

AIR QUALITY

DUBLIN

The issue:

During the 1980's, increase in car ownership and the burning of coal was common in Dublin. Consequently, the air quality quickly began to degrade. From daytime traffic congestion during commuting hours, an increase of the burning of fossil fuels in the development of suburbs and the use of peat and wood (solid fuels) as household fuel for heating, air pollution in the area increased. The EPA (2017) notes solid fuels, such as peat, coal and wood, as the biggest threat to public health and is linked to 1,500 premature deaths in Ireland annually. This concentrated air pollution resulted in an increase of respiratory illness across Dublin. Despite this, various places around Ireland still burn wood, coal and peat, breaching WHO standards.

The approach:

Since the late 1980s, public bodies have put measures in place to improve air quality in Dublin. Under the Air Pollution Act 1987, the ban on 'smoky coal' was first introduced in Dublin in 1990 in response to severe episodes of winter smog. Research shows that the ban in Dublin resulted in over 350 fewer annual deaths. It is estimated that the monetary benefits of the ban brought about savings worth €20m. Additional benefits of the regulation include householders switching from solid fuels, which generally are less efficient and more polluting, to more efficient and less polluting gas or oil.

The government has increased tram lanes through Dublin City Centre, which stretch out to the suburbs. These efforts are to decrease the amount of cars in the city and to encourage the use of public transport. The government also encourages cycling as an alternative to public transport via Bike to Work schemes across many companies.

The EPA will also introduce 38 air quality monitors to inform the public about the air and to inform future policies.

KIGALI

The issue:

Like Ireland, emissions from road traffic have been a contributing factor to poor air quality in Kigali, alongside the use of fossil fuels in the running of transport and businesses. More than 80% of Kigali city residents use solid fuels such as biomass and charcoal for household cooking. Policy measures recently put in place in Kigali are beginning to improve air quality. In 2012, more than 2000 deaths were found to be directly linked to air pollution in Kigali. Furthermore, between 2013 and 2015, there was an increase in hospital admissions for respiratory infections by almost double, to more than 3.3 million.

The approach:

Rwanda has begun to implement new vehicular emission regulations and air quality standards, and urban areas such as Kigali have installed modern vehicle testing centers. As a result, high concentrations of pollutants from traffic are reduced during holidays and car-free days. Private investors have begun to look into electric vehicle alternatives also for Kigali. Improving the quality of roads with the inclusion of bus lanes seeks to encourage more city dwellers to use public transport in order to reduce toxic emissions from vehicles.

There have been many initiatives and campaigns to promote clean cooking alternatives (e.g. gas and electricity) through the Minister for Infrastructure. Educational campaigns have been designed to support farmers and work toward more sustainable methods (e.g. planting trees instead of burning trees) which will further help to clean the air and promote health and safety for the population. In 2016, the law governing preservation of air quality and prevention of air pollution was passed.

“Pollution in the air is now the fourth-highest cause of death worldwide. [...] Sadly, the majority of these deaths are recorded in poorer nations.”

The New Times

“The World Health Organisation reported that “in addition to outdoor air pollution, indoor smoke is a serious health risk for some 3 billion people who cook and heat their homes with biomass fuels and coal.”

The New Times

WATER QUALITY

DUBLIN

The issue:

As an ever-growing city, having enough water is vitally important for life and business. On a typical day 540 million litres of water is collected from the rivers around Dublin. While Dublin's water quality is mainly good, there have been negative elements. The EPA's 2017 Bