills to have in an increasingly challenging local, national, and global environment, in a world that is marked by “echo chambers”, “no platforming” and an increasingly polarised social media environment.

Next year will see the 50th anniversary of the first ever issue of *Milieu*, which was published in 1975. *Milieu* has a very long and proud history, and over my many,, many...many years with the Geography Department, I have been lucky to contribute to the journal in many various guises, dating back to my debut in *Milieu 1991* when I wrote a short article as a Second Year Geography student on the risks of political conflict in Yugoslavia. I do not want to go all *How Green Was My Valley* here, but – even with the technological limitations of past decades – it has never seemed as hard to put together an edition of *Milieu* and it something we always seem to just get over the line just before the final days of lectures (and this year keeps to that tradition). (*In this regard, I need to especially thank William Durkan, formerly “of this parish” and now spearheading geographical teaching in UCC, who ensured we had a Milieu across each of the last four years in his role as editor – what a contribution he made.*) Everyone just is busier. Students are busier. Staff are busier. And the future outlook is for even busier times. Despite these challenges, hopefully, we will produce a fiftieth anniversary edition next year to do *Milieu* justice, which may well again feature some of the contributors who have graced this year’s edition, or indeed some of our students who may well be reading *Milieu* for the first time. Remember – without you, there is no *Milieu*.

Adrian Kavanagh,
Maynooth Geography Department,
Thursday 9th May 2024.

Geography Society 2023/24

Lionel Swan and the GeogSoc Committee

The past two years here in Maynooth University have been some of the most exciting and expanding years for the Geography Society, and we as students and academics alike can't be prouder of their achievements. But as with all in geography, that cycle came to an end and a new cycle began. New Geography loving students were given the chance to restart the geography society in their own image and here is just an overview as to what we got up to this year. As a newly forming committee sat within the walls of Rhetoric House, we knew it would be a challenge to restart the society with all but one committee member beginning their final year of their degree. However, we also knew the importance of keeping the Geography Society alive, so we got to work planning how we could promote our love of Geography to the ever-expanding communities across Maynooth University.

The Committee

Co-Presidents: Beth Corry and Lionel Swan

Secretary: Aimée Whistler

Treasurer and PRO: Gráinne Chaney

Chief Welfare Officer: Aidan McLarnon

4th Year Rep: Laura Cullinane

1st Year Rep: Darragh Wafer

Despite the slow start to the year, mainly due to the unexpended amount of work needed to restart a Society, we began organising and planning the years activities and events. First up was our opening or re-launch event. Thanks to Dr Michelle Curran, the geography society was able to launch alongside the Geography Departments 'Circus of Climate Horrors', which saw to educate people about climate change in a fun and interactive way!

Following the success of the launch event, we set about organising a weekly social event in which Geography students could relax, chat and make new friends. We wanted to create an environment where students could escape the everyday stresses of college life in favour of fun experiences. Alongside the weekly social event, we organised several other fun events throughout the year:

- A geography themed movie night, where we watched 'The Day After Tomorrow'
- A nature / biodiversity photo competition, where we asked students to send in their best nature photos from around campus with the chance to win a prize

- A joint hosted quiz night with several other societies from Maynooth including the Environmental society and the History society, with all money going in aid of Palestine

I truly believe the Geography Society this year symbolised a beacon of joy and hope for all students. From the committee's point of view, we were progressing through the most challenging academic year of our lives and the society was always there to release the pressure and stress. I think we can all be proud of what the Geography Society has stood for this year, and I believe future years and iterations of the Geography Society will do the same, in their own way!

A final thank you should be given to:

- All the members who joined us throughout the year, I hope you all had fun.
- Dr Adrian Kavanagh, who for years has been the Society's link to the Department.
- Neasa and Catherine, the Department administration team, who have helped, promoted and supported the Society from Day One

Enjoy the *Milieu*,

GeogSoc 2024

All climate models are wrong, but some are useful.

Saoirse Fordham, Third Year (Single Major)

This essay argues that all climate models are wrong, but some are useful. This will be demonstrated by firstly explaining some limitations of models and secondly, uncertainty in the climate system. Finally, how models can still be useful despite of these factors will be discussed.

One of the main limitations of models is their resolution. Models don't have the ability to represent the small-scale structures within the climate system due to them occurring at scales smaller than the usual grid resolution (Flato, 2011). This makes it difficult for models to accurately represent regional climates. Many important processes occur on small scales or vary significantly over small spatial scales and only rough estimates are available. For example, vegetation and underlying soil conditions can vary greatly over just a few tens of meters. Simulating the entire climate system takes a huge amount of computer power (Foley, 2010). Improving the resolution of a model from 200 to 20km, for example, would require approximately 10,000 times more computing capacity (Flato, 2011). To produce outputs with high-resolution a model must compensate in other areas and leave out some processes, reducing the model's accuracy. Understanding how the climate system will respond to climate change on a regional scale is essential information for decision makers. To bridge this gap between the coarse resolution of climate model output and the information needed for planning and adaptation at river basin and city scales, regional climate downscaling is used. There are many techniques used to do this, but all of them depend on the accuracy of the information supplied by a host global climate model (GCM) to drive the downscaled behaviour (Wilby, 2017). Therefore, the inevitable uncertainties present in any GCM will be translated into the downscaled results. Due to the resolution limitations of models, many processes must be parameterized. This involves the processes that are too small to be resolved being approximated based on other resolved large-scale model variables (Flato, 2011). The accuracy of these parameterizations directly affects the accuracy of the overall model. Parameterizations in models are made based on our knowledge of the current climate system and their assumptions are difficult to verify (Foley, 2010). Parameter values can also vary between models (Hargreaves and Annan, 2014). Therefore, many parameterizations in models could be inaccurate leading to the overall model being wrong, or if a particular parameterization was correct, it may not be valid in a warmer world.

The representation of clouds is an example of a key limitation to all climate models. Clouds play a crucial role in regulating the earth's energy and water balances. Therefore, errors in representations of clouds in models will result in the overall model being wrong. High, thin clouds trap outgoing longwave radiation having a warming effect and oppositely, low, thick clouds reflect sunlight back into space, having a cooling effect (Foley, 2010). Clouds are difficult to model accurately due to their complex nature and their processes of formation occurring at very fine scales. Foley (2010) states that convective cloud formation is an example of a process that should not be left out of models as it significantly affects the stability of large-scale circulation. Due to the scale on which clouds form being as small as

less than a kilometre, they must be parameterized. This is especially challenging to do for clouds as there are uncertainties in our understanding of them. This is largely due to our observational records of cloud being short, most of which didn't commence until the 1970s (Foley, 2010). There are expanding satellite observations to improve our knowledge on the role of clouds in our climate system. Although, with our increasing knowledge of the climate system, as previously mentioned, there is still the problem of limited computer resources. In order to include many complex processes in a model, it must run at a low resolution.

Even if all the limitations of models were eliminated, due to the unpredictability of natural climate variability and external drivers of climate change, a model can never be fully accurate. The earth's climate system is chaotic and making small changes to the initial conditions of a climate simulation produced by a model could produce significantly different future climates (Mitchell and Hulme, 1999). These differences in outcomes from a climate model after such small changes being made highlights the natural unpredictability of the climate system. A model can produce a huge range of different outcomes, all of which will be technically incorrect due to climate's inherent unpredictability and the model's limitations previously described. Foley (2010) Argues that the climate system is made up of such complex processes and interactions that a model perfectly simulating this is impossible. On top of the climate systems natural unpredictability, we cannot know exactly how the climate system will respond to both natural and anthropogenic external drivers of change. Volcanic activity is an example of a natural external driver of climate change that's impacts are unlikely to ever be predictable, and classed as and unknowable uncertainty (Foley, 2010). Irregular volcanic eruptions can have a significant impact on the climate system and even the most complex climate model cannot be expected to reveal a surprise volcanic forcing of climate. A volcanic eruption can emit a large amount of sulphur dioxide which undergoes chemical transformations in the atmosphere, producing aerosols (Flato, 2011). Aerosols reflect shortwave radiation, reducing the amount that gets absorbed near the surface and as a result there is a cooling effect on the climate system. The initial impact of an eruption may last a few months, but it is possible for global temperatures to take decades to return to normal. This occurred in 1991, when Mount Pinatubo in the Philippines erupted reducing global temperatures, while also causing a warming in the Northern Hemisphere (Mitchell and Hulme, 1999). This volcanic eruption demonstrates how volcanic activity can have profound climatic effects, all of which cannot be captured in a model, leading to uncertainties in long-term predictions of future climate. The climatic impact of each eruption varies and depends on many factors, such as the size of the eruption and sulphur content, making it also difficult to reconstruct those of the past. The greatest uncertainty in climate modelling is the unpredictability of future anthropogenic greenhouse gas emissions and their resultant atmospheric concentrations (Foley, 2010). Future emissions heavily depend on factors such as population growth, economic development, technology advancements, changes in agriculture and use of carbon-free energy sources. How all these factors will play out in the future cannot be known, but future concentrations can be estimated based on how humans might behave in the future.

Although climate models have limitations and are all technically wrong, they remain a vital source of information about future climates. They are the only way in which we can create

knowledge about the future impact of human activities on the climate system. They have produced many influential results, including the prediction that increased CO₂ emissions over the 21st century will lead to a global warming of around 2-4°C (Hargreaves and Annan, 2014). While future human activity is unpredictable, with scenario analysis models can simulate plausible different altered climatic states (Storch, 2010). In this way models have been essential in helping plan for potential future climate conditions. Generating ensembles is a way in which better reliability can be provided when considering all aspects of climate and uncertainty (Foley, 2010). This can be done by combining simulations from a climate model or multiple models, each with slightly different initial conditions or parameterizations. By working with many different models, decision makers can ensure their strategies will cater for a range of possible futures. As well as this, models have proven skill at representing features in past and present climate (Foley, 2010). This allows scientists to test theories and further theoretic understanding of climate processes.

In conclusion, any model is limited by the knowledge the scientist has about the climate system and how it is changing, and the computing resources available to run it. The coarse resolution of models and their inability to represent small-scale structures in the climate system are the main issues with models. Parameterizations in models can be another source of error due to them relying on simplifications and assumptions. Clouds have an influence on global radiation and precipitation and cannot be correctly simulated in models, as they are complex and operate on a small scale. Along with these limitations, models will also always be wrong because of uncertainties within the climate system and it's both natural and anthropogenic external drivers of change. Although these limitations and uncertainties exist, models are based on physical laws and have been essential tools in understanding past, present, and plausible future climates. They can provide valuable information we need for predicting future climate impacts and decision making.

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Is ‘The Rural Idyll’ a Myth?

Emma Brady Reid, Second Year (Double Major)

This article will question the existence of the ‘rural Idyll’. It will also explain the reasonings for it in the context of trends, the idyll itself, the stereotypes, the reality, poverty and the effect on the environment. These contexts will be applied to the UK and Ireland throughout the paper. The rural idyll refers to the idealistic view on rural living, when the reality is much different. With the growing popularity of rural living, not many people understand the reality of living in the countryside. The myth of the ‘rural idyll’ is not exclusive to Ireland and England but can be seen around the world in countries such as Australia and Norway. The location depends on which idyll the individual is chasing as rurality has a different view everywhere. Rurality usually means a place that is remote and isolated from the rest of society.

The rural idyll was popularised by the romantic movement in literature in the late 18th century, with poems and paintings with themes of rurality and comparing beauty to nature (Jacobus, 2012). This was repeated by W. B. Yeats during the Gaelic Revival, where the rural landscape was glorified as an authentic source of Irishness. Yeats romanticised rural living in Ireland to help ingrain a sense of pride into Irish people (Regan, 2006). Modern day media such as film and TV have also produced an idealised view on rural living. Films such as ‘The Quiet man’ (1952) and P.S I Love You (2007) contributed to the romanticized view of rurality. The COVID 19 lockdowns also popularised the idea of rurality as ‘staycations’ became the only way people could take a break from their lives (Moon & Chan, 2022). The sudden interest in rural properties after the pandemic would later become a huge problem for many of the rural communities as it meant that the cost of living in the area was set in increase (Kay & Wood, 2021). These issues contribute to the myth that is the rural idyll.

The idea of the idyll seems to come from many places. The rise of the ‘cottagecore’ aesthetic (Kay & Wood, 2021) is partly to blame for the surge in rural living. This aesthetic glamourizes rural life as a nostalgic ideal of a ‘pastoral escape’. The imagined ideal of rural living includes small scale farms, self-sustainable living and an all-round better quality of living. In an effort to satisfy the need for rural living, many individuals have bought ‘holiday homes’ in scenic areas of the UK and Ireland (Hall & Muller, 2004). This is a problem for many of the rural inhabitants as it would raise the prices of their local homes and it would also contribute to destroying the local landscape. Building on scenic land would harm many local wildlife habitats and take away from the ‘green spaces’ that are necessary for the scenery. The ‘race for space’ (Kay & Wood, 2021) would bring up many questions about who ‘owned’ the countryside, and who had the right to build on it. Ultimately, building on the beautiful rural scenery would ruin the idyll for everybody involved.

Some of the stereotypes of rural life are unfortunately quite negative. One of the stereotypes of rural living is that rural people are ‘backwards’. Unfortunately, some may see this stereotype as true as there is a serious lack of diversity in rural areas in comparison to urban areas. Racism, homophobia and sexism are prevalent in rural towns in the UK and Ireland. According to Chakraborti and Henderson (2004), the issue of rural racism has been vastly overlooked in studies. Many minorities have experienced racism while living in small rural towns. Countless individuals have come forward and said that they feel out of place in rurality because of their race (Chakraborti & Henderson, 2004). There is also a serious lack of LGBTQ+ spaces in rural areas. Many students in these areas feel isolated because of their sexuality, especially as the small number of students would also result in a small number of

LGBTQ+ individuals (Odenbring, 2019). Bullying and harassment is struggle for these students as they must navigate their lives as an ‘outsider’. Many rural towns follow traditional gender roles that are not usually followed in urban areas. Many women become the ‘invisible farmer’ on their farms as their work often goes unnoticed (Riely, 2009). Women also take care of the farm workers, the children, domestic life and any admin or bookkeeping work without getting any recognition. All these factors go against the idealistic nature of the rural idyll.

The Reality of rurality is much different to what most people believe it to be. The picturesque landscapes of rural Britain and Ireland are rugged, isolated and bleak (Hall, 2020). Unlike urban areas, it is difficult to access places without a car as most places are not within walking distance. This makes getting anywhere difficult for elderly people, people who cannot drive and people with disabilities (Hall, 2020). The lack of public services including buses and trains contribute to the inaccessibility of rurality. The main options for employment include farm labour and childcare. There is a lack of options for employment, which makes many younger people move out of their villages and move into urban areas, which leaves the older people behind. The ageing population is mostly unable to work, which puts a strain on the economy and the care services that would have to be put in place. The realities of rural living are much darker and much more difficult than the rural idyll makes it out to be.

Poverty is evident in rural areas as the lack of affordable housing and any real economy make living comfortably very difficult. Historically, the rural UK and Ireland have always been poorer than the urban areas (Milbourne, 2004). It may not be apparent at first glance, considering the countryside’s are littered with big houses and even bigger farms. But many of these people only live in a couple of rooms in the house as they cannot afford to heat the whole house (Healy & Clinch, 2002). Poverty is invisible in rural areas. Farming is still considered a lower-class job by many. The long hours and low pay deter people from farming and towards more urbanized areas. There is little financial help for people in rural areas (Commis, 2004). They are often overlooked when it comes to financial studies. As a result of the poverty, much of the younger population are leaving rural areas to find better living conditions. The pandemic has since worsened this inequality between rural and urban living. These ‘staycations’ have only boosted the economy by a small amount. The ‘staycations’ only offer a small amount of income for a short amount of time, it is not enough for anyone to live on (McAreavey & Brown, 2019). These conditions are not reflected in the rural idyll, which leads to the belief that the rural idyll is a myth.

Many environmental issues directly go against the rural idyll. The influx of people coming into rural areas for tourism have led to a lot of litter and destruction to the local areas (Anderson et al., 2014). The development of holiday homes and new hotels have started to have a negative effect on the local habitats of animals. These have also influenced the local scenery, which in turn would affect the rural idyll (Norris & Winston, 2008). The use of pesticides in agriculture is also having a negative effect on the rural environment. Wild and domestic animals can ingest these pesticides and pass away. This would have a profound effect on the environment as the natural food chain would be disrupted. If humans ingest these pesticides the effects would be similar (Norris & Winston 2008). The high levels of methane, a powerful gas from animal waste, is one of the main reasons for global warming (Reay et al., 2010). Many environmentalists disapprove of the keeping of cows for this very reason, which would damage the farming industry.

In conclusion, the rural idyll is mostly a myth. The popularisation of rural areas by social media, film and TV have glorified the rural idyll to a point that rural life is completely unrecognizable. The unfortunate reality of rural life has repelled people from the countryside

to the urban areas of the UK and Ireland. The stereotypes of rural communities being unwelcome, closed minded and cold unless you are the societal norm have been proven to some degree, which drives minorities away from rural areas. The truth about rural living is completely opposite to the ideal that is portrayed by the rural idyll. Rural areas are often forgotten about in studies which makes them underrepresented and underfunded in comparison to urban areas. poverty is rife in rural areas, which makes younger people leave to find work elsewhere. This leaves an ageing population and a lack of service to care for them. The arrival of ‘staycationers’ in rural areas have ruined the picturesque scenery of rural UK and Ireland by littering and destroying the local landscape. This proves that the rural idyll is a myth.

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The Biodiversity of Bull Island

Lionel Swan, Year 4 (Biological and Geographical Sciences)

The main reason Stakeholders and Policymakers need to acknowledge the importance of Bull Island is because of the spectacular array of flora and fauna that call the island home (Dublin City Council, 2014). Throughout the course of the year, 180 species of bird, including 26,000 waders and 8,000 wild fowl, are seen spending time on the Island (Dublin City Council, 2023; NPWS, 2014). The EU Birds Directive protects several of these species that are known to make their way from Africa and Canada in order to spend the winter months on the island (Grace, 2022). 3 such species, *Branta bernicla* (Light-bellied brent goose), *Limosa limosa* (Black-tailed godwit) and *Limosa lapponica* (Bar-tailed godwit) are said to arrive in ‘internationally significant numbers’, while another 14 species occur in ‘nationally significant numbers’ (Dublin Bay Biosphere, 2023). In fact, species such as the Pintail’s and Knot’s that occur on Bull Island account for 14% and 10% respectively of Ireland’s total population year-round (NPWS, 2014). Many species of bird also spend the summer months on the island, with some arriving in ‘nationally significant numbers’. Many of these species choose to breed on the island such as the Swifts, Swallows and Sand Martins (Grace, 2022; Dublin Day Biosphere, 2023). In order for these migratory birds to continue returning to Bull Island, the salt march habitat in which they feed and roost at, must be managed and maintained (Burns, 2023). Considering nearly two-thirds of Ireland’s wild bird species are classified as being ‘Red’ or ‘Amber’ on their conservation status (Figure 1), Stakeholders and Policymakers need to understand that conserving and leaving habitats undisturbed is crucial for the future of the island’s biodiversity.

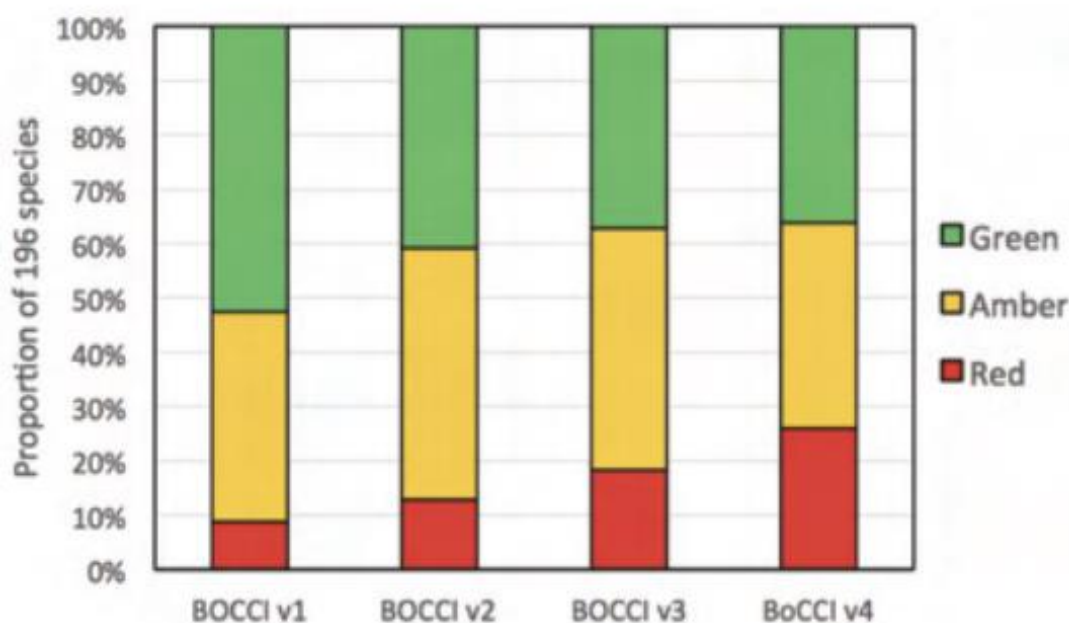


Figure 1: Comparing the proportion of 196 bird species conservation status (BOCCI) over 4 distinct years; 1999(v1), 2007(v2), 2013(v3) & 2020(v4). Note as time has progressed, more and more species are being placed in the ‘Red’ and ‘Amber’ status (Nearly 2/3rd) (Gilbert, et al (2021))

It's not just bird species that flock to Bull Island, a vast range of other species, many of which are protected under the EU Habitats Directive, can also be found on the island. *Petalophyllum ralfsii*, a species of liverwort commonly known as the Petalwort, a species of Butterfly known as the Marsh Fritillary Butterfly and 3 bat species, Common Pipistrelle, Soprano Pipistrelle and Leislars, can all be found on Bull Island at various stages of the year (Dublin Bay Biosphere, 2023). The two biggest species found on the Island are both seals, the harbour seal and the grey seal. They can normally be seen on the northern part of the island where they pup and haul out (Grace, 2022; Burns, 2023).

Under the NPWS Flora Protection Order, *Bryum intermedium*, *Bryum uliginosum* and *Bryum warneum*, 3 bryophyte species and 5 rare species of plant are legally protected on the Island (Dublin City Council, 2023). Many other species of plant exist on the island, with over 360 different species recorded to date. These plant species, above all others, play a crucial role in the ecological succession that occurs between nationally and internationally significant habitats on the island (Dublin City Council, 2020). With such a diverse selection of species & habitats in such a refined area, real attention and care needs to be taken by Stakeholders and Policymakers in order to conserve the island from current and future threats.

Current Threats and Conservation Efforts:

Bull Island's wealth of biodiversity is not the only reason it needs to be conserved. The island itself has a huge impact on the conditions felt on the mainland. Due to its location in Dublin Bay, the island acts as a barrier for the mainland by absorbing the harsh conditions from the sea (Mathew et al., 2019). The current degradation of the sand dune habitats, the island's main line of defence against these harsh stormy conditions, is threatening the whole island's existence. The reason for the degradation of these sand dune habitats is mainly due to disturbance (Corrigan, 2023). Human's creating desired paths is causing many of the sand dunes to weaken and then collapse. The increased human & dog activity that is brought to the sand dunes due to these desired paths is also disturbing the various forms of wildlife that live there (Dublin City Council, 2020). Hares, Rabbits, Lizards and many plant species contribute immensely to the habitats stability. If these species are too heavily disturbed and forced to leave (Hares already have (Naulty, 2016)), the sand dune habitats will only degrade further and possibly disappear altogether, resulting in the loss of the island's defensive capabilities (Dublin City Council, 2023).

Conservation measures have been put in place to help reduce the damage done to the sand dunes and promote new sand dune growth. Wooden posts were placed in front of damaged sand dunes in order to reduce wind erosion, with surveys estimating a reduction of 50% was achieved (Corrigan, 2023). In order to address the disturbance of wildlife, mainly due to dogs running off their leads, Dublin City Council have stated that dogs must be on their leads when walking through the sand dune habitats (Lynch, 2023; Dublin City Council, 2023). This implementation has divided the general public with some agreeing the biodiversity needs to be the main priority, but others feel this reduces their dogs freedom to play (Lynch, 2023). The presents of large Ectocarpus algae blooms are known to occur off the coast due to the release of nutrients into the water via a nearby sewage treatment centre. The removal of this algae from the water and subsequent placement of it on the island is thought to offer some protection for the sand dunes (Corrigan, 2023).

The island's sand dunes and the species that live there are not the only ecosystems that need protecting from disturbance. The saltmarsh habitats that extend along the whole of the mainland side of the island and the northern tip of the island is now heavily restricted thanks to Dublin City Council's latest 'Visitor Access Management Plan', see [Figure 2](#) (Dublin City Council, 2023). As mentioned above, these areas of the island are extremely important for a number of species such as the seals and migratory birds. Restricting not only dog access but human access to these areas will reduce the amount of disturbance significantly and should allow these species to thrive in a purely nature habitat.



Figure 2: Dublin City Council's Zoning plan for the Public's access to the various sections of Bull Island. There is no access for dogs or Humans on the north tip to lower disturbance. Source: Dublin City Council (2020)

Another threat to the island's biodiversity and overall structure are invasive species. One such invasive species that has become a real threat to Bull Island after it was introduced to help control dune erosion, is *Hippophae rhamnoides*, commonly known as Sea-Buckthorn (Dublin Bay Biosphere Partnership, 2022). According to the National Biodiversity Data Centre, Sea-Buckthorn is likely to have a 'Medium Impact' on native species (NBDC, 2023). This is due to the fact that Sea-Buckthorn changes the soils Ph levels to favour itself and this has implications for native species even after it has been removed (Richards & Burningham, 2011). These altered soil Ph levels began to cause issues for several plant species on Bull Island, namely the Marram grasses, which are vital to a healthy structured sand dune habitat. A huge project to get rid of the Sea-Buckthorn, costly 30,000 Euros, was implemented. However, Sea-Buckthorn is still present on the island today (Corrigan, 2023).

Future Threats to the Island:

By far the greatest future threat to Bull Island and its biodiversity is climate change. The most negative effects are likely to come in the form of sea-level rise given the island's coastal setting. Dublin Bay is seeing a relative sea level rise more than double the global average and its effects will only be enhanced if surge levels, wave energy, storm intensity and storm frequency increase alongside it (Gibson et al., 2014). Considering this happens, which is more likely than not at this stage, Bull Island might not exist in 7 years' time (O'Sullivan, 2023; Corrigan, 2023). Without Bull Island acting as a barrier for the mainland, the risk of flooding and storm damage would be significantly increased (Rouse, 2023).

An increase in global temperatures are likely to cause issues for certain species on the island. *Limapontia depressa*, a species of sea slug could see a huge reduction in their numbers if their saltmarsh pools dry out due to the increased summer temperatures expected (Wilson & Forrest, 2004). The increase in ocean acidification is also a big worry for species that live on the island (Ni Longphuirt et al., 2010), especially species that reside in the intertidal zone as many of these rely on the ocean's current chemical makeup to construct hard and resistant shells for protection (Doubleday et al., 2017). However, Bull Island can also give back and help us fight climate change. A healthy, fully functioning coastal wetland, such as the ones found at Bull Island, are capable of sequestering carbon dioxide, pollutants and metals released by human activities (Grey et al., 2021). Making Stakeholders and Policymakers aware of these current and future threats is the only way to highlight how important it is that Bull Island is conserved, not only for its wealth of biodiversity, but also for its role as a barrier island in protecting the mainland from flooding and storm damage.

Conclusion:

Bull Island is one of Ireland's most important sites of conservation, not only because of its hugely diverse wildlife, but also because of the protection it offers the mainland. Considering the pressures climate change, human activities & invasive species have put on the island's ecosystems, Stakeholders and Policymakers need to be made aware of the potential devastation consequences that could occur if these current and future threats are not reduced. The conservation methods and strategies used at Bull Island should become a key message to Stakeholders and Policymakers around the world that threats to biodiversity can be solved, not only with physical engineering, but also through the utilisation of nature-based methods.

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Flow and Waste: The Disposable Dilemma of Period Products

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Introduction

Modern disposability was adopted after the second world war to boost the national economy, this is clearly evident in the United States. Similarly, competition between countries was occurring as all countries were trying to have a higher Gross Domestic Product (GDP) than one another. Having items that were not durable was a profitable business model as consumers became regular repeat customers. This was not the case beforehand as America was rationing everything from food to clothes. The social norm shifted as disposability became synonymous with wealth (Hecht, 2020). Items became single use or were built to only last for a few uses. This is called planned obsolescence when an item is not made as well as it could be so that individuals will purchase more. A clear example of this is menstruation products such as sanitary pads and tampons. These items are single use and multiple are meant to be used during menstruation (Hecht, 2020). These items must be disposed of in a certain way to prevent damage to the environment and plumbing systems (Blair, Bajón - Fernández and Villa, 2022). Humans are not inherently wasteful, but the societal norms accompanied with a lack of education into other options and the damage being done has created a disposable world.

Disposable products

Before the 1950s and the growing transnational trade, people shopped at a much more localised scale. Most items were locally sourced on a national scale. Menstruation products used to be like cloth pad that women would sew and place in their underwear to prevent their clothes being stained and to absorb the blood. The disposable pad was created in 1888 by Johnson and Johnson (Hait and Powers, 2019). The use of disposable products was marketed to keep menstruation discreet as if it was a secret or taboo. The tampon was only accepted post World War two but still associated with some stigma. Women began to regularly use both disposable pads and tampons in the 1960s and 1970s. At the same time these products were heavily advertised. Tampons were an item that only became popular after an applicator was added as was deemed taboo by society for one to touch themselves (Hait and Powers, 2019). The first menstrual cup was created in 1937 but at the time there was rationing of rubber for World War two (Hait and Powers, 2019). This halted the production. In the 21st

century medical grade silicone is available to produce menstrual cups making them more accessible for the consumers. There has been a bit of a cultural shift with people not seeing menstruation in this light, this could mean that people start looking into other options and move away from the disposable products. A key barrier to this is that the market for disposable products is a multi-billion market (Hait and Powers, 2019).

There are multiple types of tampons packaging. Some of the applicators are created with plastic, cardboard or have no applicator. The tampons with cardboard applicators are marketed as more environmentally conscious but the cardboard is unable to be recycled after use. The tampon with no applicator is often wrapped in plastic to prevent contamination. Tampons have a built-in disposability and are unable to be used more than once due to the nature of the product. Also, tampons must be regularly changed to prevent users from contracting toxic shock syndrome, which means more are used. Pads are similar in how they are packaged. Most pads are wrapped in a plastic cover and come in a box or a plastic bag. Sanitary pads with wings, have a small piece of recyclable paper to prevent them sticking to one another.

Recycling of Menstruation Products

Menstruation products are unable to be recycled as they contain human waste. This means that they must be destroyed or left in a landfill site. Disposal menstruation products have a high environmental cost, in the United Kingdom alone it is reported that 28,114 tonnes are created annually (Ramsay et al., 2023). In America 39 million U.S. women used 174 million boxes of tampons at a total cost of \$1.04 billion and 61.3 million using 396 million boxes/bags of sanitary pads at a cost of \$1.76 billion in 2018 (Hait and Powers, 2019). Hait and Powers' study examines the life cycle assessment of three products: disposable tampons and sanitary pads, and reusable menstrual cups (2019). By removing the applicator for tampons the severity of the impact on the environment would be reduced by several times. Most of the materials used in the production of disposable menstruation products are plastics. This means that they are created from non-renewable oils and natural gases (Hait and Powers, 2019). Other waste is produced in acquiring the raw materials, manufacturing, and distribution of the products. These emissions are unrecorded and not quantified. Sanitary pads/tampons are meant to be disposed of into the rubbish bin and in general waste in the home and outside in public restrooms there should be specific bins for used products (Blair, Bajón -Fernández and Villa, 2022). This is the proper way to dispose of these items, but this is not always the case. Often these items are improperly disposed of and can enter the sewage

system by individuals flushing them down the toilet (Biju, 2023). By disposing improperly these products can end up in the sea and end up in public spaces.

There is limited work done on the amount of waste produced from a menstruating person during their lifetime, the last time a study was conducted was in 2004 and it was estimated that between 125-150kg waste is produced during a lifetime use of disposable products. These datasets did not include women in different crisis conditions. The menstrual hygiene waste MHW could be 250-300 million tons annually (Anand et al., 2022). The reusable options are there such as period underwear, reusable pads and menstrual cups are alternative to the disposable options. These options are much more environmentally friendly. The menstrual cup has been found to have less than two percent of the same negative environment impact as the disposable options (Anand et al., 2022). The menstrual cup contributes only six to seven percent of plastic waste of sanitary products at landfill sites (Ramsay et al., 2023). Cloth pads are less polluting to the environment as they can be reused but are not an option if there is no access to water or privacy. Possible solutions to MHW are often ignored in low- and middle-income solutions leading harm to the environment. There are concerns with uncontrolled disposal of MHW. The chemicals in the pads are normally unregulated as they are cheaper. Pads are made from petroleum plastic such as polythene and this plastic takes up to eight hundred years to degrade and can release potentially toxic monomers into the environment (Anand et al., 2022). Other materials used are cotton but can contain pesticides like atrazine which if disposed into waterways can lead to acute or chronic aquatic toxicity. Some of the disposable options contain fragrance to mask the smell. These chemical-like organochlorines can kill natural microflora in the soil that will delay the decomposition processes (Anand et al., 2022). If this waste is stored before incineration, it can lead to toxic air emissions containing polychlorinated dibenzodioxins and other chemicals that can damage groundwater through contamination due to leaching (Anand et al., 2022). Menstrual blood infected with HIV or hepatitis both retain the potential of infection in both soil and water (Biju, 2023). Workers without proper protective gear are exposing themselves to toxins and pathogens. Menstrual cups are a viable solution as they can be sterilized and if they are made from high grade silicone without harmful chemicals and could improve hygiene from menstruators in crisis conditions.

Reusable Options and Solutions

There is a vacuum in education that neglects to introduce other options to manage their menstruation. In the classroom alternate options such as the menstrual cup needs to be

normalised and seen as a viable option. Doing this will show that there are more options than the disposable products and that are more environmentally friendly. Educate on how much damage disposable products can do to the environment and show that the reusable options despite being more expensive initially will save you more money over time. They are more durable and economically conscious. reusable menstrual products have become more mainstream and there has been a shift towards more sustainable practices. These products such as washable pads, period underwear or the moon cup are more cost effective for the consumer and are better for the environment. Other parameters that need to be considered are cultural, socio-economic and political context. There is a gap with who can access these "sustainable systems" is often the more sustainable options are more expensive, to view sustainability it must include the environmental impact, the economic and the socio-political circumstances (Ashley et al., 1999). Sustainability can be viewed at different levels and there are different ways to measure sustainability. If the product is made from sustainable materials, how it transported to the sellers, how it is packaged, how it is used and how it is disposed.

A study conducted in Victoria; Australia sought to find young people who menstruate aged fifteen to twenty-nine opinions on the different options available. Among, the five-hundred people thirty seven percent (Ashley et al., 1999) reported using a reusable option for their menstruation over the disposable options. Twenty-four percent of period underwear, seventeen percent used a menstrual cup, five percent used reusable pads (Ramsay et al., 2023). The study found that the older cohort of twenty-five to twenty-nine used reusable options more often Participants were questioned about their choices and the answers ranged from environmental impact to cost to comfort. Thirty-seven percent of participants felt that they did not have enough information on reusable options and the younger participants had the least knowledge on the alternative options. In Australia per year three hundred million tampons and five hundred million pads are sold. Perception of reusable menstruation products varied, the four main statements; one being good for the environment and then three mainly negative statement that they felt it was too much effort, too difficult and unhygienic. It is also about access, most disposable products are readily available, whereas reusable options are not sold in supermarkets, and it takes more effort to source reusable options. Many of the participants had concerns over how the reusable options would function and how to properly use them. Participants stated that reusable options are important but take more care in terms of sanitising and having to change while out and bring the used pad home in a plastic bag (Ramsay et al., 2023). There is also the issue that reusable period underwear has a

limited size range so not all women can avail of it. The upfront cost of these reusable options was highlighted in the study and some of the participants stated that they understood the long-term saving, but their budget was too tight. This means despite wanting to be more sustainable they are stuck in a cycle of buying tampon which tend to be cheaper.

A study conducted in Uganda studies schoolgirls and their experience of reusable sanitary pads. This study quantifies the ratings of reusable pads to other methods of managing their menstruation. This study included two hundred and five menstruating girls from eight schools, seventy-five of which used reusable pads (Hennegan et al., 2016). The girls using the reusable pads stated that they were more reliable and had less accidents than other methods used by the girls. Of the seventy-five girls who used a reusable method, ninety-five percent of them preferred this method over other options. one discrepancy in the study found that the girls using the reusable options did not take part in strenuous or physical activities like the other girls. These activities can reduce protection, so the study a full evaluation of reusable pads as they were not tested as thoroughly as the other products. The other girls were given the option of using AFRI Pads menstrual kits to see if the girls would be open to using a reusable option. The kit includes; two holders, three winged pads, two straight pads and a carrying bag. Cotton was used in the creation of these pads as it is durable, and it is easily washable (Hennegan et al., 2016). The girls were surveyed later in the study about their feelings while cleaning a used pad. Sixteen out of the seventy-five participants said yes that they did not like this and would not want to complete this task again (Hennegan et al., 2016). Another problem encountered is that the pads must dry after washing which led to five girls saying that they unusually end up wearing a damp pad as they don't have enough reusable pads as they use up to three a day. This is unhealthy and could lead to the girls becoming ill. These pads take between two to seven plus hours to be completely dry. The girls were interviewed about the cost of the AFRI pads cost fifteen thousand Ugandan shillings and fifty-two-point- three percent said they were unable to afford them (Hennegan et al., 2016). Even though these reusable pads could be used for a decade.

Both studies come to a similar conclusion as reusable products are still deemed inaccessible due to the current cost of these items. In both cases the cost was raised as a concern and would be a barrier to choosing a more sustainable option for managing menstruation. To reduce the amount of waste that is created by disposable menstruation products there needs to be subsidised reusable products. In Ireland under slaintecare women can avail of free birth control and the HSE provides condoms to college campuses but there are no programs in place to reduce the cost of reusable products (sexualwellbeing.ie, n.d.). Ireland has abolished

the luxury tax on menstrual products to reduce the period poverty gap (Tax and Duty Manual, n.d.). This includes most sanitary products at a rate of zero. This should give menstruators more choice and reduce the cost barrier. It should also help those who were forced to remain at home as they were unable to afford menstruation products (Hennegan et al., 2017).

Conclusion

In conclusion the companies that manufacture products for menstruation use disposable products that generate a huge amount of waste that ends up in incinerators or in landfills. Products in landfills can cause leakage into drinking water and led to health problems. Reusable products need to be widely available and their needs to be more education in schools around other reusable options for people to use to manage their menstruation. Menstruation care is a human right and their needs to be more programs implemented globally to reduce the period poverty gap. Menstruators should be able to access any products that they need without having to be worried about the cost and if they can afford them. A reduction in the cost of reusable menstruation product and having them readily available could cut down on the amount of human waste at landfills and incinerators. People who menstruate make up fifty one percent of the population (Ramsay et al., 2023). That is a huge amount of waste that has the potential to be removed by choosing the more environmentally friendly and cost-effective option.

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The Processes that Drive the General Circulation of the Atmosphere

Andrew Nolan, Year 2 (Biological and Geographical Sciences)

The general atmospheric circulation system describes the global scale movement of air. Without the general circulation much of the Earth would be uninhabitable as global heat transfer mechanisms would be limited to the oceans. In a simple model, air moves from high pressure at the poles to low pressure at the equator due to the pressure gradient force. As the earth is complex, with many processes occurring simultaneously, this does not accurately describe the flow of air in the system. The general circulation operates on a three-cell model. The Hadley cell is located between the Intertropical Convergence Zone (ITCZ) and the subtropical highs 20°- 30° north and south of the equator. The Ferrel cell is located between the Hadley cell and the Polar cell. The Polar cell is located poleward of 60°. The movement of air is initiated by variations in energy receipts over latitude. Factors such as temperature, the Coriolis force, gravity, friction, and the pressure gradient force are important in the sustained action of the system. On a large scale the system has predictability, but it should be noted that local variations are constantly occurring.

The Hadley cells operate between the ITCZ and the subtropical highs. The land area over which it acts shifts with the seasons. During a northern hemisphere summer, the cell will migrate northward, and vice versa during a southern hemisphere summer. This brings about distinct seasonal climatic variations (Aguado & Burt, 2007). As such, the Hadley cell is governed by incoming solar radiation and heat. Convection is the movement of a substance due to heat. When an air parcel is heated, its particles gain more kinetic energy, and the air parcel expands. With a greater volume, density drops. This air parcel is now less dense than the surrounding air and is induced to rise at the equator. Thus, creating the equatorial lows. As the air rises it will lose heat, a process known as adiabatic cooling. The temperature of the air will drop at a rate of 9.8°C per 1000 metres in unsaturated air, this is known as the dry adiabatic lapse rate. The wet adiabatic lapse rate is 5°C per 1000 metres in saturated air (Barry & Chorley, 2003). The air will rise until it hits the tropopause. It then gets displaced latitudinally. As it gets displaced it cools and contracts radiationally, until it falls at a higher latitude (Barry & Chorley, 2003). As it falls it will begin to warm adiabatically. The slack winds at the ITCZ are a consequence of the convergence of air from the two Hadley cells, along with the high energy receipts which causes the air to rise. The ITCZ, otherwise known as the doldrums (Rohli & Vega, 2012a) is an area of low pressure categorised by having slack winds. The tropics, found at the boundaries of the Hadley cells are areas of high pressure. This difference in pressure creates a pressure gradient force. Under the pressure gradient force a parcel of air will move from an area of high pressure to one of low pressure (Trewartha, 1968). The pressure gradient induces surface level air to move from the higher latitudes of the Hadley cell toward the equator. The force is strongest when there is a substantial difference in pressure over a small area (Barry & Chorley, 2003). On a nonrotating planet this wind would move in straight lines. As the Earth rotates, it pulls the wind with it. Causally, winds are deflected to the right in the northern hemisphere and to the left in the southern hemisphere (Lutgens & Tarbuck, 2010a). This is known as the Coriolis Force. It is an apparent force, only occurring because of the Earth systems rotation. The Coriolis force creates horizontal motion in the form of the trade winds that are present in the Hadley cell. The trade winds are the predictable northeastern and southeastern winds in the northern and southern hemisphere respectively (Trewartha, 1968). The Coriolis force is proportional to the speed of the wind.

Friction is a force which opposes free motion. It acts in opposition to the Coriolis Force, limiting its effect (Antonini & Caldeira, 2021). Friction prevents the winds from travelling parallel to the pressure gradient. It is primarily generated as the air moves over the surface but becomes less important with altitude. The force of friction does not act evenly over the surface. Smooth areas such as the sea will produce less friction than those with an uneven topography (Rohli & Vega, 2012b). Without friction there would be no trade winds in the tropical regions. Even so, the air parcels have to travel around the world several times before they reach the other side of the cell (Aguado & Burt, 2007).

The processes at play in the Hadley cell are present in the other two cells. The degree to which they act, and their impact varies within each individual cell. In the simple cell model discussed earlier, air from the poles travels all the way to the equator. In reality this is not the case. At the subtropical highs air sinks. As it sinks it diverges with some going toward the ITCZ and the rest entering the Ferrel cell. The Ferrel cell, like the Hadley cell is meridional. A meridional cell is one which is driven largely through convective movement of air (Nanxian & Qing, 2020). The pressure gradient force results in the flow of air poleward to the subpolar low belt at 60°. The radius of the Earth is not uniform. As you move higher in latitude the curvature of the Earth leads to a shortening of its radius. The conservation of angular momentum is denoted by the formula $\text{mass} \times \text{velocity} \times \text{radius} = \text{a constant}$. Therefore, a decrease in radius will result in a greater velocity as the mass of the Earth stays the same (Rohli & Vega, 2012a). Winds of the Ferrel cell move faster than those in the Hadley cell as a consequence. The Coriolis force is proportional to the wind speed. The Coriolis force has a greater effect in the Ferrel cell than in the Hadley cell. At the same time, the Coriolis force becomes stronger with latitude (Rohli & Vega, 2012a). Greater deflection results. The air travels away from the subtropical high leading to the formation of the midlatitude westerlies. The Ferrel cell is a more complicated system than the Hadley cell. Its characteristic midlatitude westerlies are not as consistent as the trade winds. Atmospheric disturbances such as high- and low-pressure systems along with their associated fronts infiltrate these areas. This creates greater variability in the winds of the Ferrel cell (Trewartha, 1968). The uneven topography of continental land masses is another factor affecting the consistency of the midlatitude westerlies. From this, they are less variable in the southern hemisphere as there is less land (Barry & Chorley, 2003)

The poles receive low quantities of incoming solar energy. This creates extreme low temperatures and a widespread snowscape. With a high albedo snow reflects substantial portions of recipient energy (O'Hare & Sweeney, 1992). Therefore, there is little kinetic energy available to air at the surface. This causes the air to contract. Increasing in density. This cold dense air sinks and hugs the surface, creating an area of high pressure. This area of high pressure is the main characteristic of the polar cell (Rohli & Vega, 2012a). As stated previously the pressure gradient force is greater over a small area. Polar air moves outwardly toward the warmer subpolar lows. Air in this region is most stable in winter. As the Coriolis force increase with latitude, a prominent shift in wind is observed. This creates the polar easterlies (Barry & Chorley, 2003).

So far only surface level winds have been discussed. Winds aloft behave differently and are essential to the longitudinal transfer of heat in the Earth climate system (Lutgens & Tarbuck, 2010a). Geostrophic winds only occur aloft. Their formation is prevented near the surface by high levels of surface friction. Geostrophic winds are those that travel in equilibrium between the pressure gradient force and the Coriolis force (Lutgens & Tarbuck, 2010b). The height of the troposphere varies depending on the volume of air. Less kinetic energy due to lower temperatures causes cooler air to be denser than warmer air. Subsequently, the 500 millibar

surface is highest at low latitudes and lowest at the poles (Aguado & Burt, 2007). At the equator, the tropopause is, on average, 10 kilometres above sea level, while at the poles it is 19 kilometres (Rohli & Vega, 2012a). This difference creates a strong pressure gradient which increases with altitude. The gradient is strong enough so that the winds aloft travel in the opposite direction to those at the surface in the Hadley cell. South-westerly and north-westerly winds are present in the northern and southern hemispheres.

Midlatitude and polar regions contain bands of westerly airflow aloft. Winds aloft experience minimal friction. The Coriolis force can pull these winds to flow in a geostrophic path with little hindrance (Aguado & Burt, 2007). These winds do not simply travel longitudinally. The gradual decline of the tropopause with latitude is not uniform. This results in the formation of troughs and ridges (Aguado & Burt, 2007). Air aloft will meander in a wavelike motion as a result of imbalanced differences in pressure. The largest of waves are known as Rossby waves. (Lutgens & Tarbuck, 2010a). Rossby waves are present in both the midlatitude and polar westerlies. The effect of Rossby waves is enhanced by vorticity (Rohli & Vega, 2012a). Vorticity is the angular velocity of air due to the rotation of the Earth. The vertical component of vorticity, that which impacts the peaks and troughs of the Rossby waves, is made up of the Coriolis force and the movement of underlying surface air (Barry & Chorley, 2003). Air flowing around ridges experiences negative vorticity, while air flowing around troughs experiences positive vorticity.

These westerly bands have faster moving winds embedded within them. These jet streams (Trewartha, 1968), most notably the polar jet stream is a fundamental component of the polar westerlies. It is located along the polar front and is a product of the large temperature difference either side of this front (Lutgens & Tarbuck, 2010a). This jet stream is not continuous around the globe, nor does it have a very stable line of travel (Barry & Chorley, 2003). The polar jet stream has a substantial seasonal migration. Shifting between 30° and 70°. The speed of the jet stream also varies with the seasons. A sharper temperature difference in winter results in a 208.3% faster stream in winter over summer (Lutgens & Tarbuck, 2010a).

The general circulation of the Earth is a complex system. Many factors interact and compound to affect air motion. The three-cell model offers an effective view of the system and explains much of what is observed in the atmosphere. Upper-level winds operate differently, and these westerlies aloft are important to the longitudinal transfer of heat.

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The Geography of Teleworking

Tadhg Malone, Year 3 (Double Major)

Introduction

I begin this essay by discussing the fact that teleworking is replacing the conventional workplaces. A strong case can be made that these shared virtual workspaces will replace conventional workplaces because of employee demand and organisational benefits. Work life balance and flexibility are some of reasons why teleworking is replacing the conventional workplace, I then introduce the idea that Co-working spaces are a potential alternative for teleworkers and businesses. These Hubs provide the worker with flexibility and the same social benefits of the conventional workplace.

Teleworking replacing the conventional workplace impacts the geography of the workplace. I then Critically analyse the report “Working from Home Pre and Post Pandemic” (Frost, 2022) to look at the regional disparities in teleworking. Looking at what the future of teleworking looks like and the impact this might have on peripheral Ireland. Teleworking could be the driving force in developing peripheral regions of Ireland, which improves our country, as a whole.

Is Teleworking Replacing the Conventional workplaces?

Yes, is the straightforward response to this statement. The rise of teleworking is significantly changing the way that workplaces are designed, both now and in the future. Due to COVID-19 restrictions, People and businesses were “forced to suddenly shift to remote working” (Daly, 2020)

Previously stated in the “Remote Working during COVID-19: Ireland's National Survey” (Frost,2020)- Phase II Report out of all the responses “68%” of respondents are working completely remotely since the outbreak of COVID19” with “94%” wanting to work remotely after the Pandemic. This tells the story of how people wanting to continue to telework after the pandemic and a major reason why the conventional workplace is becoming outdated and undesirable.



Plate 1: Co Working Hubs: Greentech HQ Enniscorthy



Plate 2: Co Working Hubs: Dogpatch Labs Dublin

Why Conventional workplaces are getting replaced:

We gained a great deal of knowledge from the pandemic, but among the most important lessons from all its constraints was that, as individuals, we value flexibility and freedom. Prior to COVID, a congested daily commute and a work-life imbalance were accepted aspects of normal life. Malecki, E.J. and Moriset, B. (2007) states the hype around teleworking is down to it being “Green, cost-efficient, family-friendly (especially for workers with children), reducing stress, raising productivity and creativity”. People who work for organisations where teleworking is not an option feel as if they are missing out and would be more inclined to switch job where teleworking is an option.

“Reducing business costs associated with commercial properties,” (Daly, 2020).

Organisations are finding that allowing their workers to telework is reducing the costs of the

business while maintaining productivity. Teleworking improves employee attraction and retention. Business can re design their workplaces and have one desk per two employees which is called “hotdesking”.

“Hotdesking” will “Encourage firms to locate in out-of-town sites” (Gillespie & Richardson, 2000).

Moving out of the town will allow Business to reduce the value of their property portfolio and create a more efficient workplace at a fraction of the cost which is a reason why the conventional workplace is getting replaced. Peripheral Ireland also benefits from this organisation relocating out of the city. It is a clear example of how teleworking can be a key force in developing peripheral Ireland.

Outsourced Co Working Spaces the Alternative Solution:

“Lack of face-to-face contact are found to be the major barrier to the growth of teleworking”. (Gillespie & Richardson, 2000). People require social affiliation and find it hard to separate work and home life when they telework from home, which can lead to added stress. The main challenges of home-based teleworking are “loneliness/isolation staying motivated and physical workspace”. Frost (2020).

Co-working hubs have all the technology needed to successfully telework with the workplace buzz and lack of domestic intrusions, improving employee productivity and job satisfaction. See appendix 1. The hubs also eliminate the need to create a home office, which saves costs and ensures the home stays a home.

When there were low numbers of teleworkers in Ireland, these spaces were deemed unnecessary. As number of teleworkers rise so does the demand of these hubs. According to (Frost, 2020)

- “25% would like a mix of home, hub or onsite.
- 10% would like to work in a mix of home and hub.
- 2% would like to work solely in a hub.”

These hubs tick a lot of boxes for both people and organisations and could be the future of workplaces. Co working hubs solves challenges such as “isolation, staying motivated and physical workspace” Frost, D. (2022) which are the three main challenges which home base teleworkers face.

	2018	2019	2020	2021	2022	% points
Border	10.6	10.0	11.5	28.6	22.1	-6.5
West	7.1	7.7	9.8	31.7	22.1	-9.6
Mid-West	8.4	6.3	8.0	32.4	21.8	-10.6
South-East	7.6	7.9	11.0	29.8	23.7	-6.1
South-West	6.7	7.9	9.3	33.9	23.2	-10.7
Dublin	5.7	5.9	7.8	49.1	39.0	-10.1
Mid-East	7.9	6.2	7.6	36.4	26.0	-10.4
Midland	7.9	7.2	8.8	29	20.9	-8.1
State	7.2	7.0	8.8	37.4	28.0	-9.4

Table 1: Remote Working during COVID-19: Ireland's National Survey - Phase II Report

Critically Reflecting Western Development Commission Working from Home Pre and Post-Pandemic:

Teleworking is being discussed as a potential way to develop peripheral regions in Ireland. Before this becomes a reality, Government Agencies such as the Irish Development Agency (IDA) need to Critically reflect on the contention that teleworking will replace the conventional workplace with shared (virtual) workspaces. Research such as the Working from Home Pre and Post-Pandemic completed by the Western Development Commission is vital for these organisations to develop peripheral Ireland.

Results can vary heavily on the wording used in these research projects. A critical analysis of Western Development Commissions' working from home pre- and post-pandemic study found that they used the term "working from home," which Frost, D (2022) defines as "'At least half of the days worked at home.'" The findings of this research will tell a story of more people working from home than a report that uses different terminology, the difference between the term "teleworking" compared to "homebased working" is the need for electronic interchange between two locations. This report provides results that strengthens the case of the Western Development Commission to receive more funding and support from the Irish Government in developing the region. The Limitation of this report is its inability to predict the future of teleworking. If COVID-19 returns, how does that impact teleworking and the locations where people telework? In the long run, will teleworking impact mental health and home life so that the conventual workplace in the city will return to full strength? These answers still need answering.

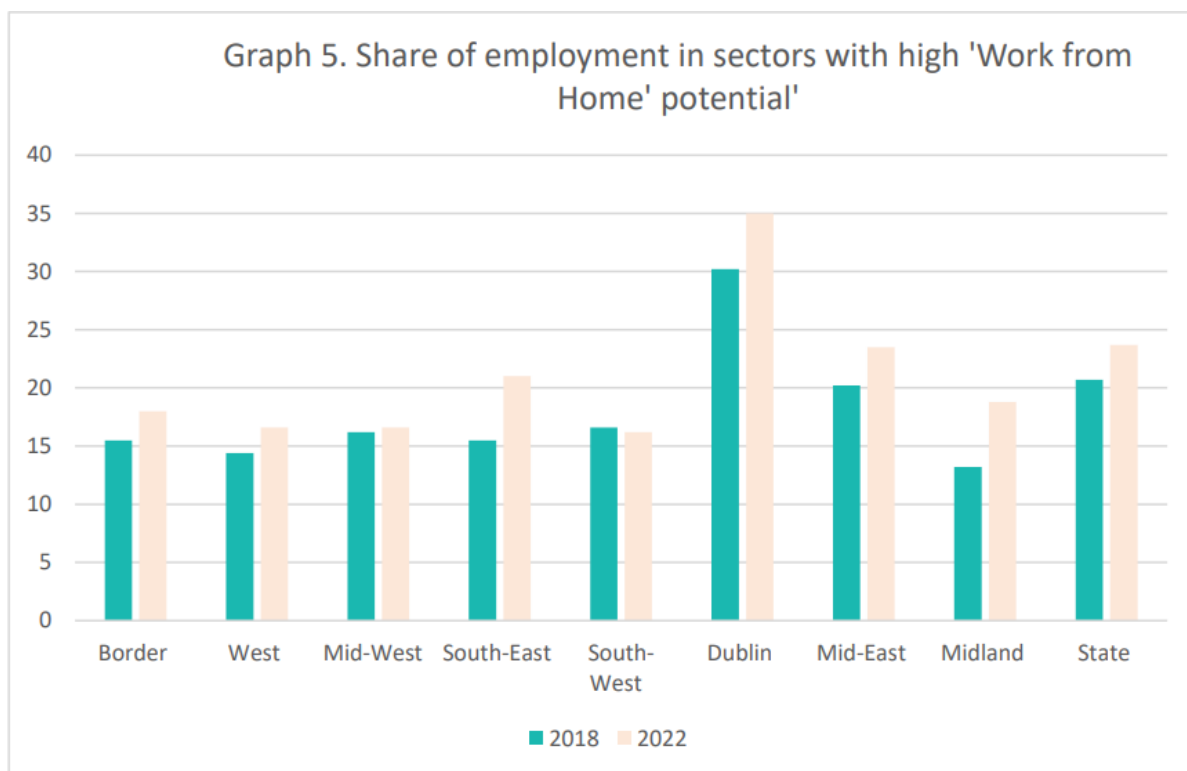


Figure 1: Remote Working during COVID-19: Ireland's National Survey - Phase II Report

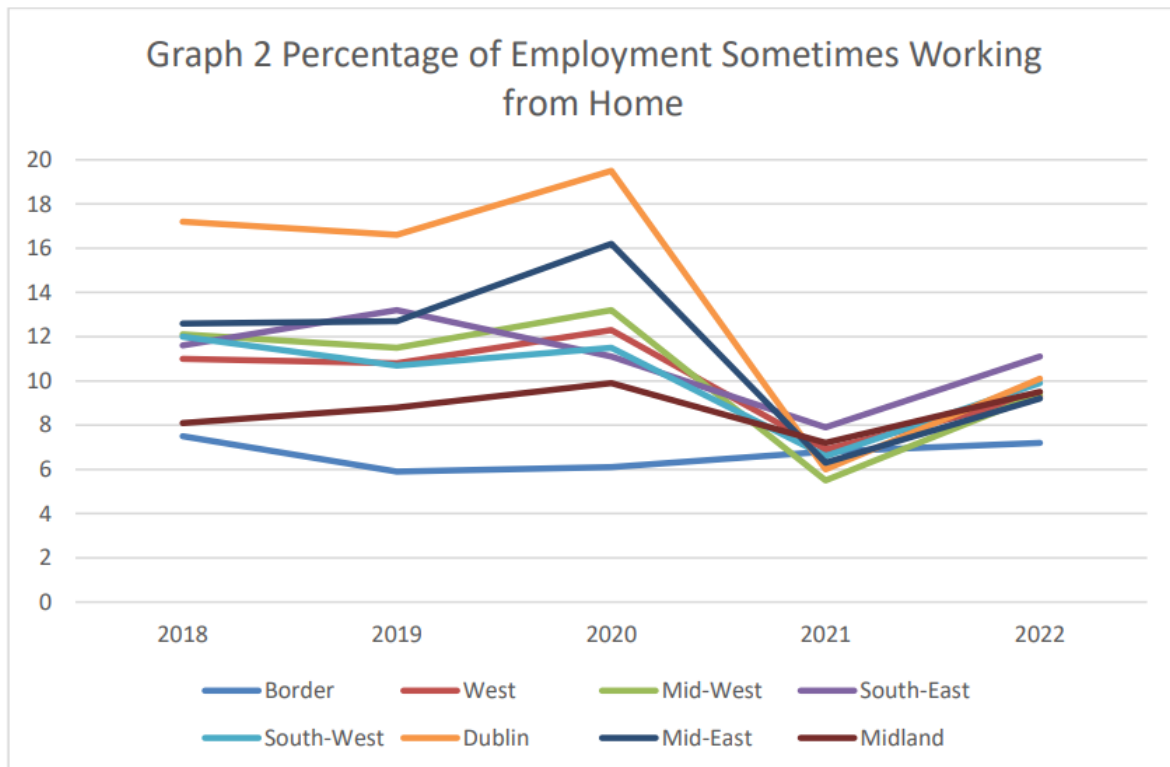
Regional Disparities in Teleworking:

Ireland has a fantastic opportunity to capitalize on the growth of teleworking to develop peripheral regions in Ireland. Dublin is the epi centre for Business in Ireland. Frost D, (2020) States “The highest rates of usually working from home are Dublin (39%), followed by the Mid-East region (26%)” – see Table 1.

As mentioned in Frost, D. (2022) working from home is more suitable to some occupations than others. The occupations which are more suited to teleworking are majority located in Dublin. Figure 2 shows Dublin has a much higher work from home potential than the regional areas. The challenge for peripheral Ireland is to develop the infrastructure needed to attract these companies to relocate outside of Dublin.

We can see similarities in the numbers when comparing workers who sometimes work from home according to the graph in appendix four. Regional development can still benefit from people who have a hybrid working schedule. Frost, D. (2022) states that “29% would move out of Dublin after their experience teleworking during covid with a further 21% people who said “Maybe”. The potential that half of the respondents are willing to relocate out of the capital city to a peripheral region to telework shows development opportunities for peripheral regions of Ireland. This statistic should motivate and help leverage government agency to

develop the infrastructure needed to telework and trust that the organisation and people will follow.



Source: CSO, LFS

Figure 2: Remote Working during COVID-19: Ireland's National Survey - Phase II Report

Conclusion:

In conclusion, teleworking is making organisation change from the conventional workplaces. Frost, D. (2022) states that 94% of its respondents are wanting to work remotely after the Pandemic. This shows the huge demand for teleworking in days world. Teleworking is in huge demand by employees and has financial and commercial benefits for the organisation which is why more and more organisations are opting to redesign their workplace structure with teleworking being they key element.

Co working hubs as seen in Plates 1 and 2 are an attractive alternative solution to the conventional workplace. These co working hubs are nationwide and with development around Ireland are becoming very accessible for employees no matter where they are living. These co working hubs still have the benefits of home base teleworking such as flexibility, freedom, and the trust to complete your job away from the conventional workplace while also “solves challenges such as “isolation, staying motivated and physical workspace” (Frost, D. 2022) which are the three main challenges of home-based teleworking.

The updated versions states Working from Home Pre and Post-Pandemic – Regional Patterns and Outlook found that they used the term "working from home," which Frost, D. (2022) defines as "At least half of the days worked at home." The difference between the term "teleworking" and "homebased working" is the need for electronic interchange between two locations. Homebased working includes jobs such as farming which does have an impact on the findings made by WMO.

When looking at the Regional Disparities in Teleworking its noticeable that teleworking growth could have a huge impact on the peripheral development in Ireland. Frost, D. (2022) states that "29% would move out of Dublin after their experience teleworking". Peripheral Regions of Ireland need to develop their infrastructures to attract organisations and people out of Dublin. Big organisations setting up in peripheral Ireland would have a huge impact on the development of regional Ireland.

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Evaluating the Sustainability of Our Rural Future

Ciarán Dowling, Year 2 (Double Major)

The ‘Sustainable Development Goals’ is a plan adopted by the members of the United Nation to provide humanitarian relief and set out objectives to work towards a more sustainable future for all people across the world. This plan identifies particular categories, such as poverty, education, and inequality, which are deemed important to focus on for the wellbeing and maintenance of humanity. In Ireland, a similar plan of future maintenance is being carried out that focuses more specifically on rural areas — the ‘Our Rural Future’ policy, which is set to tackle rural concerns revolving around rural economic growth and the benefits associated with living in rural Ireland. It is important for this policy to coincide with the ‘Sustainable Development Goals’ plan set in place, and agreed upon, by the United Nation state members. This essay plans to critically assess both the ‘Sustainable Development Goals’ plan and the ‘Our Rural Future’ policy and discuss how the policy in Ireland will address the ‘Sustainable Development Goals’, the challenges that face rural areas, how rural areas can potentially be positively impacted, and the risks involved, with a particular focus on addressing the ‘Good Health and Wellbeing’, ‘Quality Education’, and ‘Gender Equality’ categories.

The ‘Sustainable Development Goals’ wish to achieve healthy living and promote wellbeing for all ages (United Nations, 2023). The ‘Our Rural Future’ policy recognises that in order for people within rural communities to thrive, they must have a sufficient number of public transport facilities to travel to various health services. However, they do state that there needs to be a significant increase in the number of these health facilities available in rural communities, so both issues are in the process of being addressed (Rialtas na hÉireann, 2021). In the most recent Central Statistics Office ‘Age, Sex, and Geographical Distribution’ study carried out, findings show that 53.5% of people living in “highly rural/remote areas” (Central Statistics Office, 2019) are above the age of 40. In areas classified as “rural areas with moderate urban influence”, 49.9% of people were over the age of 40. As people progress into the middling years of their lives and beyond, there is an increased natural demand for health services. The average age of the six main categories of settlement area was highest in the “highly rural/remote areas” category, with an average age of 41.2 years. “Satellite urban towns” had the lowest average age at 34.5 years old. Based on this data, we can assume that

the demand in relation to the age of the population of these areas is highest in rural areas. To lack facilities in these areas would be a huge issue for the older people within said communities, so the policy's focus on developing them is a huge step in the right direction for the continual growth and satisfaction of these areas. Of course, healthcare also refers to one's mental wellbeing, not solely physical wellbeing. In 2014, for example, it was reported that 16.9% of adolescents aged from 16 to 17 years old experienced mental health difficulties while living in rural areas (Martyn et al., 2014). One would expect an increase in these numbers with the drastic development of social media, including the rise of 'TikTok', as well as the impact that COVID-19 has had on people, especially young people, across rural communities. However, a risk involved may be the opening of healthcare clinics and other facilities in unviable areas, causing money to be wasted because the service does not reach the number of people that it can potentially in another rural area. To avoid this, extensive research within areas of interest must be carried out to ensure that a service can be utilised to the fullest of its potential. In such areas, perhaps note the range of ages and consider other factors such as public transport facilities to and from said clinics or health services. The lack of healthcare workers in Ireland may also account for this policy's failure as many workers choose to emigrate for better working opportunities.

In order to promote wellbeing in rural communities, a focus on more niche hobbies found within said areas could be an interesting opportunity for people to feel more satisfied with their surrounding area. Typically, rural areas may have a local GAA club, a local pub, and weekly events such as farmers' markets, if even, so a study on pastimes that are gaining rapid popularity could be a worthwhile investment as these emerging pastimes could potentially influence generations to come; for a government to be aware of these emerging hobbies would be beneficial for the future planning of these areas. Activities such as yoga classes, art classes could easily make use of online video calls to promote a wider variety of cost-effective hobbies in rural areas — promotion could be carried out both online or even on radio or television talk shows to encourage isolated people to participate. However, such online methods may not benefit those who are unfamiliar with how the internet works, particularly older generations, and so the promotion of these pastimes may only appeal to younger people. For older people, the utilisation of local halls, scouting dens, or even churches need to be maximised. The formation of a church choir would be a lovely way for elder people to get together — even one night a week would have major benefits for them. If a hall was empty on a particular evening during the week, organise tea and coffee meetups

where older people can experience human connection in-person without having to rely on the internet to do so. Having said that, the cost of this venture would be relatively low, so it's always best to be developing rural communities as much as possible and make them an attractive alternative to urban life.

The United Nation member states also plan to ensure quality education for all and to promote lifelong learning opportunities (United Nations, 2023). The 'Our Rural Future' policy aims to allow an option for people living in remote areas to access third level education through the internet in a remote or blended manner (United Nations, 2023). This implementation would greatly benefit rural communities who find it difficult to commute to university or to find accommodation nearby as a recent study indicates the ever-increasing price of renting a dwelling in Ireland which would be unviable for a student to be expected to pay for on top of their course fees and their transport and food. The highest rents were unsurprisingly found in Dublin, where the average price per week ranged from €349 per week in South Dublin to €442 per week in Dún Laoghaire-Rathdown (Central Statistics Office, 2023). In Kildare, that figure is €283 per week. In 2022, the national average of weekly renting prices experienced a 37% increase since 2016. Of course, even if one were to pay these prices, one would not be in the comfort of their own community and particularly homesick individuals may perform worse at university due to not spending time with their families until the weekend where they may be working or have other responsibilities. The 'Our Rural Future' policy addresses the 'Sustainable Development Goals' in a rural context by planning to allow the continuous opening of rural primary schools over Ireland, despite many being smaller in size. They identify that almost two-thirds of primary schools over Ireland are within rural communities and it's important to allow younger school children to thrive in an area that they are familiar in for the sustenance of the community and for the heritage of the area to remain intact. Plans are in place to repurpose old school buildings for the benefit of rural communities if, for some reason, a primary school within these locations were to close, so at least there are no buildings going to waste. One issue associated with this method would be scarcity of land in years to come — it's fine repurposing old buildings, but perhaps repurposing the land may be a more viable option than keeping primary schools with small attendance rates open. This plan seems to be unsustainable depending on the area in which the school is found. To overcome this, it might be possible to join nearby smaller schools into one larger one so that there is a central hub for primary education within a rural area, thus increasing the amount of

land available, or increase public transport so that families have a wider range of schools to choose to send their children to.

Gender inequality is still a pressing issue for today's society, especially seen in rural areas where traditional roles still very much apply. It is difficult to escape a rural lifestyle like that as an older person with little urban experience. The 'Sustainable Development Goals' plan aims to empower women and girls and to achieve gender equality (United Nations, 2023). In context to rural Ireland, the 'Our Rural Future' policy recognises the importance of female figures within the farming industry, stating "the farming sector cannot reach its full potential without the active engagement of women" (Rialtas na hÉireann, 2021). In Ireland, only about 14% of workers within the farming, fishing, and forestry sector are female, which is marginally less than the EU average of 28% farm managers being female (Rialtas na hÉireann, 2021). It is important for the female minority within these sectors to feel represented and have their female perspective on matters heard without being shut down by the more dominant gender. For women living in rurality, it would be a great opportunity to work in one of Ireland's biggest sectors as it would provide some "purpose to life" and to feel appreciated unlike with their unpaid work of caring for children (Herbert, 2021). While, yes, the 'Our Rural Future' policy does mention women being under-represented in agricultural sectors, there is no plan or initiative to alleviate the gender inequality; merely stating the issue at hand without any plan in place is dismissive. A plan to educate this aspect of rural life more rigorously in secondary school would be a great benefit to women in agriculture and the utilisation of technology to provide education surrounding farmwork such as manual work and monetary responsibilities to ensure women understand that there are several aspects of working on a farm that may appeal to her.

To conclude, the 'Our Rural Future' policy recognises certain aspects of the 'Sustainable Development Goals' plan, however, in the context of the themes mentioned above, can fall short in its proposals to end injustice faced by certain people in rural communities. It is important that such a government plan recognises all aspects of the 'Sustainable Development Goals' plan set in place by the United Nations to ensure women in particular feel included in any aspect of rural life they may be interested in pursuing careers in. Although at first glance it may seem that the 'Our Rural Future' policy includes methodologies to benefit an impressive number of groups of people, it is vital to consider those who may be neglected by such policies.

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**‘Democracy is always exciting but it is merciless when it clicks in’:
Learning Journals for the GY347 Presidential Election
Shauna Fox Year 3 (Double Major), Amy Kavanagh Year 3 (Double Major),
Michelle Gorman Year 3 (Double Major) and Daniel Flynn Year 3 (Double
Major)**

Introduction: Adrian Kavanagh

Over the past few years, the main assessment work for the GY347 Electoral Geography has focused on getting the class members to run their own election campaign in a *simulated electoral learning environment* (and not at all a *make-up election*). Each year’s campaign brings about different stories and different approaches from the students/teams, as politics is personal, and the different campaigns reflect the different personalities of different GY347 class. The size of the class also poses different challenges. Last year’s class (23 students) was the smallest to date, which meant that one of the two parties was at a serious disadvantage in the general election when a few of their team was not posting/engaging as much as others, but this year’s class (60 students) was the largest ever, posing greater challenges to me as a lecturer to try and keep everyone engaged as the elections process progressed, as well as increasing the marking demands (I graded 1,596 individual campaign forum posts across the five/six weeks that the elections task ran for).

But elections are also rooted in geography, and this is something the students did (I hope) learn about as they progressed through this year’s Elections Task, as can be seen in the following learning journal entries from some of this year’s class, including Shauna, Amy, Michelle, and Daniel.

Shauna Fox (played Shiela Moran, candidate in the Shamrock Party primary election contest):

I was a member of the slightly more left-wing, nationalist Shamrock party who do very well in the North-West and in working-class areas (in our electoral “universe”). I took on the persona of Sheila Moran, a 40-year-old from Phibsborough in Dublin Central who was a former Green Party TD and Minister for Sport, Wind Energy and the Gaeltacht who believes that ‘There can be no serious economic policy without taking the climate change challenge seriously’. I chose Sheila because I thought her background in sport, environment, and the Gaeltacht, as well as being a former government minister, would come in handy when posting as I would be able to claim that she was involved in delivering various projects e.g. grants, new facilities etc in certain communities, because “getting things done” is one of the core components of local politics in Ireland! I knew that my own interest in sport and the Gaeltacht would give me an advantage as I know what sort of things people would be looking for from a government minister in that regard. I also thought that choosing a female candidate might have advantageous given the fact that the gender quota will increase to 40% in the next general election in Ireland and it would allow me to play the ‘fresh face’ aspect and promote women’s sport, and the like.

Primary Elections

During the primary elections, I started posting early and tried to be as consistent as possible in order to build up and maintain momentum. Leitrim and Louth were the two ‘early counties’ (mirroring the early states in the “real” US presidential election primaries) and, following the example of the American Presidential elections, we knew it was important to build up a vote base and poll figures in these two counties.

I chose to focus on Louth rather than Leitrim because it seemed that everyone was going to the Leitrim Fontenoy’s festival, including the other members of my mini-team, so I decided to

go to Louth where there was less competition and where I had a better prospect of resonating with the voters due to my candidate's urban background, as well as a chance of playing on the friends and neighbours effect, a phenomenon described by Parker (1982) which suggests that a candidate will pick up the highest share of votes in the area closest to his home, known as his bailiwick. Since the Celtic Tiger era, many Dubs have moved out into the 'commuter belt' in which parts of Louth may be included.



I had hope that the friends and neighbours effect would also be of significant use during Paddy's Day Palooza, an event for which the mini-team did not plan as effectively as we could have.

My geographical knowledge of Dublin is not fantastic by any means, so this was a disadvantage as many of the landmarks with which I am familiar were not within the same Dublin constituency as Phibsborough. We also should have communicated better with each other with regard to where we were posting so we could reference each other's activities more often – I only managed to do this once. As well as referencing the activities of my own mini-team, I should also have taken more note of what the other candidates were doing and used this to inform my own campaign strategy. I was reluctant, however, to many any criticism of or direct any insults towards the other candidates because the purpose of primary elections is to select the party's candidate for the presidency, and that the runner-up is generally picked as the running mate and that most other candidates are invited to join the cabinet. It would give great ammunition then to the opposition if I were to end up in government with people I had previously decried as useless etc.

I tried to stick to the given biography as closely as possible and really took advantage of the fact that Sheila was a member of the Irish women's soccer team. In most of the towns and villages I visited, there was a soccer club where I met with some members. One of the biggest debates in Ireland now is surrounding climate change and the inadequacy of the provision of public transport, and I addressed this issue in all posts.

General Election

With regard to the general election, the party as a whole came together to support Orla and Bibi. I experienced no difficulty in this regard as they were the clear winners and there had been no hard feelings because we didn't engage in insult wars. Orla's profile was similar to Sheila's in terms of gender and geography, so this meant that it was easy to get behind her. The campaign strategists drew up a plan using "opinion poll" data provided by Adrian, which gave information on the counties which were safe seats for both the Harps and Shamrock and those which were our equivalent of 'swing states'. We aimed to maximise vote distribution efficiency as a party to minimise the number of wasted votes and surplus votes and maximise the number of efficient votes. This plan was adjusted during the campaign break after the first week of general election campaigning to take into account the latest opinion poll figures. Thus, counties such as Donegal which were safe Shamrock seats were disregarded, thus reducing the number of surplus votes that we would have been simply racking up if we continued to campaign there. We also disregarded counties such as Wicklow and Dún Laoghaire-Rathdown, where the Harps had a very strong majority and thus the Shamrock had no chance of winning, thus reducing the number of wasted votes.

We had to be strategic about the swing state in which we campaigned and focused especially on Cork County, which was very close to the bailiwick of Pat Paterson, the presidential candidate for the Harps Party. Mayo was another close county and this was one for which I had put my name down to post. I also posted in Roscommon and chose these two counties specifically because I am familiar with them and the problems facing the areas and the locals are more than willing to discuss the things that the government need to do for their own towns at every opportunity! This significantly helped inform my posts, and to make up for the geographical disadvantage in that my candidate has an urban background and would be perceived by dissenters as being out of touch with the countryside. I also made sure to remember that this is about appealing to all eligible voters, not just those sympathetic to the Shamrock party.

Big Debate

The big debate was designed to give representatives of the Harps, Shamrocks and Shillelaghs a chance to expand upon policy directions and question each. I again played Sheila Moran and took a previously unseen question on foreign policy in Northern Ireland. Knowing the general area of the question, I tried to prepare firstly by enlisting the help of my other team members and secondly by researching Fianna Fáil's foreign policy in Northern Ireland, given the that they and the Shamrock party are somewhat similar. In light of a recent report which made news headlines about the possibility of governing Northern Ireland costing approximately 20 billion euro, I decided not to be too radical in my ideas and merely gave a general sense of our desire to unite everyone and not alienate any voters by making any rash decisions. This was misguided, however, in the sense that the Harp party made the point that we had no concrete plans. In the closing statement I had the chance to make up for my vagueness expanding slightly on plans to finance Northern Ireland but, overall, it was a rather lacklustre performance. Greater time spent studying economic policy as well as watching previous presidential debates would have helped.

Conclusion

In conclusion, the mock presidential election was an excellent task because it combined both the first-past-the-post American electoral with all the nuances of candidate selection in Ireland so allowed us to learn effectively about both operations. Playing the part of a candidate was an invaluable experience because it put me into the deep end so to speak and thus forced me to liaise with my party members and think on my feet. I got a feel for how involved the candidates get in promoting their own policies and trying to help people in their own local areas – this struck me particularly in Frenchpark, where I was after reading and

hearing so many stories of small businesses fearing for their futures now that the town will be bypassed. This opened my eyes to business of politics in general and how much geography is entwined within it.



Amy Kavanagh (played Dovey Donovan (the artist formerly known as Lovey Donovan), campaign worker in Sheila Moran’s team and Shamrock Party member):

I was part of the Shamrock Party and during the primary election I campaigned as the character Dovey Donovan (aka Lovey) a Sinn Féin councillor from Naas. I was part of a mini team that consisted of three people, myself, Shauna, and Ross. We were campaigning for Shamrock candidate Shelia Moran; we choose Shelia due to her having previous experience and being a woman. Shelia’s electability was promising as she had previously held the position of Minister for Sport, Wind Energy and the Gaeltacht and Green Party TD; we also considered that her gender may play a role in her electability as politics is male dominated. In being a male dominated field Ireland has introduced gender quotas to encourage more women to become elected, although this was based on the American electoral system, the gender quotas could be an advantage for Shelia as an Irish candidate. As a mini team we had a brief strategy when it came to where to post. Looking back, I think as a team we could have created a more solid strategy rather than just guess. We did have a WhatsApp group that did provide a line of communication for us as team. We worked well and began strong with our posts for Shelia Moran, but towards the end of the primary election we lost momentum. At this stage I made the mistake of not utilising office hours to guide me in the right direction. When it came to posting I decided to look at the delegates available in each county for the Shamrock Party, this would be important. I did have a suitable strategy unknown to myself in the moment, it is only now that I learned I applied the concept of the ‘friends and neighbours effect.’ Parker (1982,

244) explains how candidates tend to win their highest votes shares in local area/home base and share of the vote declines the further one moves from one's bailiwick, tantamount to a distance-decay effect. I unintentionally kept this concept in mind by posting in Shelia's home county, areas near Phisboro and her hometown, keeping the concept of clientelism in mind.

There were 220 delegates available in Dublin City and 141 in South Dublin, with this information I focused on posting in areas of Dublin as Shelia is from Phisboro. The posting strategy for me was to target the bigger and most populated counties such as Dublin City, as well as Cork County as it had 111 delegates available. During the peak of the primary election, which was the Paddy's Day Palooza, this was the time that my strategy could have been applied effectively. Looking back now, I did not utilise the 'friends and neighbours effect' to my advantage as much I should have. Throughout the primary election the candidate Shelia Moran was popular, alongside the other teams' candidates such as Bibi Moffatt and Orla Cassidy. By the end of the primary election Moffatt had 26.9% of delegate votes and Cassidy had 30.8% and my candidate Moran had 19.6%. I learned from the primary election that having a solid strategy was important along with consistency with my posting, with this in mind I was more confident for the general election.

For the general election, I now was in support of presidential candidate Orla Cassidy and vice-presidential candidate Bibi Moffatt. To get Orla elected the Shamrock Party would have to work on building momentum as Orla was a young and inexperienced candidate in comparison to the Harps candidate, Pat Paterson. I was now in a larger team that comprised of 30 members rather than just 3 people. At the beginning of the general election the Shamrocks were slightly relaxed and laid back when it came to strategy making and communication. For the first half of the campaign there was not much communication or teamwork, in my opinion. Eventually a WhatsApp group was created as a link of communication as we were wasting posts in multiple strong Shamrock counties such as Donegal, Louth, and Monaghan. What I found helpful was the use of the WhatsApp group chat and the Teams channel, these were crucial for creating a strategy. We had a Teams call to discuss our strategies and what to do next, this Teams call was productive and a clever way to pinpoint what counties to target. We decided to create a document that listed each "swing" county that was worth posting in and their electoral college vote value. Katelyn, Emma, and I remained on the call to edit the document and ensure that it would provide the Shamrock Party with the best winning strategy for the general election.

We took on roles within the party, such as making and editing the document that Emma, Katelyn and I did. As we compiled the document, we kept the electoral college vote values in mind as they would be the catalyst for Orla to build momentum for the election. While editing/creating the document, I kept the concept of vote distribution efficiency in mind, this concept was important. "Vote distribution efficiency increases when parties/candidates are winning votes where they matter (effective votes) and reducing the number of wasted votes and surplus votes" (Johnston, Rossiter and Pattie, 2005: 959). What I learned from posting in the primary election was that the quality of my posts was more important than posting in a random county. By posting in random counties this was not creating efficient campaign posts and wasting posts in counties that Orla was going to win anyway. The document was 18 pages long and detailed the Shamrock Party's vulnerabilities and strong counties. Some of our solid counties included Cavan (9.6% lead for the Shamrock Party), Sligo (14.7% lead) and Tipperary (10.8% lead), keeping this in mind we decided to have only 1-2 posts in these counties as Orla looked likely to win the electoral college votes there. Part of the Shamrock strategy was if we were leading by more than 10% in county, we would only need 1-2 posts there. As we had a week break from posting (around Easter) the Shamrock Party really utilised this time to communicate via WhatsApp to know who was posting where and how many posts were needed in each county. Part of the strategy was to target the biggest electoral college vote value within the Harp's vulnerable counties, we did ensure the difference was obtainable to match. For

example, Galway County was a vulnerable Harp County and worth 20 EC votes with a 1.6% difference, we appointed 6 people to post 5 posts each there and this strategy was effective, as the Shamrocks went on to win the 20 EC votes in Galway County.



After the campaign break the Shamrock Party members really become united and we began to build our momentum in the polls. This was the moment I began to immerse myself into my character Dovey; if myself or Orla was being attacked, I was not going to stand for it. I think our constant communication worked extremely effectively as everyone knew where to post and how many posts to do that would be a benefit to the party. As the general election progressed, I was learning how to post good campaign content and strategically pick where to post them. The Shamrock Party at this stage were content heading into the big debate. I was part of the big debate; I was asking a question as member of the audience on behalf of the Shamrock Party, I asked the Harp party how they intend to support local businesses as they support more multinational companies and taxation to keep the economy afloat. Looking back, I do wish that I volunteered to participate in the debate, that was a mistake I made. This is not because my fellow party members did not do a great job in the debate, but the Harp Party had strong and confident debaters that made some of the Shamrock Party members nervous. The fact that Martina Linden (of the Shillelagh Party) and Dovey had some little digs at each other during the general election would have made the debate more interesting in my opinion. Before the debate, the debate team (Shauna, Shona, Tarina and Sean), David and I all met to prepare the debate points and the two questions asked from the audience by the Shamrock Party. We also discussed how Orla's dark secret that she was only running for the presidency for the money, and that she was also a part-time hitwoman who had assassinated the President of Offblokistan, would probably arise during the debate. The debate went well, and interesting points were brought up by both political parties, as well as the Shillelagh Party.

After the debate, the Shamrock Party continued to build momentum and remain strong in upholding EC votes, particularly in Dublin City, Meath, and Kildare. On the last night of

campaigning, I had some posts to spare, so I asked in the WhatsApp group where to post, Laois and Lucan were hinted at, among other counties. According to the final Red-Kav opinion poll Laois had 11 EC votes and the Shillelagh Party had a very narrow lead there; as it was 11 votes the Shamrocks members targeted the county, and the official result ended up as Cassidy 18,312 versus Downey, of the Shillelaghs, 17,530 votes. Towards the end of the general election was the pivotal moment for the Shamrock Party from my perspective. The final post I made was in Lucan for 6 EC votes, this was an extremely close call for all 3 candidates but especially the Shamrock's candidate Orla Cassidy (13,178 votes) and Shillelagh candidate Larry Downey (12,948 votes).

In my opinion the campaign break really helped the party, we were able to take a step back and strategically plan. With the combination of strategic planning such as utilising swing states and teamwork by the Shamrock Party we were able to win the general election with our presidential candidate Orla Cassidy. The Shamrock Party knew defeat was not an option and really embraced the Presidential Election Task.

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Michelle Gorman (played Kevin "Killer" Kehilly, campaign worker in Sheila Moran's team and Harp Party member):



Our Team/Candidate Selection

Our team for the primary election consisted of four people with different backgrounds. Everyone was studying different modules and subjects outside of Geography, which was

helpful as we all had different strong points. We had arranged ourselves into a team before the party allocation took place which gave us time to scan through the candidate options: we had decided on candidates for both parties so as soon as we were assigned to the Harps Party, we knew we wanted to be Pat Patterson. We picked Pat based on his experience in politics and his electability. Having our decision made meant we got our first choice. We had a group chat set up which meant communication started immediately. Our WhatsApp group chat worked well especially for the primaries. However, I think there could have been more communication for the general election. We all picked our personas. I picked Kevin Kehilly as he was big into the GAA which I could relate to but other than that we had nothing in common. It was difficult at first to grasp the persona, but it got easier as time went on. I addressed my personal information immediately as I did not want Kevin to reflect badly on Pat. No one attacked my character, but I did feel like I needed to defend Pat at all costs.

The Primaries

Our first priority was to introduce our team as we wanted everyone to know who we were. We wanted to post a lot in the primaries. The early counties all began with L which was confusing when posting. I thought it was very easy to make a mistake when changing between these counties due to this. We decided we wanted to win at least two of the primary counties, particularly Laois, as it was a winner take all county. We knew winning Laois would give us a good lead as we would win all 35 delegates there. I am from Offaly, so I did most of my campaigning in Laois as it is close to my home, and I knew the most about it. I also managed to secure an endorsement from Ronan Foley for County Laois. I think the endorsement boosted our performance in the county. We also wanted to win Limerick as it had the greatest number of delegates on offer. It was the closest county to Cork out of the five early counties, so we were hoping to use the friend and neighbours effect here. Both Pat and Kevin were from Cork, so we had a geographical advantage. Our next focus was Louth as it had the second largest number of delegates. Leitrim and Longford were bottom of our list as they had very few delegates on offer. However, we knew we needed to make an effort in Leitrim as it held the Leitrim Fontenoy's Festival, which was the equivalent of the Iowa State Fair in the USA. We had an early lead in Limerick and Laois, so we posted more in Louth. We managed to win Limerick, Laois and Louth. We didn't win in Longford and Leitrim, however we still picked up delegates there. It was important to us that we built up momentum in the primary counties as we knew it would be easier when we moved onto the Paddy's Day Palooza.

We learnt that both money and momentum was important for an election, so we did as much as possible for the primaries. This worked in our favour as we led in nine of the thirteen counties for the Paddy's Day Palooza. We immediately tried to get other candidates to suspend their campaigns and endorse Pat, as we knew that the more people we had the easier it would be. We managed to secure two other teams (MacAoghlaigh and Kyle) by emailing them as soon as the first five primaries were over. This helped us as we were able to assign a smaller number of counties to each person. We divided the counties amongst us according to the delegates on offer. We put two people in winner takes all counties and counties with the greatest number of delegates. Ultimately each person was assigned to two counties. Our main strategy was to try remain above 15% in every county and to stay ahead in the counties we were already winning. We also wanted to close the gap in the Dublin areas. We kept an eye on where everyone else was posting and posted where they did. The winner takes all counties this time round were Mayo and Wicklow. We were well ahead in Mayo, so we knew we needed to do the bare minimum. We were going to contest in Wicklow, but we saw no point as Novak and Pammy Reinbach were vigorously battling it out for the county. We decided to put our efforts towards the other counties so we would have less wasted votes. This worked in our favour as we won votes in every other county while others didn't. Thankfully we managed to win over 15% of the votes in each county as if we hadn't the counties could have become winner takes all

counties. We managed to win all the delegates in Cork as it became a winner takes all county after no other party contested there. We won 625 delegates overall which was 36.6% of the total delegates. We had 11.9% more delegates than the next team. I think more teams should have suspended their campaigns and joined either our team or Novak because it was clearly a two-horse race; less energy might have been wasted in the final few days of the primaries and we would have been a more united group when it came to the general election. Our team really wanted to beat Novak and I think winning the primary elections was all our team wanted to do. I was responsible for winning in Donegal and Cork County. I mentioned the early counties we won during Paddy's Day Palooza to show that we had a lot of support. Based on the final Red-Kav opinion poll we were well ahead in Cork, so I just kept an eye on it to see if anyone posted there. None of the other candidates did, so I focused my attention on Donegal. There were people posting in Donegal, so I got posts ready for posting but I did not post them until the election were nearly over. This stopped the other teams from posting a lot as they felt like they had the lead. This led us to win Donegal.

Other candidates tried to make comments about our candidate. We decided not to get overly involved with these comments. We did not want there to be anything that the Shamrocks could use against us at a later stage. We often took offence to the messages but instead of reacting quickly, we waited so our responses were not emotionally driven.

The General Election

Next up was the presidential election against the Shamrocks candidate Orla Cassidy. There was not much drama in our party during the primaries, so I think it was easy to unite the party. The first thing we did was create an excel sheet with everyone's characters counties and their own home county. I think everyone came together quickly and agreed with the strategy that was suggested. I was on the strategy team. I think we had a decent strategy, but we had not got the energy to implement it. We gave everyone two counties to focus on. We tried to use the friends and neighbours effect to our advantage here by giving everyone a county that they were from, or their character was from, or somewhere they lived near. I think we tried to go after too many counties, which resulted in us losing most of our vulnerable counties. We probably should have focused on keeping our own vulnerable counties and going after one or two of the Shamrock's most vulnerable counties. I think we should have steered away from the original plan earlier as we were behind in the polls. I think looking at the latest poll in map form did not help me as we did not know who was ahead. Instead, I started working out the percentage difference. Our final strategy to try to get just over 270 Electoral College votes by trying to win Lucan, Offaly, Galway County, Cork County and Mayo was a better plan. More people in our party should have focused their posts on Galway County and not Galway City, however, as Galway County was vulnerable, and Galway City was a solid Harp area. I sent a message trying to suggest a new strategy, but I think it would have been more beneficial to make the change on the excel sooner. Chloe and I worked out the percentage differences and the least number of counties we could try win to get 270 electoral college votes. We then spread the team according to the percentage difference. We needed a big last push, but I think people were burnt out. Considering the amount of work that the Harps did in the primaries, I think we should have just focused on getting 270 electoral college votes rather than trying to win a lot of counties.

I began trying to close the gap in County Offaly. For the first week I focused on visiting several towns and villages in the county. However, as I got further into the campaign, I started writing about problems in specific areas and policies. I made my posts longer to get more marks and to get more votes. I noticed that every time we posted the Shamrocks tried to post so I didn't post my ten posts for the final until 8pm on Monday night, an hour before the campaign deadline. This meant that they had no time to fight back. I also looked back through the Shamrocks primaries as I knew that there was information in it to use against them. I brought some of this up in an interview with Midlands 103. I also brought their dark secret up several

times because it was easy to use against them. I think their dark secret was a lot worse than ours as we could defend ours by saying that it happened years ago, whereas their incident occurred last year which made it harder for them to take it back. We got to see our dark secret before we got the redacted version. We agreed that the 10 lines chosen were the best to get rid of as they were by far the worst. I thought the Easter Break would give me a chance to write posts and have them ready for after the campaign break. However, this was not the case. I took a step back from the campaign completely, which was probably good as I had already spent a lot of time writing posts.

The Big Debate

I joined the debating team late, but I think we worked well as a team for the debate. Our organisation was vital to our success. We had two Teams meetings to decide what questions we would each be answering and then to make sure we were on the right track with our answers. We came up with questions that would make our candidate look good and put the other team on the spot. I think our preparedness, teamwork and difficult questions were the reasons we won the debate. We also met right before the debate so we could run through our questions and answers. I think this really helped as it got rid of all the nerves. The Independent Shillelagh party was given very little time to speak and little media coverage. This is like the American presidential debate as the two main parties, the Democrats and the Republicans, would get all the TV coverage near the end of the election process as the presidency would effectively be between these two parties.

Results

We learned that effective votes were the most important. Our vote distribution efficiency could have been better. Only 28.7% of the Harps votes were effective compared to 50.2% for the Shamrocks. Surplus and wasted votes are votes that are no use to winning the election. 71.3% of our votes were non effective compared to only 49.8% for the Shamrocks. This shows that their strategy was more effective than ours. There was disproportionality between the popular vote and the electoral college vote. The Harps won a mere 35.3% of the electoral college votes but managed to win 40.1% of the popular vote. I was happy we won County Offaly as it was the only swing county we won, and I did most of my campaigning there.

Disproportionality in our case was the translation of popular votes into electoral college votes. Winner-takes-all elections tend to create disproportional outcomes (Johnston et al., 2005). For example, Larry Downey got no electoral college votes despite winning 17.5% of the popular vote. I think it would have been closer if we had the same allocation of Electoral College votes as the primaries where each candidate could get a percentage of the delegates if they had over 15% of the vote. Getting a proportion of the votes might have suited our party better than the winner takes all. I think this would have helped close the gap between the parties as we would have still picked up a number of Electoral College votes in places like Cork County, Mayo and Galway County.

Ireland has a localised style of voting which leads to candidates relying on their home area for votes. The candidates' support will be strongest at their home location and support declines with distance (Kavanagh et al., 2021). This was evident in the first map as most of the Harp's stronger areas were in the South where Pat Paterson was from, and support levels declined with distance. The friends and neighbours effect suggests that candidates have an advantage in their home area as they are known there, thus they are more likely to win votes there (Kavanagh et al., 2021). This too was evident as Pat won in Cork City and Orla Cassidy won in Kildare.

Learning Experience

I did not know much about the US presidential election before starting this class. I think the hands-on learning was much more beneficial than writing an essay. The experience felt like a presidential election compacted into two months. I think doing an essay would have just amounted to one week of research and then it would have been forgotten. I learned that it was

important to interact with party policy and the people, rather than just going to an event. Relatability is key to winning votes. My posts improved as the elections continued. I thought the election task, as a whole, was very long and draining. It was difficult to remain posting consistently but also to take a step back when needed as I felt like I was letting the team down. Good quality and consistent posting were the key to success. I think it was a true representation of the time and energy that is needed to succeed in a presidential election.

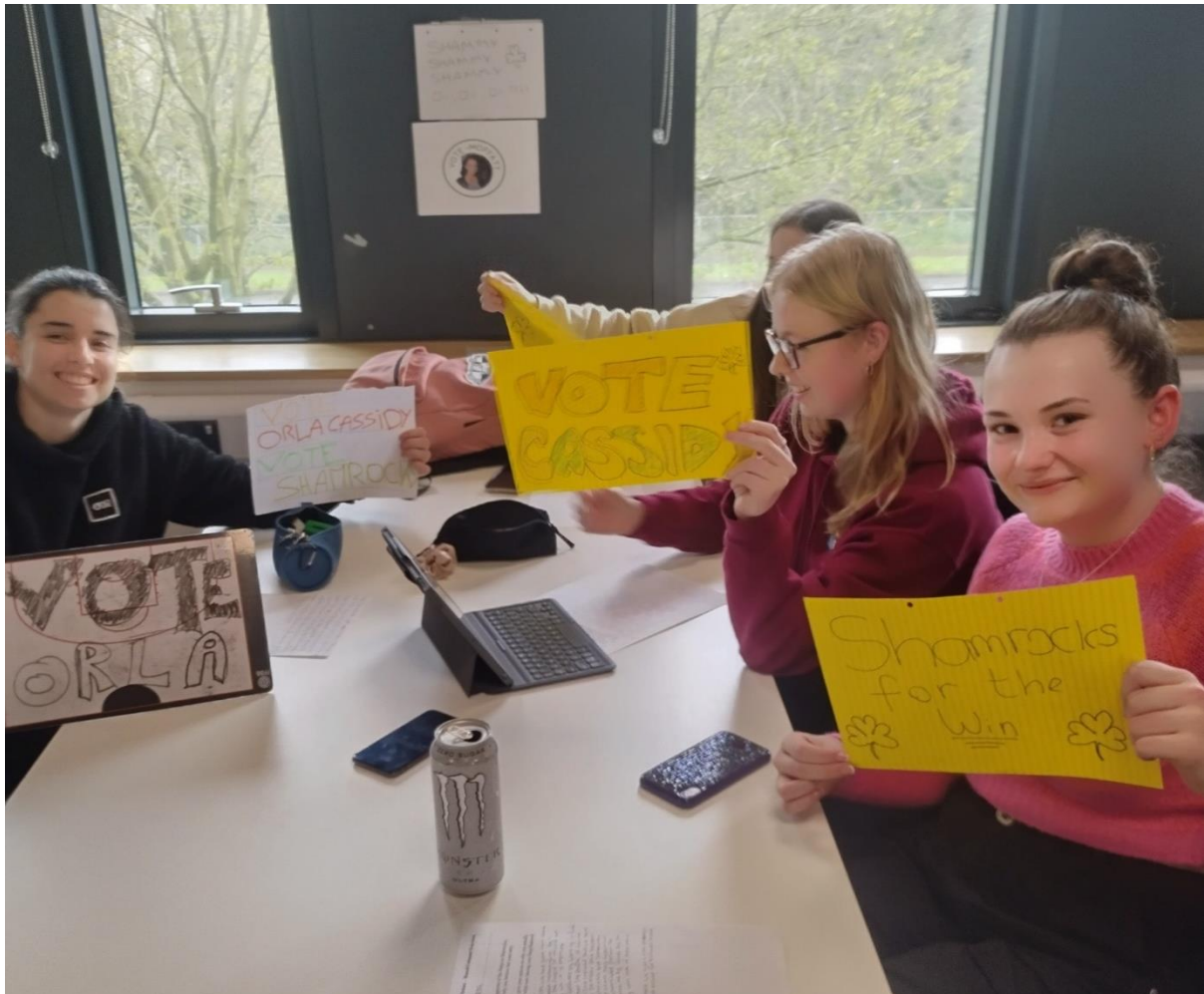
I think the polls were also essential to success. I think they helped the team stay on track and decide if it was time to pull out of a county. I went to office hours a couple of times which I found helpful. It helped clear up ideas I had, and we got ideas on what to do and what not to do.

Overall, I really enjoyed the election task, and I gained a lot of knowledge from doing it.

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Daniel Flynn (played Ethan Novak, candidate (runner-up) in the Harp Party primary election contest and Harp Party vice-presidential candidate in the general election):

Here, I will offer a critical commentary on the activities undertaken by my candidate, Ethan Novak, and our mini-team within the Harp party across the Irish Presidential Election Task. I

will outline our strategy during both the primary and general election campaigns, highlighting successful aspects while also discussing areas for improvement. Within this journal I will also link my learning experiences with the concept and ideas from the GY347 lectures and readings to support my journal.

When it came to choosing my political candidate for this task, I decided to choose Ethan Novak because I thought he would have a good chance of being elected as he had a very good political track record as a former Taoiseach and leader of a large political party (Fine Gael). I also believed that because of his geographical location hailing from Dublin Fingal, he would have a chance of picking up votes in the surrounding areas because of the friends and neighbours affect. Since Ireland is often viewed as having a highly localised style of voting, I thought it was important to choose a candidate like Ethan where I could pick up votes in surrounding areas that had plenty of delegates for the primaries and electoral college votes in the general election (Kavanagh et al., 2021). Therefore, because Dublin has a large population and had plenty of opportunities to pick up delegates in this area, I thought a candidate like Ethan would be a good choice. I also believed that my candidate Ethan would do well in urban areas because of his economic policies like pro-enterprise and being a TD from a Dublin constituency (Dublin Fingal). During the primary elections, the Ethan Novak team decided to campaign heavily in counties that were 'winner takes all' or 'swing counties' to try and obtain the maximum number of delegates. Having learnt about the 'winner takes all' system during the lectures and looking at previous presidential races such as Donald Trump and the Hillary Clinton race in 2016, I knew that the nature of the election system during primaries would be the most important element to consider (Kavanagh, 2016). If I won the 'winner takes all' counties of Laois, Wicklow and Mayo, I knew it would offer me and my team a significant advantage in the primaries. My team and I split ourselves up into different areas where we would make specific appeals to areas and groups within different counties. I mainly focused campaigning in urban areas or 'winner takes all' counties, while my team member Alan (aka Ór Ó Shea-Debhatawala) campaigned in rural areas to garner up support from rural counties like Leitrim and Longford in the primaries. Even though my team and I were within reaching distance of winning the primary elections, we unfortunately fell short to Pat Patterson in the end. I will now discuss the areas where we could have improved on during our campaign in the primaries. Despite a valiant effort during the primaries particularly in winning the most delegates in the Dublin/East region, I think my team and I made some strategic errors. For example, I believe that my team and I focused too much on posting in Wicklow in the Paddy's Day Palooza and neglected to post in the other 'winner take all' county (Mayo). Since we focused the majority of our energy campaigning in Wicklow and other counties with small numbers of delegates, we failed to notice Patterson's lead in Galway and also failed to notice that we would not attain more than 15% of the votes in Cork County effectively turning the county into a winner takes all county for Pat Patterson.

At the end of the primaries, the Harp Party united together to endorse Pat Patterson for President and my Ethan Novak for Vice-President. As a team we decided to assign ourselves to the counties where we are from and where our political persona was from also. I myself was assigned to campaign in Kildare and Fingal County. Once I had realised that Fingal was a strong Harp area in which the party was almost guaranteed a win, I decided to turn my attention to my own native county of Kildare because I knew I could use my own local knowledge of political and social issues in Kildare to appeal to the electorate. While campaigning in Kildare, I tailored our party's policies and messages to resonate with the local population, conducting extensive research on county-specific issues. One aspect that I thought I did well while campaigning in the Kildare constituency was being able to obtain official endorsements from two political figures: Deputy Cathal Berry (Independent) and Councillor Peggy O'Dwyer (Fine Gael). I was delighted to be able to correspond with these two local politicians and get their

valuable input into my campaign posts in Kildare. However, despite these endorsements and the very detailed posts I composed for the Kildare constituency, I eventually decided to campaign elsewhere as recent opinion poll figures in Kildare indicated that it was going to be very difficult to win County Kildare from the Shamrocks. When I saw that the Shamrocks were leading with a comfortable margin in the final week of the general elections, I made posters for counties that I thought were worth chasing due to small leads on our part or counties that the Shamrocks were only slightly ahead. However, at this point of the election I think the writing was on the wall for the Harp Party. When looking at the last opinion polls, the Shamrocks were dramatically ahead in the electoral college votes and even though we eventually did focus our efforts on the counties/areas (Cork County, Galway County, Waterford, Lucan) that could get us to 270 electoral votes I think it was too late for us. Despite winning Cork City by 3,571 votes, we lost Cork County and Galway County, which destroyed our chances. In the end it was evident that the Harp Party strategy during the majority of our campaigning saw heavy campaigning in safe Harp areas like Wicklow and Dún Laoghaire and neglected 'swing' areas like Laois and Lucan and did not campaign strongly enough in other important areas like Cork County. I believe that the overall sense is that the Shamrock vote was much more efficiently distributed, meaning that fewer Shamrock votes were "wasted" in the election (Kavanagh, 2016). A larger proportion of the votes won by the Shamrocks were effective votes as they campaigned effectively across different "swing" counties (Kavanagh, 2016).

To summarise, thinking on my experience with the Irish Presidential Election Task, it's evident that, while my efforts were promising in some ways, there were significant areas for improvement in both my approach and the Harp Party strategy. Choosing Ethan Novak as my candidate seemed promising given his political background and geographic advantage, but my heavy campaigning efforts in Wicklow, at the expense of focusing on other counties, cost me the primary election. However, the primary elections demonstrated my team's energy, as we finished second. Despite rallying around Pat Patterson in the general elections and receiving valuable local endorsements in counties like Kildare, our late realisation that we were at risk of losing and late strategic adjustments were unable to overcome the Shamrocks' strong lead. Our campaign lacked coordination in targeting swing areas. Ultimately, the Shamrock Party's skilful distribution of votes across multiple counties proved decisive.

However, even though we were not victorious in the end I really did enjoy the election task as I learnt a lot about different aspects that I could apply to my campaign. I also think that every now and again I "became" my candidate as I was very protective of him during the task and would defend him when comments were made about him. I also knowingly applied class concepts and information from academic literature from the 'USA Presidential Election' and the 'Friends and Neighbours effect' sections to boost my election post marks. Overall, because I used the concepts from the module, my posts were largely focusing on key messages by application of appropriate academic language as opposed to elongated narratives lacking focus and clarity. In conclusion, this task gave me a greater insight into the workings of political campaigns and the vast amount of work that is required to mount a successful campaign. I look forward to the upcoming European and Local Elections with a greater understanding of how electoral systems operate.

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Les Glaneurs et la Glaneuse: Examining modernity and nature in the practice of gleaning as it challenges their segregation.

Katie Moore, Year 3 (Double Major) and Róisín Lineen Year 3 (Double Major)

Katie Moore:

The expansion of the modern city in the past 100 years can be deemed a product of human activity. It can be characterised by its segregation from the natural world as we envision the city as industry-filled areas with artificial materials and a 'time-consciousness' that controls its inhabitants in contrast to the natural world with no controlling clock (Halio, 1962, p197). In this essay, I will discuss the exchange between the modern city and nature by defining them as the key concepts evident in the feature film *Les Glaneurs et la Glaneuse* or *The Gleaners and I* (Varda, 2000). In the film, Varda challenges the relationship between the city and nature as she highlights their blurred boundaries by introducing the practice of gleaning. I will draw on examples from the film that illustrate these boundaries and briefly explore gleaning as a hidden practice that can be traced back hundreds of years as it is 'rooted in the Bible' (Badio, 2009, p2).

Furthermore, to conclude, I will discuss why I believe this film to be relevant in reimagining our understanding of the modern city today. I believe it is essential to learn about practices such as gleaning as, although there are many opinions I will explore regarding the practice and a myriad of judgments surrounding it, it may serve as a reminder of the importance of food security when examining capitalist views on foodscapes and waste.

It is essential to understand modernity as an active participant in change when examining cities and nature and the creation of urban nature. Modernity is a 'new, forward-looking world view and a new set of social expectations' fabricated through colonialism as natural materials were extracted to aid the rise to power (Kaika, 2005, p12). In the context of nature, modernity and the modern city can be understood as the result of 'taming' various natural entities, from cultivating fields to domesticating wild animals (Kaika, 2005, p12).

Nature, therefore, can be a complex concept to define. Although understood as an untamed landscape which lacks human interference, in our wasteful and consumption-filled society, we have altered all nature as Halpern et al. (2008) indicates how no area, natural or modern, is 'unaffected by human influence'. By altering the natural world, we have resorted to recreating nature within cities through urban nature. These structures can be categorised as parks, grasslands, graveyards etc. Ultimately, urban nature can be identified as the natural or rural landscapes created or altered by human activities ranging from agriculture and modern infrastructure to simple planning systems.

As nature and our relationship with food have transformed over time from a small-scale, individual practice to modern agricultural practices, a detachment of production to consumption has been formed, highlighting how we have separated the modern city from nature. However, gleaning can be attributed to successfully blurring the boundaries between the two areas as natural practices bleed into the city and modern practices alter natural landscapes.

Gleaning is the practice of 'collecting surplus or unharvested food at its source' rather than through a market transaction (Morrow, 2020, p206). It is a free form of nourishment and can be understood as an informal form of waste picking. Gleaning is not a new concept. Once conducted as an obligation of farmers and landlords to the poor, gleaning has altered through the years along with the opinions of its onlookers.

Through modernisation, it has been implemented 'to tackle one dimension of poverty – food insecurity' (Badio, 2009, p2). In *Les Glaneurs et la Glaneuse*, Varda depicts the concept of gleaning, illustrating its transgression from its historical context as an agricultural practice to a metaphor for fighting food waste, resourcefulness and resilience.

Through several scenes depicting the practice, Varda conveys the fluidity of gleaning. At the beginning of the film, to the backdrop of an old book with a cat stroking its head against it- a symbol seen throughout the film as a cat can be understood as an animal gleaner, to glean is defined as gathering goods after a harvest. However, several shots throughout the film illustrate the practice differently as it moves from nature to the city.

The reason why people glean, in addition to those who participate in the act, have also adapted to the spaces where gleaning takes place as landscapes have been altered by modernity. Varda presents a woman in present-day France with a wide-angle shot to illustrate the harvested field she stoops in to glean; the scene then cleverly crosscuts to footage of women gleaning in the past, showing the evolution of the practice (0:01:43). The videos appear to be from an older time as the quality of the film is poorer than when Varda is filming the woman prior.

Varda presents us with the history of gleaning as it was once a task only women undertook. She employs paintings as a historical source, depicting the women stooping to glean in harvested fields. The shot at 0:00:49 conveys Millet's painting 'Les Glaneuses' and its position in a museum. The shot is accompanied by fast-paced music, followed by a time-lapse of the myriad of tourists admiring the painting, posing for photos, and simply walking past the image. I believe this illustrates the various perceptions of gleaning as it is viewed as a practice from the past to be studied, misunderstood, or perceived as an act only undertaken by the poor. This perception of gleaning is further illustrated throughout the film as Varda collects the opinions of various French people on the practice.

Many perceive gleaning as the old way, an ancient tradition only employed to attain food or for others; it was an act they partook in, but due to the efficiency of machines and technology, they no longer do (0:01:22). The implementation of technology in natural spaces convey how the modern city has impacted nature and how the two concepts have blurred as food production has become a capitalist commodity rather than a form to reduce food insecurity. The practice has been altered, but also who conducts it, as now gleaning is understood as something both men and women can do as they humbly stoop together to glean (0:03:48).

Varda depicts gleaning in various urban settings, highlighting the presence of nature within the modern city as gleaners are renamed dumpster divers and freegans. At the beginning of the film (0:03:03), a scene crosscuts from gleaners stooping in fields to those stooping by bins on Parisian streets to collect discarded fruits and vegetables.

The seamless editing is accompanied by a rap song commenting on the lives of gleaners, further illustrating gleaning's transition from a natural space to a modern city. The opinions of onlookers on these categories of gleaners are also less favourable than those towards the gleaners of the past. This act of scavenging for edible food from discarded sources is often met with mixed reactions, ranging from admiration for their resourcefulness and environmental consciousness to scepticism and disgust. Varda's film challenges these perceptions by humanising the individuals who engage in dumpster diving, portraying them not as outcasts but as resourceful individuals making a conscious choice to reduce food waste and live more sustainably. The scene of a young group of gleaners contains close-up shots focusing on their faces and hands and shares their views on gleaning as a form of resourcefulness (0:53:53). Varda omits all music; she employs common background sounds such as traffic passing and the rustling of plastic focusing on the words of the freegans associating a normalcy to their actions.

Varda continues to challenge the boundaries of nature and the city as the scene of the young group is followed by Varda interviewing a man who has gleaned the streets of Paris for several years. Renowned for his resourcefulness and his rubber boots, the unnamed man, who has a job and salary, gleanes not as a last resort but as an illustration of how we are wasting resources and how far removed we have become from nature (01:54:24). The camera films him stooping in dumpsters and cuts to close-up shots focusing on his boots as Varda applauds his resilience. He comments on our relationship with waste by addressing the Erika oil spill. The film cuts from the shot of his interview to footage of the catastrophe's impact as the scene pans to a beach consumed by oil, followed by a long shot of several people treating penguins with nothing but natural sounds playing from the beach waves crashing to veterinarians talking. Varda highlights our impact on the natural world by illustrating the progression of natural gleaners to street gleaners as waste from cities has blurred into natural landscapes such as the sea.

To conclude, the practice of gleaning in recent years has been heavily criticised in modern landscapes. Varda challenges this perception by focusing on why people glean in the city and nature and highlights how it fights food waste and insecurity. It is no longer for the poor but is a means of tackling our wasteful society. In my opinion, films such as Varda's are relevant and necessary for our generation to rethink how we perceive the city as we admire capitalist ideals rather than question how wasteful we have become. We must challenge the modern cities' influence on nature and welcome nature within our pre-existing cities. Stop viewing nature in the city as misplaced as it is where it should be; we are the ones who took over their space. This may be challenging as Gibson and Dombroski (2020) comment on the resilience of capitalist ideals and their impact on the environment continues with little to no retribution. In the film, Varda conveys a programme called 'My Beautiful Bin', which stands to educate young children on how to sort their rubbish and why it is crucial (0:58:41). Further programmes such as this are essential in reimagining a future where nature is welcomed, those who fight against food waste are celebrated, and capitalist giants deem what is acceptable concerning environmental harm.

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Róisín Lineen:

In this essay, I will analyse how the spaces and practices of ‘gleaning’, depicted in the film *The Gleaners and I* by Agnès Varda (2000), challenge the sharp divide between the concepts of the ‘modern city’ and ‘nature’. This essay will delve into the key concepts of ‘gleaning’, the ‘modern city’ and ‘nature’, illustrating how these elements are interconnected and blur traditional practices, while calling on academic literature. Part one will describe what key concepts are, while also introducing the concepts through an example of a modern-city issue where each concept plays an important role. Part two focuses on the film itself, providing examples of specific scenes that challenge the separation between the modern city and nature. Finally, part three speaks on how the spaces and practices of gleaning are depicted in the movie through a cinematological analysis of specific shots.

This film, directed by Varda (2000), captures the livelihoods of individuals involved in the world of ‘gleaning’, such as gleaners and property owners themselves. ‘Gleaning’ is a scavenging technique that allows for individuals collect surplus or unharvested food or crops (Morrow, 2020), reducing food waste and typically reducing the risk of food insecurity for the poor. Clouse (2022) uses the term ‘foraging’ to also describe this practice. In the film, Varda (2000) documented her journey around France, travelling to different areas to interview individuals. Throughout her travels, she provides many examples of how the concepts of the ‘modern city’ and ‘nature’ interact through the depiction of gleaning practices, those of which will be discussed throughout this essay.

As previously mentioned, this essay will centre around the key concepts of ‘gleaning’, the ‘modern city’, and ‘nature’. Key concepts are fundamental principles that are necessary for our understanding of a particular topic, which in this case is gleaning and how it is depicted in different spaces.

Gibson-Graham and Dombroski (2020, p.3) outlined how the modern city, a developed urban settlement characteristic of modern times, and society today are black holes for ‘mindless consumerism’ and ‘corporate control of markets’, pushing the concept of over-production in a modern city. Although advocating for sustainable development and degrowth efforts within cities, over-production often outweighs consumption. This is relevant in terms of food particularly. As addressed in the film (Varda, 2000) at 53min:48sec, a man expresses how he believes that everyone, regardless of social class, throws away food once it passes the sell-by-date, despite being perfectly fine to eat. This is a primary example of food waste as people buy more food and throw out the ‘expired’, a trait of a modern city as people grow chronically aware and dependent on these sell-by-dates. However, once discarded, this waste possesses can be gleaned by individuals that are aware of its value, despite passing its sell-by date, challenging the perceptions of waste within the urban landscape. Kaika (2005) uses the term a “messy socio-spatial continuum” which describes this connection perfectly. The connection to nature appears in relation to food waste. The potential for gleaning increases when people discard ‘expired’ food, allowing individuals to acknowledge the value of resources in a more ecologically friendly way, shifting towards a more sustainable method of urban living. Kaika (2005, p.10) suggests recognising “nature and the city not as separate entities, but as dialectically related”, an important perspective when studying the practice of gleaning.

The Gleaners and I (Varda, 2000) presents connections between nature and the modern city through the documentation of gleaning practices around France. At the beginning, at 1min:04sec, a woman talks about the historical significance of gleaning by describing gleaning practices that she encountered throughout her childhood. The cinematic techniques used added

to the scene, and its direct connection to nature, such as with the sound. Throughout the shot, we hear nature related sounds in the background, such as with the birds chirping and dogs barking, emphasising the remoteness of the area. The editing techniques used allow us to understand the historical importance of gleaning with the inserted clips of individuals gleaning in past times. The mise-en-scene shows these people wearing hats, possibly to protect them from the sun, and aprons which they used to gather their findings. This scene reaffirms the historical usage of this practice, a practice still evident today.

There are scenes throughout the film which challenge the separation of modern city and nature. An example would be in relation to scrap materials in both rural, and urban areas/modern cities. At 38min:14sec a retired Russian bricklayer describes how he seized the opportunity to gather scrap materials, such as dolls and metal crates, from his local area, and use them to create totem towers. Also, at 34min:40sec a man presents artistic pieces he created by gleaning salvaged materials from dumps, such as pictures made from wood, food packaging, and slates. Both individuals used their knowledge and abilities to gather waste (to glean) and to repurpose these discarded items. Another example would be in relation to food waste. At 16min:30sec a man searches through bins for leftover food. He later shows what he found which includes several expired items that still taste fine, according to him. Again, at 58min:53sec we see a man gleaning in a city, specifically in a market, also in search of food. Both individuals are reliant on gleaning to find food in order to survive. In both instances, I believe that the strict separation of modern city and nature is challenged. We see people, from different areas (both rural and urban) using the practice of gleaning to either survive, or as a hobby. It shows that irrespective of the area, rural or urban, nature finds a way to incorporate itself into daily lives, in this aspect it is through using the resources provided to sustain.

Throughout the film, Varda (2000) showed gleaning in many spaces, many of which were not very glamorous. Gleaning was depicted as labour intensive, involving bending down, working in the fields daily, and scavenging through bins and dumps for resources. It was also presented as a 'frowned upon' job, portrayed in a negative light. For example, at 59min:05sec an encounter between a man and a woman occurs in a market. It is unclear if the lady is also gleaning, but the negative aspect is how the lady treats the man. She shouted at the gentlemen to leave the produce alone, which he respected. However, I believe this example suggests that this treatment may be a regular occurrence, based off his respectful reaction. Another example is at 28min:27sec with a gentleman explaining that leftover produce is not allowed to be gleaned in that space. This shot goes hand in hand with another at 23min:35sec as a man describes that laws are placed against gleaning in Burgundy. These restrictions against gleaning 'criminalise' the practice, and portray it negatively, despite it being a positive occurrence as it reduces food waste, provides food security, and prepares fields for future harvests. Clouse (2022, p.286) speaks about these actions in a positive light. They describe how gleaning can 'reinforce cultural heritage' as it encourages people to interact with the land and share knowledge, further supporting the transference of social and cultural values. The editing used amplifies this opinion. For instance, before the gentleman speaks at 28min:27sec, we see Varda taste testing leftover produce, thoroughly enjoying it. At 28min:27sec Varda expresses her anger towards the gleaning restrictions, however the next shot pans to a fire burning some of the remaining crops. This shows the ignorance of some individuals, people who would rather burn food instead of sharing it.

From another perspective, gleaning is portrayed in a negative light in respect to the gleaner's appearance, through the mise-en-scene. Most people who glean are not extremely wealthy, meaning their appearance may not be very 'attractive'. This can be seen around 59min:18sec

and 16min:42sec. The individuals in these clips generally have unkempt hair (including facial hair), alongside clothes that are not in the best condition. Gibson-Graham (2020, p.8) proposed that we need a 'reframing of the economy'. This would allow us to surpass the stereotypes previously put before us (such as those about gleaning), stereotypes that are preventing change. Should a reframing occur in relation to 'gleaning', the practice may not hold such negative connotations. All in all, it is clear through the mise-en-scene, editing techniques, cinematography (scenes panning with judgemental onlookers in the background, such as at 59min:08sec), sounds, and various shots that the practice of gleaning is depicted predominantly in a negative light throughout the film. However, they also depict gleaning as a natural practice that will occur anywhere, including in a modern city.

In conclusion, I believe that these types of films are relevant for rethinking the strict stereotypes that people have about the modern city today. Many people create a separation between nature and the modern city due to its geographical nature. Nature is generally associated with vegetation and landscapes; however, it is far more than that. Throughout completing this essay, I have come to realise that nature embodies many different practices and concepts, particularly including the practice of gleaning. It is important to show these aspects of nature that are present within a modern city in order to remove the negative connotations that may be placed upon these actions due to the 'foreign nature'. Gleaning, nature, and the modern city are intricately connected in many different ways, we just have to be able to recognise it. Kaika (2005, p.8) explains that as we modernize cities, we don't separate ourselves from nature. Instead, we are just urbanizing the nature in that space.

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Air Pollution in Delhi: Is Everyone Equally Affected?

Sam Lynch, Year 3 (Single Major)



Plate 1: Air Pollution in Delhi

Source: <https://feminisminindia.com/2023/11/21/air-pollution-in-delhi-a-question-of-social-inequality-and-environmental-injustice/>

This winter, Delhi has been experiencing hazardous air pollution which is having a detrimental effect on the population of the city. Over the years, Delhi has been no stranger to perilous air pollution and this winter has been no exception. Delhi has frequently appeared near the top of lists of capital cities with the worst air pollution and topped the rankings in [2019](#). Air pollution in the capital has been attributed to various factors such as vehicle emissions, construction, crop burning and industrial activities. The consequences of these activities are not equally distributed amongst the population of Delhi and disproportionately impact the impoverished communities of the city. Air pollution as a whole needs to be confronted and addressed not just in the capital but nationwide. The inequality in regard to who receives the brunt of the harmful effects of air pollution also needs to be confronted as well as the underlying drivers of these inequalities.

Recent air pollution in Delhi

[Delhi's recent increase in air pollution](#) has been primarily attributed to the 1,068 stubble burning incidents recorded on October 29th which was the highest of the current season. The practice of stubble burning is conducted by farmers from neighbouring states in both the summer and winter. Summer winds help disperse the smoke from stubble burning quickly however the colder and slower winds spread the smoke extensively. While this has certainly contributed to recent rises in air pollution in the capital, to put the blame exclusively on stubble burning would be an inaccurate attribution of the problem. There are many other underlying factors that are causing the hazardous pollution seen in the city. Some of the most prominent

drivers of air pollution in Delhi are vehicle emissions, dust from roads and construction activities, waste burning and industrial sources. There are seasonal drivers as well such as dust storms, residential cooking and heating and the burning of agricultural residue. The primary gaseous pollutants in Delhi are oxides of nitrogen, carbon, sulphur, suspended particulate matter and hydrocarbons (Tripathi et al., 2019). Figure 1 shows the hazardous levels Delhi's air quality has recently reached between November 1st and 7th. As mentioned before, air pollution in Delhi is disproportionately affecting the impoverished communities of the city. Before elaborating on this, it is important to understand some of the structural causes of social inequality in the city.



Figure 1: Delhi's Air Quality

Source: <https://www.statista.com/chart/19837/delhi-pm25-pollution-daily-averages/>

The Caste System and marginalisation in Delhi

The caste system has been a key driver of inequality not just in Delhi but the Indian sub-continent as a whole and it has ancient origins. The system is based on the belief that the Hindu god of creation made four different castes of peoples from his own body. From his head he created Brahmins who were priests and scholars and from his arms were Kshatriyas who were political leaders and warriors. From his thighs, merchants and traders called Vaisyas were created and finally from his feet labourers, craftsman and servants called Sudras. The system however did not include people known as Dalits or 'the untouchables' who were seen as unclean. Dalits did not have occupational freedom and were confined to menial jobs such as toilet cleaning, disposal of human excretion, sweeping of the streets and cleaning the sewers. This affirmation of castes and occupation to people upon birth and consequent restricted upward mobility enabled the higher castes to have exclusive control over resources and ensure their dominance (Bapuji and Chrispal, 2018). In 1950, the Indian government outlawed discrimination against Dalits and introduced special quotas in schools and parliament to help the lower castes. This does not mean discrimination and inequality based on caste has

disappeared. Video 1 below provides an overview of the caste system and the impacts it has on society and the challenges being posed to the system.



Video 1: Challenging India's caste system

Source: <https://www.youtube.com/watch?v=Jthue7ha9oo>

In Delhi, residential segregation based on caste and socio-economic status is prevalent. In cities and towns, Untouchables were segregated and kept at the periphery of cities/towns. With the rapid growth and urbanisation of cities like Delhi, these quarters where Untouchables lived became engulfed in the new city. Many urban villages are named after caste for example the Balmiki (a caste of sweepers) colony. The percentage of former Untouchable caste population is found to be significantly higher in squatter settlements compared to surrounding residential areas in Delhi. These settlements are scattered across Delhi and their impoverished settlers have an insufficient amount of financial freedom to migrate to other more affluent areas of the city. Muslims are another marginalised group and they represent 43% of the population in squatter settlements. Similar to those formerly known as Untouchables they have a marginal presence in Delhi Development Authority (DDA) flats (flats for sale to private or different income groups) and cooperative group housing societies (Dupont,2004). Illegal settlements know as 'bastis' which contain a large number of Muslims and former Untouchables have undergone extensive evictions. In Delhi between 1990 and 2010, evictions and demolition processes in bastis displaced 110,000 households and fewer than half of these households were resettled or offered other types of rehabilitation (Bhan,2014). The bastis or squatter settlements often have very poor standards of living. They have very little access to clean water, toilets, electricity and are densely populated with some of their inhabitants living in small rooms with up to eight other people. Madanpur Khadar, a slum in Delhi has a sewage line running directly

through it and HIV is a prevalent medical threat. And if these health and safety issues were not enough, air pollution in Delhi is a significant addition to these concerns.



Plate 2: Taimur Nagar Slum

Environmental injustice in Delhi

Delhi's poor and lower caste groups are disproportionately being impacted by ongoing and recent air pollution in the city. The impoverished and lower caste groups usually are employed in menial jobs such as garbage collection and vegetable selling which are typically outdoor activities therefore leaving them more exposed to local air pollution. As mentioned before these demographics live largely in overcrowded slum settlements that have inadequate ventilation and are overcrowded. This as well as the use of solid fuels for heating and cooking leads to high levels of indoor pollutions (Plate 3). There is also a disparity between the environments where the affluent populations of Delhi reside compared to the impoverished. More wealthy, affluent neighbourhoods typically have more open areas, greenery and superior infrastructure. The lack of these amenities in impoverished settlements is detrimental to not only their physical health but their mental health also. The lack of greenery in this case is especially important as plants can absorb airborne pollutants thus creating a healthier environment. Air pollution can have drastic health implications for the poor that are disproportionately exposed to it. Various studies have found links between air pollution and morbidity as well as the links between vehicle emissions and the developmental risks for children. Air pollution also poses risks of asthma, cardiovascular problems and lung cancer (Tripathi et al., 2019). The lower socio-economic slum dwellers have limited access to healthcare making these health risks even more dangerous. The healthcare that they do receive can be delayed for a long time or simply inadequate leading to the exacerbation of the health effects of pollution even further.



Plate 3: Andhera Gher slum residents keeping themselves warm by a wood-fueled fire on a cold November night

What are the government doing about air pollution?

From the 13th of November for a week, Delhi implemented a [mandate](#) which restricted certain vehicles from driving between 8am and 8pm. This mandate excluded motorcycles which are responsible for more emissions than cars. This restriction has also led commuters to leave for work before 8am and return home after 8pm which only leads to higher concentrations of pollution at these times. [Smog towers](#) were also introduced in the Central Business District of Delhi to reduce air pollution with air filters but these are relatively ineffective in the open atmosphere as they are only really effective in confined indoor spaces. Environmental Minister, Gopal Rai has recently announced the commencement of the second stage of the [Graded Response Action Plan](#) to address the high pollution levels. This stage of the plan introduces directives to all public transportation services in Delhi to increase their service frequency to reduce vehicular emissions in the city. Regulations on vehicle emissions and industry pollution need to be implemented as well as green emissions to reduce pollution in [Delhi](#). The Chief Minister for Delhi has repeatedly pointed to stubble burning as one of the key factors for the capital's air pollution. While stubble burning does have an impact, not all blame should be put on stubble burning for recent pollution as this gives the government a reason to avoid taking accountability for local [pollution problems](#) which have been previously outlined.

What else needs to be done?

As well as solving the issue of air pollution, differential socio-economic and caste-based exposure needs to be addressed. Equal access to adequate healthcare and sanitation is essential for the protection of these marginalised communities who are disproportionately impacted by recent and historical pollution in Delhi. [Equal access to education](#) is also a must as it empowers

the marginalised to stand up for their rights and advocate for clean air. A current example of an organisation fighting for environmental justice is the [Asha India](#) organisation. This organisation aids more than 700,000 people in more than 91 slum colonies in Delhi. Asha India strives to reduce poverty and increase educational opportunities, make environmental improvements and provide better access to healthcare. Measures also need to be taken in order to not only protect but elevate marginalised groups such as lower castes who are to this day being subjected to discrimination and violence. Dalits are subjected to discrimination in school and the workplace and as result suffer financially as these discriminations leads to them leaving school or work. There have also been several cases where Dalits have been murdered and brutally beaten due to their [caste](#). The government need to implement laws against this kind of discrimination and protect marginalised groups from having these atrocities committed against them. Similar to Bapuji and Chrispal (2018), it is my hope that studies and blogs like this can raise awareness to these environmental inequalities and encourage people to challenge existing systems of inequality such as the caste system, religious and socio-economic classification.



Video 2: Delhi: Air pollution causes spike in respiratory disease

Source: <https://www.youtube.com/watch?v=kxoXqjXzmdk>

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Critical Comparison of both Dublin and Amsterdam as Smart Cities

Adam Cronin, Year 3 (Double Major)

Cities are considered key elements for the future. They play a pivotal role in the global economy, serving as pivotal hubs of both consumption and production, thereby generating a large portion of the world's GDP (Ramaprasad et al., 2017). Alongside their economic importance, cities have an enormous impact on the environment, with Albino et al. (2015) stating that cities consume between 60 and 80 percent of global energy, contributing significantly to global greenhouse gas emissions. Cities are also the most populated regions across the globe, with the world bank (2023) estimating that around 56% of the world's population live in cities, with this number expected to rise to 70% by 2050. With the social, economic, and environmental importance of the ever-growing city in mind, many cities are currently adopting a smart cities agenda in which networked ICTs are employed to drive local and regional economies, solve urban issues while also attempting to make cities more efficient, responsive sustainable and safe (Halegoua, 2020). Despite the vast literature on smart cities, Ramaprasad et al. (2017) states that there are more than thirty-six definitions of the term. Like the absence of a unified definition, cities deploy vastly different approaches to becoming a smart city, each having its own aims, strategies and underlying drivers. Additionally, each city has differing models of governance with varying approaches deployed to deal with issues surrounding ethics and social justice. This essay will compare the differing approaches of both Dublin and Amsterdam as smart cities, with each section examining the themes mentioned above, giving reference to 'Smart Dublin' and 'Amsterdam smart city programme' (ASC) as specific case examples.

Aims and underlying drivers of Smart Dublin:

Dublin developed as somewhat of an accidental 'smart city' to an articulated vision with its own projects (Coletta et al., 2018). One of the biggest challenges and aims of the smart Dublin initiative was to address the accidental and uncoordinated nature of Dublin's smart city landscape (Coletta et al., 2019). The fragmented governance structure of the city meant that prior to the foundation of the Smart Dublin programme, smart city initiatives were mostly pursued by each LA individually. Upon its development, Smart Dublin inevitably aimed to foster awareness and coordination of initiatives among departments within or between LAs (Coletta et al., 2019), enabling the four governing LAs to coordinate its smart city initiatives through a single endeavour (Coletta et al., 2018). This rearticulation gave rise to Smart Dublin, a unit aimed at articulating a new vision for Dublin while driving it towards becoming an internationally recognised smart city.

In 2018, Smart Dublin stated its aim as 'to engage with smart technology providers, researchers and citizens to solve challenges and improve city life' (Coletta et al., 2019: 255). Despite their inclusion, citizen's views have largely been ignored. For the most part, smart Dublin has largely focused on a tech-led form of entrepreneurial urbanism, placing a strong focus on urban and economic development (Coletta et al., 2018). Alongside promoting entrepreneurship and economic development, Coletta et al. (2019) states that Smart Dublin's aims also revolve around producing more efficient city services, improving transportation flows while also attempting to tackle flooding and other environmental issues. Despite the variety of aims, Smart Dublin's core objectives place a strong emphasis on supporting and realising economic development goals, fostering innovation and start-ups while also aiming to attract foreign direct investment (Coletta et al., 2018). Smart Dublin's focus on such objectives and its shift from an accidental to articulated smart city has seen the city become more recognised internationally

recognised as an active site for innovation and smart urbanism, with one of the key underlying drivers of the initiative being the future transition of the four LAs towards a more data-driven approach in managing operations and formulating policy (Coletta et al., 2018).

Aims and underlying drives of ASC:

Amsterdam is a pioneer in the smart city movement (Noori et al., 2020). ASC is a well-coordinated initiative that was carefully planned before acting, with its aims and activities to perform organized within a strategic framework (Mora and Bolici, 2016). Developed in 2007, eight years prior to the Smart Dublin initiative, the strategy involved the collaboration between the Amsterdam innovation Motor (AIM), the energy-network operator Liander and the municipal administration (Mora and Bolici, 2016). Mora and Bolici (2016) state, that the decision to transform Amsterdam into a smart city was driven by a clear desire to make use of ICTs to help solve Amsterdam's environmental concerns while also creating an urban environment that is "definitely sustainable" (Mora and Bolici, 2016: 255). The initiators behind ASC have identified technology as 'a key enabler to address climate issues' while also believing that the deployment of such initiatives and technologies can accelerate the strategic objectives outlined by the Municipality of Amsterdam (Mora and Bolici, 2016: 255). These objectives include supporting the reduction of carbon-dioxide emissions and energy wastage, promoting sustainable economic through the maximization of possibilities offered by ICTs, while also changing citizens' behaviours to promote a more sustainable lifestyle (Mora and Bolici, 2016). The programme's overall goal is to reduce city CO₂ emissions by 40% by 2025 in comparison to 1990 levels, in addition to making Amsterdam ones of the most sustainable cities in the world (Mora and Bolici, 2016). In comparison to Smart Dublin, the aims set out by ASC are far more coordinated and specific, with the need to address environmental problems being the main underlying driver. Alongside their desire to address environmental problems, Amsterdam hopes to deploy the ASC programme to create an innovative, future-proof, collaborative and data-driven city by 2040 (Noori et al., 2016).

Strategies of Smart Dublin:

In 2015 Coletta et al. (2018) identified over fifty different projects and programmes that could be classified as fitting the profile of a smart city deployment. While numerous, the absence of a masterplan and the programme's inability to corral all stakeholders, technologies and actors at play into a unified whole, means that strategies are often deployed in a disjointed manner across the city, and are only focused in specific areas (Coletta et al., 2019). One of the main strategies deployed by smart Dublin to attract inward investment and accelerate economic development is facilitating test-bedding and establishing living labs (Coletta et al., 2018). These testbeds and living labs, like those located in the Dublin docklands, enable companies to test prototype technologies and demonstrate market-readiness (Coletta et al., 2018). Startups are provided access to infrastructure and data in the hope of these companies growing around the world while maintaining their Irish base, further adding to the overall GDP of the city and country (Coletta et al., 2018). Smart Dublin facilitates this by promoting Dublin as a prime location for companies to develop smart city technologies, with a particular emphasis placed on the Docklands. Dublin is also leading the way in implementing pre-commercial procurement to facilitate the development of new smart city solutions while also encouraging new company formation and the development of new products in existing companies (Coletta et al., 2018). This strategy functions as a means of uncovering potentially new solutions to urban problems while also stimulating economic development, particularly in areas where significant amounts of research and development are still needed to bring an idea to market (Coletta et al., 2018). In terms of improving city life, Smart Dublin has collaborated with many private data-rich companies to undertake data analytics, aiming to better understand the city so that Dublin can

be managed in a more efficient manner, and that policies can be formulated that best serve the needs of the city (Coletta et al., 2018). Smart Dublin have also developed on existing projects such as the traffic control (operating since 1987) (Coletta et al., 2018). This control room processes data received from sensors, CCTV cameras, bus transponders, social media posts and phone calls, enabling real-time control of traffic light sequences and traffic flow (Coletta et al., 2018). This existing infrastructure serves as a foundation onto which further smart technologies can be integrated, allowing smart Dublin to rebrand such projects as further examples of smart urbanism (Coletta et al., 2018).

Strategies of ASC:

Kuyper (2016) states that Amsterdam embraces a bottom-up strategy where the initial state of the city's digital needs are assessed first, followed by defining the needs and priorities. Unlike Dublin, Amsterdam's smart city strategy is heavily driven by environmental sustainability rather than economic development and inward investment. Their strategy essentially revolves around the continuous development of ICT-based projects that facilitate the implementation of new applications, devices, services and technological infrastructures throughout the city (Moran and Bolici, 2016). Each potential project begins with a development phase where the project idea is thoroughly explored (Mora and Bolici, 2016). Potential ideas can be put forward by ASC or external entities where they will be evaluated by the focus group department of ASC (Mora and Bolici, 2016). This group will then be tasked with approving or rejecting the proposal based on costs, feasibility, and CO2 reduction potential. If approved, suitable project partners are identified, and once the main partners have been identified the execution phase begins where the roles and responsibilities of the various partners are specified (Moran and Bolici, 2016). This clear and coordinated strategy has facilitated the implementation of various initiatives such as Amsterdam's climate street programme, which introduced numerous smart energy saving street technologies to the city such as energy displays, smart meters and smart lighting (Kuyper, 2016). Another successful project includes the creation of a green living lab, a place where entrepreneurs and scientists meet to promote and explore healthy urban living (Kuyper, 2016). Like Smart Dublin, ASC also makes use of smart traffic management systems to optimize traffic flow, creating a future where cars, traffic lights, navigation systems, and information signs are working on an automated basis (Noori et al., 2020).

Governance model of Smart Dublin:

Dublin is governed by four individual LAs (Dublin City Council (DCC), South Dublin County Council, Fingal County Council and Dún Laoghaire Rathdown County Council) with little collaboration or cooperation between them (Coletta et al., 2019). While the overall authority of each LA is limited, their mandate covers planning, housing, waste, roads and traffic, parks and recreation and local enterprise with areas such as education, health, social services or public transit delivered through other agencies (Coletta et al., 2019). Fragmentation is evident not just between LAs but also across departments within each LA, resulting in scenarios where some staff unaware of other smart city technologies and developments within their own organisation (Coletta et al., 2019). Despite the establishment of smart Dublin as somewhat of a mediating organisation, acting as single point of contact where each smart city proposal can be evaluated in a transparent and equal manner, imbalances still exist (Coletta et al., 2019). Due to the business rates generated by its city centre location, DCC is by far the largest and wealthiest LA out of the four (Coletta et al., 2019). Its financial and geographical superiority means that the inner-city LA dominates the programme, boasting the highest number of staff actively applying and interested in the smart city approach, along with the greatest number of projects and connections with companies (Coletta et al., 2019). DCC has often moved

independently to develop testbeds and partnerships with little consultation with other LAs, highlighting the imbalances that exist between LAs and within Smart Dublin itself (Coletta et al., 2018). Without a city mayor or an individual politician governing the city, overall decision-making authority for both the city and Smart Dublin is in the hands of the four chief executives of each LA (Coletta et al., 2018). Additionally, decision making can be influenced by a regional steering committee, an advisory network, the Smart Dublin regional group, and local working groups (Coletta et al., 2019). Decisions on the deployment of smart initiatives are largely made outside of the democratic process with LA chief executives green-lighting projects with little media, political or citizen feedback (Coletta et al., 2018). Smart Dublin's fragmented and imbalanced governance structure will continue to hinder the roll out of city-wide smart initiatives unless there is an intervention from central government.

Governance model of ASC:

Unlike Dublin, Amsterdam's smart city programme places a strong emphasis on collaboration, which is evident through its bottom-up approach to governance (Noori et al., 2016). The core of the programme consists of twenty permanent partners that include governments, social organizations, knowledge institutions and innovative companies active throughout the city (Amsterdam Smart City, 2024). While the permanent partners are an ever present, the open and collaborative nature of the programme allows for new partners to join the project as KPN, the main landline and mobile operator in the Netherlands, did in 2011 (Capra, 2016). KPN joined the programme as a founding member, allowing ASC to expand its range of operations (Capra, 2016). Similar alliances have formed since the programme's foundation with Capra (2016) stating that as of 2014 the programme consisted of 54 projects, involving 154 partners. Despite the large number of partners Capra (2016) highlights that most projects consist of two to three partners. These partners typically tend to be private companies but can also include public bodies and research institutions (Capra, 2016). Despite the varying number of partners and actors involved with various projects, permanent partners like Liander and the Amsterdam municipality typically hold the strongest positions within the programme (Capra, 2016). Most of the decisions taken revolve around these main actors with most of the ASC projects involving at least one of them (Capra, 2016). While these actors play a crucial role in the governing of the programme, some ASC projects have been established without a direct or indirect link to these main actors (Capra, 2016). The city's unified governance structure simplifies project initiation and collaboration, with the city mayor and municipal officials working together towards common city-wide goals. Unlike cities with more fragmented governance structures like Dublin, where decision making and the role out of city-wide projects is often far more difficult, ASC initiatives flow across the city and are not just confined to specific areas.

Issues surrounding ethics and social justice in Dublin: Top of Form

Many cities across Europe have branded their smart city programmes and initiatives as 'citizen-focused' or 'citizen engaged' (Cardullo and Kitchen, 2018: 2). Smart Dublin promotes itself as 'open, engaged, connected', where engaged relates to citizen engagement (Cardullo and Kitchen, 2018: 2). However, as discussed, Dublin has largely ignored the views and desires of its citizens, opting instead for a civic paternalism and stewardship approach to smart city implementation (Cardullo and Kitchen, 2018). Rather than being consulted over how initiatives should be deployed or developed, citizens usually play the roles of user, recipient, consumer, tester and player (Coletta et al., 2018). To examine the role performed by citizens in smart cities, Cardullo and Kitchen (2018: 1) have cleverly created an adapted version of Sherry Arnstein's (1969) ladder of participation, which they have termed 'the scaffold of smart citizen participation'.

Cardullo and Kitchin (2018) focus on the lower rungs on the ladder in their study, stating that citizen participation in Smart Dublin is mostly confined to ‘nonparticipation’, ‘consumerism’ and ‘tokenism’. At the top of Arnstein’s ladder is citizen power, a form of citizen participation in which citizens have ‘‘increasing degrees of decision-making clout’ (Cardullo and Kitchin, 2018: 9). Cardullo and Kitchen (2018) argue that it is difficult to find examples of smart city initiatives in Dublin that are co-created and co-owned by citizens or where citizens have the dominant decision-making authority. While the deployment of certain smart technologies has of course improved city life for the citizens of Dublin, Kitchen et al., (2018) details that there are a several ethical implications arising from the assemblage of smart city technologies, particularly the establishing of living labs or testbeds. However, unlike other smart cities, particularly those in China, dataveillance, predictive profiling and anticipatory governance, social sorting and redlining and behavioural change do not vastly affect the citizens of Dublin (Kitchen et al., 2018). Most of the city does not contain technologies advanced enough to cause such concerns, with the Docklands region being the only area of the city that could potentially cause citizens to worry about such ethical issues. The number of people living in the docklands is less than 2000, with many of them being affluent and mobile meaning they are unlikely to oppose urban test-bedding (Coletta et al., 2018).

Issues surrounding ethics and social justice in Amsterdam:

ASC has recently broadened its scope to include areas aimed at enhancing citizens' quality of life. (Noori et al., 2020). Despite this citizen centric shift in focus, in most cases, citizens do not take the initiative when it comes to making various decisions surrounding the development and deployment of smart city technologies and initiatives (Capra, 2016). Instead, they are invited to participate by either private or public actors, that are the initiators of projects (Capra, 2016). Capra (2016) states that the level of citizen participation is mostly dependent on the size of the project at hand, with large-scale Citizen participation often limited to localised and less technology intensive projects in comparison to in Larger city-wide projects, often necessary in finance and technology intensive projects (Capra, 2016). Unlike Smart Dublin, ASC is far more open and dedicated to informing and educating citizens, with citizen participation encouraged where possible. Organisations such as Waag society, a research community enabling individual citizens to propose and develop their personal innovative ideas to ASC, establishes links between actors within the platform such as corporations, public bodies, citizens and academia (Capra, 2016). Pakhuis de Zwijger is another citizen centric platform similar to the fix-your-street app in Dublin, allowing the citizens of Amsterdam to discuss recent developments in the city (Putra and Knapp, 2018). However, Unlike the Dublin based app, the Amsterdam platform holds annual meetings where members from the Amsterdam municipality are present to hear citizens’ needs, problems and ideas (Putra and Knapp, 2018). While citizen participation is crucially important for the success and development of the Amsterdam smart city programme, the protection of citizen’s privacy is imperative. A study conducted by Jameson et al. (2019) found that citizens in Amsterdam are concerned about the use of their data, with many citizens not only unaware of how their data is utilized but are also largely uninformed about its destination, integration across agencies, and the potential advantages and disadvantages of its utilization. Respondents to Jameson’s (2019) study also discussed their concerns in relation to how increased datafication may lead to individual targeting and racial profiling. It is clear from Jameson’s (2019) study that ASC must do more to help ease the worries of its citizens as datafication grows in the future.

Conclusion

Based on the evidence discussed in this essay there is no doubt ASC and Smart Dublin differ in terms of their smart city aims, strategies, underlying drivers, governance structures and

approaches to citizen participation and ethics. Smart Dublin's aims are routed in economic growth and attracting inward investment in comparison to ASC's aims which are centred around environmental concerns. However, their respective underlying drivers do exhibit similarities with both cities placing a strong focus on becoming more data-driven in the future. ASC strategies, like its aims typically tend to more environmentally focused in comparison to Smart Dublin's strategies, which inevitably are centred around making Dublin an attractive environment for companies to test and develop smart city technologies. In terms of citizen participation, Dublin lags far behind Amsterdam, which is mostly down to the vastly different governing structures and approaches of both cities and smart programmes.

While this essay may seem heavily critical of Smart Dublin, their shortcomings in relation to ASC are by no fault of their own. Dublin ranked 78th out of 176 countries in IMD's 2023 smart city index. If Dublin wants to establish itself as a leading and award-winning smart city, like Amsterdam (who ranked 11th), its restrictive and uncoordinated governance structure must change (IMD, 2023).

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Wexford Fieldtrip 2024, with the MSc Climate Change class (Photo Credit: Gerard McCarthy)

Healthcare System of Cuba

Kerry-Ann D’Arcy Year 3 (Single Major)

Introduction:

The primary objective of this research report is to profile the National Healthcare System of Cuba. This will be carried out by providing an in-depth description on the overall model of healthcare provision, the evolution of the healthcare system overtime and how the system and its services are organised geographically. Afterwards, a critical commentary on how the system operates will be conducted. This aims to thoroughly assess the positive and negative issues associated with healthcare provision in Cuba. To conclude, the resilience of this healthcare system to Covid-19 will be discussed.

Section A: Descriptive Profile of the Healthcare System in Cuba

1.1) Model of Healthcare Provision

It can be noted that despite economic downturns and scarcity of resources, healthcare provision in Cuba has undoubtedly excelled. This country can be referred to as an outlier among countries with similar Gross Domestic Products (GDPs). The quality of care can be compared to that of developed countries. Healthcare is viewed as a basic right for all citizens and as a result, it is free. In addition, there are no private healthcare facilities as all services are provided by the Cuban Government. There are three tiers of medical care in this system. These are primary, secondary and tertiary level care (Primary Healthcare Performance Initiative, 2022). Each tier provides different levels of care covering general, advanced and specialised treatment.

Family doctors work in buildings called consultorios, also known as, neighbourhood clinics. These clinics provide primary care such as triages, vaccinations and routine check-ups for patients (Trejo, 2024). This is the first point of contact for any patient with non-emergent medical needs. This care is concentrated across a variety of small districts. Trust is extremely important in the provision of primary care. Over the past six decades, doctor-patient trust has been established as this type of care is entirely community focused. The population density of Cuba in 2015 is highlighted below in Figure One.

Every consultorio hosts an Annual General Meeting (AGM) to discuss the positive and negative issues in the provision of healthcare over the previous year (Fitz, 2020). All district members are asked to attend and aid with the resolution of any problems that may have arisen. Primary healthcare facilities rely heavily on their input and contribution. These services will then be reformed to suit the needs of the Cuban citizens (Fitz, 2020).

Densidad de Población, 2015

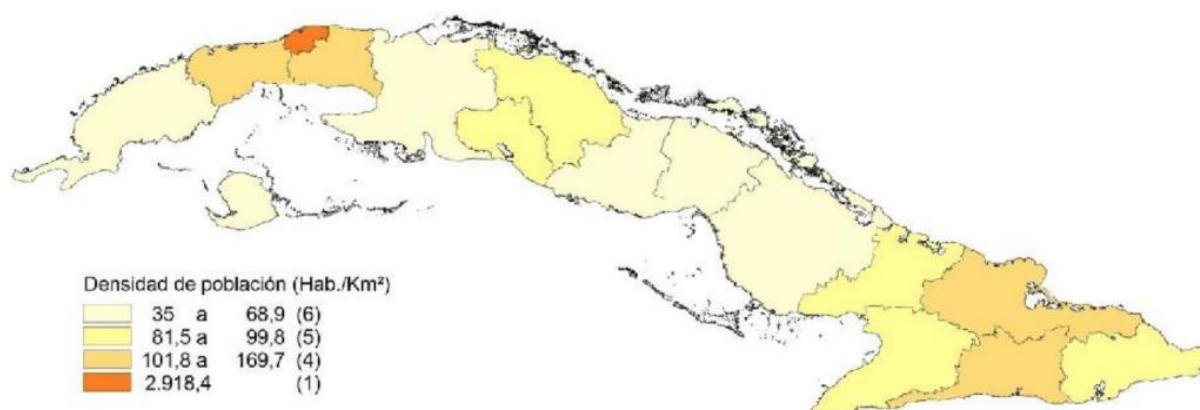


Figure One: The Population Density per Kilometre Squared in Cuba 2015 (Population Data, 2016).

Secondary healthcare is provided by polyclinicos. These target a larger proportion of the population than consultorios (Fitz, 2020). Polyclinicos offer an expansive range of care which cannot be provided in consultorios, for example dentistry, paediatric, gynaecological and OB/GYN services (Fitz, 2020). Child care, maternal assistance and social care are considered a priority in polyclinicos. These centres aid with the diagnosis of patients by using technology such as, X-Rays, Echocardiograms and Blood Test Processing Devices. Minor procedures such as bronchoscopies, colonoscopies, biopsies and orthopaedic surgeries are also performed here (Trejo, 2024).

Tertiary healthcare is provided by institutos, also referred to as hospitals. These provide specialised treatment for patients. Advanced care is given to those who require major surgical procedures such as an appendectomy, pneumonectomy and heart bypass surgery (Trejo, 2024). In addition, these centres are fundamental for medical research and education. For example, physicians conduct an array of clinical trials and innovative projects in institutos, most of which involve the curing and eradication of infectious diseases (Gorry, 2016). Unfortunately, not all specialised treatment is available here due to the poor economic development of the country. This means that patients may have to travel abroad for care. Over seventy percent of the Cuban population live below the poverty line, so it is unlikely that mandatory surgical procedures are affordable overseas (Rivera, 2022).

1.2) Evolution of the National Healthcare System (SNS) in Cuba

Access to healthcare in Cuba had been extremely unequal prior to 1959. This is due to a number of reasons including the proximity of services, affordability of healthcare, private vs public healthcare, infant mortality rates and insufficient medical professionals.

Geographically, hospitals and healthcare clinics were predominantly located in major urban centres, such as Havana and Santiago de Cuba (Keck and Reed, 2012). Those living in rural regions could not avail of these services due to the vast proximity and lack of sufficient infrastructure. Majority of the Cuban population were considered to be marginalised or living in poverty. As a result, they were unable to access healthcare, whereas, wealthy individuals could afford adequate medical attention (Keck and Reed, 2012). There were limited public healthcare centres available at this time. A large proportion of medical practices were privatised creating socioeconomic issues across Cuba. This resulted in high infant mortality rates along with the continuous spread of infectious diseases across the population (Keck and Reed, 2012). Furthermore, the quality of medical training and education was exceedingly

poor. This caused a physician shortage as healthcare staff emigrated from Cuba to avail of better career opportunities in the United States of America.

The Cuban Healthcare System had been completely reformed following the Cuban Revolution of 1959. After defeating the Government of Fulgencio Batista, Fidel Castro established the Communist Party of Cuba (PCC). The Cuban Institute of Medical Science had been established in 1962 (Hirschfeld, 2022). This was a strategy to provide adequate healthcare education and retain medical staff. In 1963, the official National Healthcare System (SNS) had been created which aimed to provide medical care to all citizens in Cuba. Healthcare was deemed as a basic right in the Cuban Constitution in 1976. Unfortunately, there had been severe shortages of medical equipment and supplies after the collapse of the Soviet Union in 1991 (Hirschfeld, 2022). The country was experiencing an economic crisis but had still managed to deliver healthcare to all Cuban citizens. Technological developments, advancements in medical research and the expansion of hospitals and clinics were made a priority from 2000 onwards. Figure Two below shows that the life expectancy of those living in Cuba had greatly improved from sixty-three years old in 1959 to almost eighty years old in 2024 (MacroTrends, 2024).

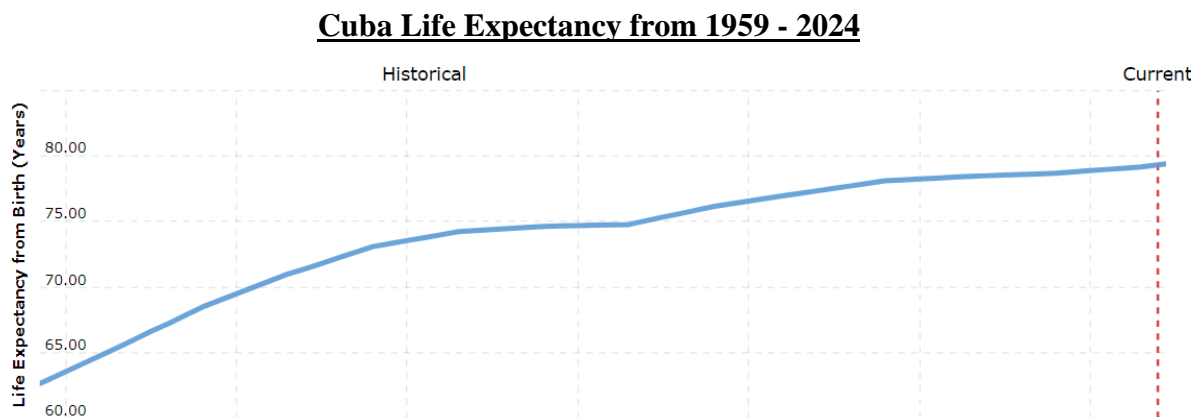


Figure Two: A graph showcasing the life expectancy of a person from Cuba from 1959 to 2024 (MacroTrends, 2024).

1.3) Geographical Organisation of the System and Services

The Cuban Healthcare System has a unique spatiality. As previously stated, medical services are provided on a three tiered system. Primary healthcare accounts for over eighty percent of all services per annum. The prevention of disease spreading is a core focus of the Cuban Government (Primary Healthcare Performance Initiative, 2022). Consultorios deliver healthcare to populations of circa seven hundred people. Each family is assigned to a consultorio based on medical history and the geographic spread of illnesses. Extensive research is conducted by the primary healthcare physicians to determine this. The concentrated geographic district is viewed as a whole, rather than individual families (Primary Healthcare Performance Initiative, 2022). There are almost eighteen thousand consultorios across all of the communities in Cuba.

Polyclinicos are strategically located in urban and suburban centres. Each polyclinico provides care to circa twenty thousand people in Cuba (Trejo, 2024). They are easily accessible for patients who need urgent care. The distribution of polyclinicos is significantly less than consultorios. This is due to the offering of specific and rare services by secondary healthcare providers as opposed to the more generalised services offered by primary healthcare clinics. There are almost four hundred and fifty polyclinicos in intermediate areas in Cuba (Trejo, 2024).

Some polyclinicos are located in rural or coastal regions. This is due to the poor infrastructure in certain areas that may cause difficulty for civilians in accessing facilities. These polyclinicos specialise their services towards those in these regions (Trejo, 2014). Some diseases are waterborne or contracted by wild animals and insects. These centres will tailor their medical equipment to combat infectious diseases depending on their location. Institutos are primarily located in major urban cities such as Havana, Santiago de Cuba and Camaguey (Population Data, 2016). This is due to the high concentration of the Cuban population living in cities as opposed to rural locations. Before the Cuban Revolution, there was only one hospital located in rural Cuba. This changed when the Rural Medical System (RMS) had been established in 1960 as there had been a demand for more institutos in rural districts. Fifty-three hospitals were then installed in these areas by 1970 (Keck and Reed, 2012). Now, there are over one hundred and fifty institutos across Cuba (Trejo, 2024).

Section B: Critical Commentary on How the System Works

2.1) Funding and Equity

Funding for the healthcare system is reliant entirely on the Cuban Government and other initiatives that the government facilitate. All services are public and offered equally to each citizen regardless of socioeconomic status. The Primary Healthcare (PHC) sector is the largest and requires the most funding. This section of the essay investigates why the healthcare budget is extremely high despite Cuba being in the midst of an economic crisis.

An issue that arose prior to the Cuban Revolution was the retention of medical practitioners and other healthcare staff. To resolve this problem, the Cuban government provide free and high quality medical training for both physicians and nurses (Battle, 2015). All graduate doctors must train in the primary health care consultorios (Primary Healthcare Performance Initiative, 2022). This was a strategy that had been implemented to increase PHC staff. Majority of these employees continued to work in the primary healthcare industry. As a result, there were almost seven doctors per one thousand of the population in 2013 (Primary Healthcare Performance Initiative, 2022). This is a high figure compared to two doctors per one thousand of the population in the United States of America. Furthermore, Cuba has trained so many medical staff that almost thirty thousand have emigrated to underdeveloped countries in Latin America and Africa (Werlau, 2013). This provision of overseas healthcare has helped in generating revenue for the healthcare budget.

The socialist political ideologies of Cuba had aligned with those of the former Soviet Union. From 1959 up until 1991, the Soviet Union had helped Cuba in establishing an adequate healthcare system (Cooper, Kennelly and Orduñez-Garcia, 2006). This had been done through the provision of financial aid such as grants and loans to develop consultorio, polyclinico, instituto buildings, medical education and research buildings. They had given a variety of healthcare equipment and medicine, also. Opportunities for the Cuban population to progress their medical studies in the Soviet Union had been provided (Cooper, Kennelly and Orduñez-Garcia, 2006). This had helped to further develop the expertise of healthcare employees in Cuba. It is undeniable that this had helped to exponentially increase the access and availability of healthcare services despite the collapse of the Soviet Union in 1991 (Cooper, Kennelly and Orduñez-Garcia, 2006). It can be debated that without this funding the quality of the Cuban healthcare system would not have been as outstanding as it is today. Another reason that can explain why healthcare is free in Cuba is the increase of medical, pharmaceutical and technological advancements. This has significantly contributed to the GDP of the country (Werlau, 2013). Although, it is known that the GDP is quite low here, at just over one hundred billion US Dollars, healthcare is viewed as a fundamental necessity. For reference, the GDP of the USA is above twenty-three trillion US dollars. Medical advancements are done through the exportation of products and equipment that is

manufactured in Cuba and distributed globally (Keck and Reed, 2012). The money that is attained from this is then utilised to provide healthcare for Cuban citizens, or to create more biomedical products for the international market.

2.2) Positive and Negative Issues

Pros:

- The Cuban Healthcare System has proven to be extremely efficient in preventing the spread of disease since its establishment. In 1962, it took only eleven days to vaccinate over eighty percent of all children under the age of fifteen against polio (Cruz, 1984). Diseases such as Malaria and Diphtheria were erased in 1967 and 1971, respectively.
- The infant mortality rate is considerably low at four per one thousand births as seen in Figure Three below (Cooper, Kennelly and Orduñez-Garcia, 2006). For comparison, the infant mortality rate of the Dominican Republic, another Caribbean Island, is almost twenty-three per one thousand births. The high life expectancy of eighty years old in Cuba is quite rare, also.

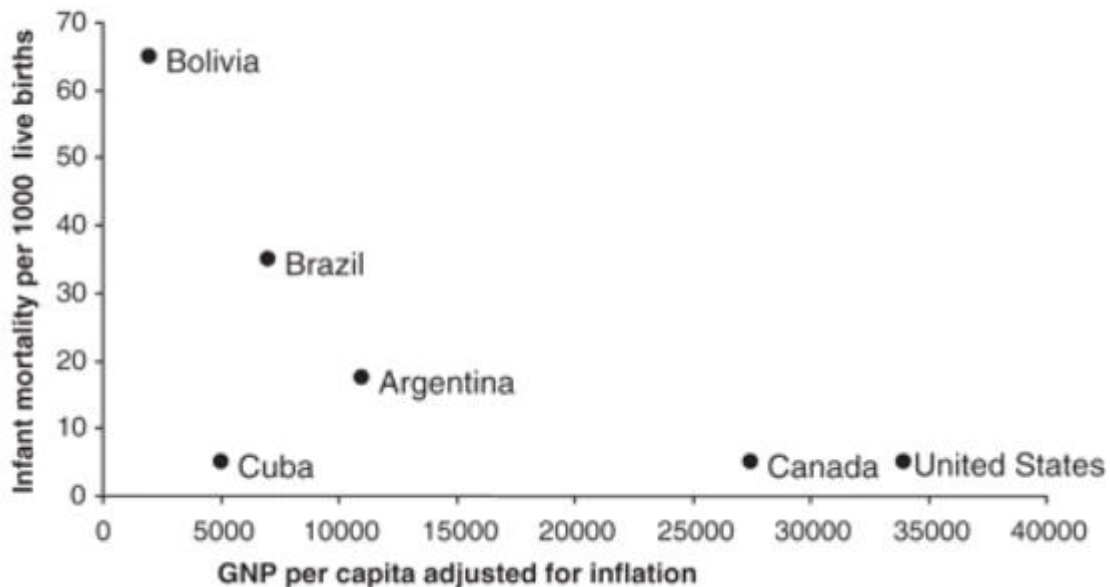


Figure Three: A Graph Showing Infant Mortality vs GNP Per Capita in Specific Countries (Cooper, Kennelly and Orduñez-Garcia, 2006).

- Free access to healthcare eradicates socioeconomic issues in medical care. This reduces the financial stress that is induced when having to pay for health services. This eliminates the fear of availing medical attention. Many citizens who are already living in poverty can avail of urgent procedures which improves and standard quality of life. Free medical training ensures that there is never a shortage of nurses or physicians in the country.

Cons:

- Cuba is considered to be a less developed country on a global scale. As a result, the availability of resources can be scarce (Keck and Reed, 2012). This presents an inequality for the country as a whole when accessing major surgical procedures. The lack of certain and specialised technology poses issues for those who are in urgent need of advanced medical attention. The number of ambulances in service dropped by one third after the Soviet Union collapsed, also.

- The placement of each family into a healthcare district can cause specific challenges to arise. Some families may want to have freedom, independence or a choice to decide on their healthcare provider (Cooper, Kennelly and Orduñez-Garcia, 2006). This can result in a conflict as health districts are decided by medical professionals and the government. Families have no control over this.
- Each doctor can give a different quality or standard of care resulting in patient dissatisfaction (Cooper, Kennelly and Orduñez-Garcia, 2006). Some regions may experience longer waiting times than others depending on the number of people in each healthcare constituency and how many are seeking medical care simultaneously.

2.3) Resilience to the Covid-19 Pandemic

It is noteworthy that Cuba had performed significantly better than other countries in the Caribbean when assessing their response to the Covid-19 Pandemic. In January 2021, it was found that there had been thirteen deaths per one million people in Cuba (Wylie, 2021). This is an extremely low statistic when compared to two hundred and twenty three deaths per one million people in the Dominican Republic. When evaluating the resilience to Covid-19 by developed countries, it was recorded that the United States of America had almost one thousand and two hundred deaths per one million people (Wylie, 2021). Why did Cuba perform better on an international scale? The first Covid case in Cuba had been recorded in March 2020 (Wylie, 2021). Subsequently, a strict nationwide lockdown had been implemented, along with new enforced measure greatly restricting the flow of movement. This resulted in the prohibition of all flights entering and leaving the country. Unfortunately, this caused the economy to suffer significantly as the tourism sector is a large contributor to commerce, business and trade (Wylie, 2021).

Another factor that can explain why Cuba had coped exceptionally with the Covid-19 Pandemic is the well-established relationship between the citizens and medical staff. Nurses and physicians who work in consultorios formulate personal relationships with each family in a constituency (Pérez Riverol, 2022). A medical survey had been delivered to every home to assess health history and lifestyle. A door-to-door consultation system was established, also. Each family had been seen by a doctor in order to detect cases based on individual symptoms at the time of assessment. The trust of the population in their healthcare professionals allowed for honesty while completing the survey and in discussions with medical staff. This helped doctors to determine who was vulnerable to the disease and the best approach for effective contact tracing (Pérez Riverol, 2022). It is inarguable that this contributed to a reduction in the transmission of the disease.

Conclusion

It can be concluded that the healthcare system in Cuba is exceptional beyond measure at providing medical services. The system had been carefully designed into a three tiered system to provide primary, secondary and tertiary care. This system had evolved after the 1959 Cuban Revolution. The socialist government publicised all healthcare services which has given all citizens equal access without socioeconomic discrimination. Despite the Cuban economic crisis, healthcare is considered a priority. Free medical staff training has aided with preventing a physician shortage in the country. This programme has also helped underdeveloped countries in Latin America and Africa to receive adequate healthcare services. Overall, it cannot be argued that the Cuban Government has excelled in providing healthcare to its citizens over the previous six decades.

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Favourite Memories of Maynooth Geography *Final Year Geography Class (2023-24)*

Niall Bolger:

I've had a very enjoyable and enriching experience studying geography at college during the past three years. I've studied a wide range of things, which has helped me get a better grasp of our world. Physical geography was one of my favorite subjects since it taught me about the natural aspects of the Earth, such as mountains, rivers, and climates. Understanding how these elements combine to shape our world was extremely eye-opening. Human geography was another fascinating field of study. I researched themes such as population dynamics, urbanization, and cultural landscapes. It was fascinating to study how human actions affect our surroundings and how different societies adapt to their circumstances. Furthermore, I was fascinated by the broad aspect of geography. It is a field that combines natural and social sciences, demonstrating how interrelated our world truly is. This interdisciplinary approach helped me see the big picture and understand the complexities of global concerns. Overall, my experience with geography in college has been enjoyable, and it has increased my interest in GIS (Geographic Information Systems) and environmental studies. I'm interested to see where this knowledge will take me in the future and how I may use it to make a positive difference in the world.

James Kiernan:

The friends I made and the different things I have learned in my three years of learning.

Anna Massey:

Maynooth Geography has a wider range of modules to suit us, for example, an entire module on Geographical Information Systems, a module on Climate Change and another one on Ecosystems. Geography in Maynooth is better, as many of the modules help you under the earth's atmosphere and the biodiversity that is battling climate change. A double major degree can be quite challenging, but when you understand what exactly climate change is and how we can battle it, it would make anyone fall in love with Geography and respect the lecturers who teach it.

David Orbinski:

My favourite memories of studying Geography are the diverse lectures we encountered on a yearly basis. Speaking for all geography lecturers,(especially Mark Boyle and Adrian Kavanagh) they are truly fantastic at their job and it is clear they care about their students' progress. Every Geography i have encountered over the past 3 years have been so helpful, and always go that extra mile in class to ensure you get that extra grade! making the academic path a little more fun and enjoyable! Thanks Guys!

Hayley Wiltshire:

I enjoyed my module in Second Year with Mark Boyle (Urban Geography GY222). mark made the classes very engaging, he knew that each person had different learning strategies and accommodated for all. I particularly enjoyed our field trip to Dublin. Usually I would

have little to no interest in history, but Mark had a way of making it very engaging. he is extremely kind and enthusiastic.

Emma Irvin:

Electoral Geography...love Siobhán Madden's thesis class...range of choice...soundest Department in Maynooth, staff are a credit to the university...Adrian Kavanagh>>>...no Friday lectures...no lengthy/boring exams.

Ryan Curtis:

The utmost respect, patience, and concern were given to me as a student from all staff within the geography department. This allowed me as a student to create many favourable memories with new lifelong friends whilst being supported by a reliable, well-driven department.

Fieldwork, computer labs, and library sessions saw many laughs through difficult assignment and exam periods. Working with peers throughout my geography course brought me so much joy as we would often engage in academic discussions from lectures. This is really important in an undergraduate degree as it formulates the basis of your academic experience whilst also meeting new people and creating meaningful relationships.

There are so many happy memories I can't even begin to count them. My 3 years in geography brought me so much joy I am doing 2 more years

Conor Devlin:

Some of my favourite memories from my undergraduate studies have come from this 3rd and final year. The GY347 and the GY31B0 modules were particularly enjoyable. The interaction with students within these modules made the learning experience a lot more enjoyable and it was great to be meeting and working with new people within these modules. As the semester nears its end I have found them even more enjoyable, I am not sure if this is to do with the learning experience, or the thoughts of being 'finished' in Maynooth. In the final weeks some nostalgia and appreciation for the last 3 years have kicked in and has made me realise just how much I have enjoyed my time not only studying Geography, but being part of Maynooth University.

Hangfan Meng:

Field trip.

Gavin McVann:

My time as an undergraduate student with the Department of Geography at Maynooth University has been filled with countless cherished memories. From field trips exploring the Irish landscape to engaging discussions in class, every moment has been enriching. One particular highlight was the fieldwork in Dublin, where I not only learned about the unique geography of the region but also formed lasting bonds with my classmates. These experiences have not only deepened my understanding of geography but have also shaped me as a person. I am grateful for the opportunity to have been part of such a vibrant and supportive academic community.

Reflecting on my undergraduate years brings back a flood of fond memories! There were so many highlights during my time with the Department of Geography at Maynooth University. Here are a few that stand out:

- Field trips: Exploring the Irish countryside and beyond was always a blast. From studying the local flora and fauna to understanding geological formations, these trips were not only educational but also incredibly fun.
- Research projects: I loved delving into various research projects, whether it was analysing climate change patterns or investigating urban sprawl. The opportunity to contribute to the field of geography in even a small way was always rewarding.
- Engaging lectures: The department had some fantastic lecturers who made even the most complex topics engaging and understandable. I particularly enjoyed classes where we discussed current events and their geographical implications.
- Community atmosphere: The sense of community within the department was truly special. Whether it was collaborating on group projects or simply hanging out in the student lounge, I always felt supported and inspired by my peers and professors.

Overall, my time as an undergraduate student with the Department of Geography at Maynooth University was incredibly enriching and memorable. I'm grateful for the experiences and knowledge I gained during those formative years.

Chloe Reilly:

One of my favourite memories as an undergraduate student with the department of geography at Maynooth was getting to learn the GIS system in second year and for one of my modules in third year. I really enjoyed this module as I found it really interesting and different to any of the other geography modules that was a lot of essay assignments. Working with the GIS system was more hands on and practical especially when we got to analyse the Macenta data in Second Year.

Ann Marie Whelehan:

Has to be the Geography field trip in second year it was spread across 3 days. Met loads of lifelong friends and was great craic. Loved getting out and seeing different aspects of the country and what problems were arising in different towns.

Katelyn Murphy:

Friends for life... Happiness... Great lectures with Adrian Kavanagh

Peter McDonald:

My favourite memory of being an undergrad student in Maynooth was when I got to work in a team of 4 in the Geography Methodology module in Second Year. The feeling I got from presenting our team's work to the rest of the class gave me terrific satisfaction and a sense of achievement.

Andrea Woodbyrne:

When doing a subject with so many people in a class, it can be hard to make friends. Especially when your other subject is a small class it makes Geography classes feel 10 times bigger. I loved doing the computer module in Geography Methods and Analysis in Second Year. It was an opportunity to be with a smaller number of students and do group work, it was a great way to meet people especially since first year was all done online due to Covid. That class is where I met some of my best friends that I wouldn't have met otherwise.

Riona Nolan:

Throughout my years studying Geography I have made valuable friends and memories. One that really sticks out was the Field Trip in Second year. This trip really allowed me to get out of my comfort zone, make so many new friends and learn extremely interesting geographies of transition from my people first hand experiencing it. Although the weather was not the greatest for us, we all remained in good spirits, and overall had an amazing time.

Megan Jones:

I thoroughly enjoyed my time as a geography student here in Maynooth University. The modules that are available to students are very diverse and the range of options means that there is something for everyone each year. I personally did not take part in a module where field trips were in the course, but I know students who went on geographical field trips and they had a terrific time away. I really enjoyed my three years studying geography and I would strongly encourage people to choose Geography because you have the chance to learn life skills like no other.

Michelle Gorman:

My favourite memory as an undergraduate student with the Department of Geography was going on a field trip to Carton House and along the canal in second year to examine the topography. It was nice to see glacial features and the shape of the land in person rather than reading about it in books.

We also mapped trees for the same module which was really enjoyable as it mixed field research with a group project. I really enjoyed this module overall as I made new friends and got to learn about new software.

Niall McEvoy:

Going to Dublin in 2nd year with the Urban Geography class organised by Mark Boyle. Completing various group work projects over the three years of studying Geography.

Olivia Rowland:

Being in Rebecca's group for GY310B has been so enjoyable.

Sean Treacy:

As my time studying Geography as an undergraduate comes to an end, I can't help but reflect on the fun moments I've had over the past three years!

Finding out how many other individuals study Geography and realising how many others share my fascination in the subject are two of my favourite collections.

I thoroughly enjoyed the wide range of Geography modules that were on offer and I learnt so many new topics, theories and concepts that I never knew would be so interesting.

I really enjoyed the Physical Geography modules in particular GY313 Climate Change as this is an important topic as the world is becoming affected by it in one way or another whether that's by extreme heat or flooding or rise in average temperatures.

I also was fortunate enough to participate in two field trips in Dublin throughout my Geography studies. I learnt so much about our very own capital city and how it became the city it is today.

Two important things I will take away with me from my three years of studying Geography is the kind & friendly staff in the Department and how approachable they were if you needed any assistance with assignments and the many lifelong friends I have made and will continue to stay in contact with after college is finished!!

Shannon Byrne:

My favourite thing about the Geography department in Maynooth is the number of options that are available. There is a wide variety given to students of options on what they want to learn, with a variety of teaching methods, making it easier to decide. Favourite memories are classes that are interactive making it easier to learn in a fun environment.

Katie Smith:

I really enjoyed the modules that I decided to do throughout my time studying geography in Maynooth University. All the geography lectures are always happy to help and answer any questions that you have regarding assignments, exams or plans for the future. Thank you to the geography department for providing such great support and encouragement throughout my three years studying geography.

Tiarnan Kierans:

My favourite part of my time as an undergraduate student with the department of geography was the module GY347. It was my first time learning and studying about politics. I found the module rather fun and interesting as I had to create campaigning posts to try and gain votes in an imaginary election. This was by far the most enjoyable module of done since I have come here as a student in Maynooth University.

Ellen Donovan:

The dynamic duo of Mark Boyle and Alistair Fraser for First Year Global Environments.

David Carthy:

Rowan Fealy's Climatology class in 2nd year. very enjoyable and informative. I got the highest grade I have ever gotten in any module in that class.

James McGrath:

I enjoyed all of the group work I participated in. Particularly modules in first and second year that were lectured by Mary Gilmartin. The group work in both was very enjoyable and lectured in a modern way that catered for students in today's world.

Jennifer Connolly:

My research project tutor Siobhán madden was so amazing she made me relaxed and confident I could complete the work despite going into it completely stressed out ! Earth angel.

Sarah Carroll:

My favourite memory was definitely my first day! It was so exciting meeting all of my lecturers and fellow students. I definitely felt overwhelmed but excited for all the future opportunities.

Robert Dunne:

The freedom the department gave me as a student to conduct my own studies.

Emma Butler:

One memory that I have as a geography student was in my second year when I done urban geography with Mark Boyle. He took us on a trip to Dublin for a walk. Now I was dreading this as it was on a Sunday morning and lasted 3 hours but I enjoyed every minute of it. It was a lovely morning in October and felt so fresh after it. The information we received was outstanding and so interesting. I learnt so much about different urban areas in Dublin and why certain buildings are located in the docklands for example.

Conor L'Estrange:

Climatology module.

Jamie Kelly:

I have really enjoyed my time as a Geography student at Maynooth University. One of my favourite memories is being awarded human geographer of the year in second year. Some of my favourite modules throughout my years at Maynooth were GY234 social and cultural geography, GY227 political geography and GY216 Hazards and society. I have never received anything other than encouragement, support and enthusiasm from all staff at the Geography department and it has honestly made my time at Maynooth as a geography student unforgettable. I have been offered a PME in geography in September and I honestly cannot thank the staff at the geography department enough, without their encouragement throughout the years, this wouldn't have been possible.

Aoife McLoughney:

My favourite memory as a geography student at Maynooth University was my fieldtrip in my second year. For three days my class and I travelled around to different, really interesting places in Ireland. Our first stop was Leitrim where I learned so much about their geography and community and also got to go to a lovely local vegan cafe. The next day we went to Glendalough which was beautiful and so interesting to learn about from a geological perspective. On the last day we visited a heritage site, Lullymore, where we got to explore and walk on the bogs and see how they have been restored for wildlife. We also got to learn about the rich history of Lullymore from brilliant tour guides. We also got a lovely lunch and got to see the farm animals! I made great memories and friends on this trip and would recommend it to any future Geography students ;)

Hannah Caw:

Throughout the past three years, I have had many fond memories of the Geography Department here in Maynooth but there is one that stands out to me. My favourite memory of the Geography Department is probably the first class of GY313 last semester, where Adrian and Mark introduced themselves to us and they had the most engaging presentation I had seen. I remember my friend and I laughing about it days after and saying how they were down to earth and relatable and we felt more motivated to attend a class with lecturers who "could have a joke".

Aoife Kane:

My favourite memory was when my assignment for Approaches to Human Geography was awarded high points, with funny commentary comments from the lecturer throughout the paper! I also enjoyed the dynamic of this class as the two lecturers made it more interesting and engaging.

Jemma McKinley:

I really enjoyed the social aspect of geography, even though I wasn't a huge fan of the group projects, but in the end they ended up bringing me the greatest friends I could have hoped for. These two girls supported me throughout my three long years at Maynooth, and I know they'll be by my side forever and I could never thank them enough. One of my favourite moments from studying geography was when we went on a really long walk around Dublin city centre for Mark Boyle's Urban Geography module. I really like Mark, but my legs were so tired by the end! It was just a great experience to just explore the city without going there to shop or go out for drinks, for a change. I absolutely enjoyed Adrian Kavanagh's Electoral Geography module. At first, I was very nervous and wary because he had us role-playing as political candidates, which felt really strange. But surprisingly, I ended up loving it. It was a fun and light-hearted break from all the other stressful modules. Adrian's enthusiasm, humour, and interaction with us really sold the module to me, it made the class stand out. It was refreshing and easily one of my top modules over the past three years.

Benjamin Fitzpatrick:

Some of my best memories from Maynooth Geography were during the GY305 lectures as Adrian and Mark would often make funny remarks towards each other. Little moments like these made GY305 an easy module to enjoy and engage with as you could look forward to the banter between the two lecturers.

Paige Hyland:

Meeting new friends with the same interests as me and the Geography Irish Field Trip.

Beth Corry:

I think my favourite memory throughout the Geography course was the fieldtrips and getting to learn outside the lecture halls. It was a great experience to be in the field and seeing how equipment works. It was great to see someone core a tree and getting to use a bog coring tool to see all the levels within the bog. It was insightful and good fun too despite all the rain!

Abbie McHugh:

I honestly enjoyed everything, every module I did I genuinely enjoyed. I feel that I've learned so much and my love for geography has grown.

Daniel Flynn:

My favorite memory as a geography student in Maynooth was taking part in a mock presidential election in the Electoral Geography Module. This module gave me the chance to use my love for geography and politics and play a political character over the majority of the semester. It was hands down my favorite module over my three years of college as I became totally engrossed in the process of the continuous assessment!

Ciaran Byrne:

Learning new things about the world and I can confidently say I view the world in a completely different way now.

Aoife Fennessy:

When Mark Boyle sang in class in front of everyone

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Wexford Fieldtrip 2024, with the MSc Climate Change class (Photo Credit: Gerard McCarthy)

Tracing Health through the Map

Ronan Foley

A map is the first line of a spatial story. At its heart is a mapping out of some carto-text that in turn generates a type of visual spatial signal. The map tells its story in different ways to different people and is also read differently by them. Alberto Manguel noted that books are only inert objects and words, until someone reads them. So it is with the map, which also depends on how it is read but also used. A critical cartographer will always be interested in provenance, asking who generated the map, why they did so, how the data behind it was sourced, and what decision underpinned the final visual output. But as with a novel, the spatial story can have multiple readers, each reading their own representations and interpretations into the finished map. For those of us working in particular, with the mapping of health data, a central theme in my own working life, the stories become even more complex and hard to follow. Learning how to trace those stories, is I suggest, a crucial starting point for critical thinking and I provide three examples in the paragraphs below.

On Open Data interfaces, data from the last three censuses, is fully available to the general public at Small Area (SA) level (<https://visual.cso.ie/?body=entity/ima/cop/2022>). That geographical scale did not exist prior to 2011, so where did it come from and how has its text reshaped how we analyse Ireland's geography? A group of geographers, including several from Maynooth, had been, from 2006, pushing the CSO (Central Statistics Office) and OSi (Ordnance Survey Ireland, now Tailte Eireann) to provide a better scale of analysis – a deeper and longer text if you like- when publishing census data. The old Electoral Division geographies, because of huge population variations, had become unreliable and increasingly unusable. Pushing for a much more detailed 'estate-level' geography, research was commissioned to firstly, make a case as to why this new more detailed geography was needed, and secondly, to create a spatial algorithm that would design these new geographies. With a lot of help from a lot of people, both inside and outside Maynooth, the case and design were accepted, and the new SA geographies were launched in 2012, once the 2011 census had been processed. Figure 1 below, shows the same data set from Blanchardstown, on the percentage of people with self-reported 'bad health', at ED and SA scale from 2022, to show the difference. Both maps are essentially based on the same raw text, i.e. the original Census returns, but tell different stories. But in documenting where they came from, we understand a little better both the story behind their construction (provenance) but also the specific 'new' stories they are telling, when converted to a graphic text; noting also that the right-hand text/map is providing greater detail and depth to the story. However, a key aspect of how Irish census data is reported is that people living in institutions, e.g. hospitals, on Census night, are counted from their hospital beds and not their homes.

What it means, and we can see it in Figure 1, is that the SAs that contain James Connolly Hospital in Blanchardstown (the white cross in the red circle on the map), have very high rates relative to the surrounding area. So, if we want to tell the story properly, we might want to omit or censor some of the text, i.e. exclude all SAs that contain hospitals, to get a better story about differences in citizen health.

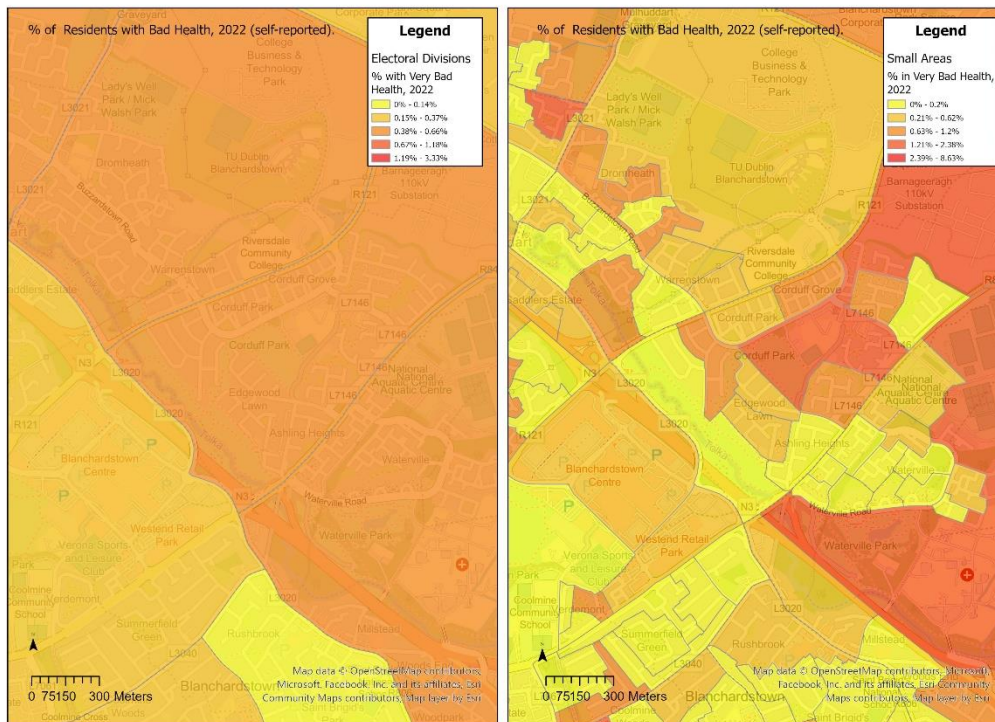


Figure 1. Map of the percentage of people with Very Bad Health at ED/SA scales, 2022.

Extending the ‘map-as-text’ analogy, Figure 2 shows how a very similar text, a separate self-reported Census question on limiting long-term illnesses, changes its tone and dialect, depending on how it is framed. The figures show the question as listed on the 2016 and 2022 forms (Figure 2a and 2b). What becomes immediately apparent is that the question is asked differently in the more recent version. Why and how did that change in the text, which will also reshape how maps are drawn to inform health care demand, happen? Again, there was some Maynooth Geography involvement in the invited steering group, representing a range of societal groups, who were consulted on the precise wording of health questions in the census. This happened in 2017, almost immediately after the publishing of the 2016 data, as part of a consultative planning process for 2022 (originally planned for 2021 but delayed a year by COVID-19). Many variants were discussed, but the core final suggestion, that a question that was originally just Yes/No, be adjusted to A Great Extent/Some/No, brings a lot more nuance to the question and helps to better predict health care demand. Again, there’s a sting in this particular tale. While the data on general self-reported health (as in Figure 1) is made fully available, this more nuanced, but arguably much more important and useful dataset, is only made available in an aggregated form, as a percentage of all people with a disability (Figure 2c). While there are definitive sensitivities around small numbers at SA level, i.e. that there is a risk of disclosure of individual identities, why would one collect this public data if there is no intention to share it in a meaningful way? To my mind, this is another form of spatial censorship, though I do acknowledge the particular sensitivity of data related to disability and mental health. But given one of the questions specifically asked about chronic illness, this feels like an opportunity lost to tell a more compelling story on health inequalities that we might be able to do something about.

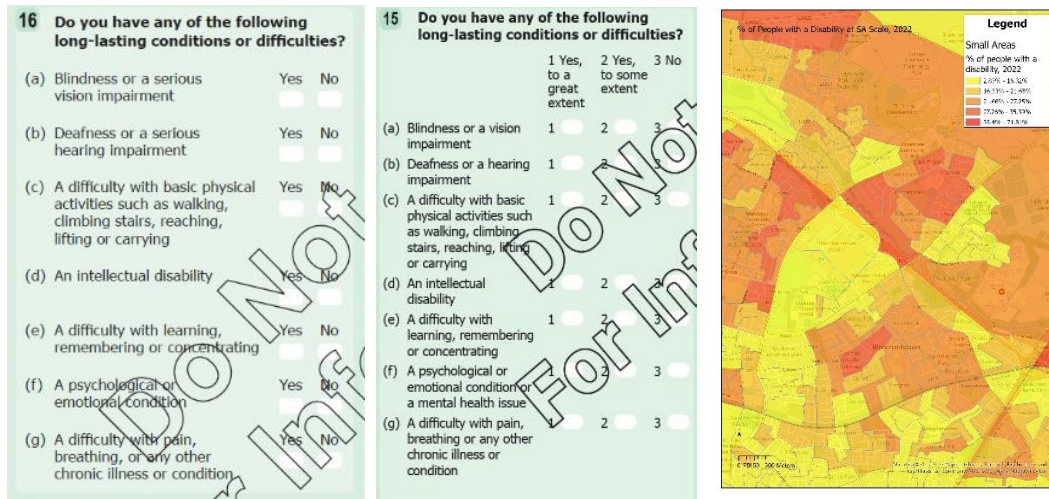


Figure 2a 2016 Census Form, Question 16; **Figure 2b** 2022 Census Form, Question 15; **Figure 2c** Map of disability rates, Blanchardstown.

Finally, many of the stories, fictional and non-fictional, we like to read, document the arc of people’s lives and loves within families and communities, similar to or different from our own. Maps can also tell emotional and affective stories; you just have to identify the right style and format in which to tell those stories. One area I have worked on in the past decade is the mapping of emotions, especially positive feelings of health and wellbeing, from people’s engagements with green and blue space. Within geographies of health and wellbeing especially, the value of in-situ geo-narratives has emerged as a very powerful storytelling tool and method. It also moves a little away from quantitative data and more scientific GIS methods, mapping instead emotional relations within particular places and spaces, documenting what it sometimes referred to as deep mapping. These can be explored through public emotional mapping workshops, sending people out into nature to dial in a personal affective connection (Figure 3a) or through unusual approaches like swim-along interviews (Figure 3b), where ironically, both remote (to capture the digital signal) and intimate (to capture emotional responses) sensing, are co-applied in the telling of the story.



Figure 3a Field Mapping, Derrynane 2017; **Figure 3b**: Image from Swim-along, River Nore, 2021

What each of these examples show, I hope, is that using cartography informed by spatial data, but also narrated experiences, helps us tell stories that capture traces of health, both positive and negative, across our life courses. I have always been interested in the ways in which trace, as both a descriptive term, but also representing a theoretical process, might be as important a factor in relational geographical thinking, as place and space. We write and read those traces into the embodied and emotional lives we lead and into the spatial stories we construct; such stories abide.

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Ronan Foley's final ever Geography undergraduate lecture (GY336 Culture Health and Place) before his retirement, 8th May 2024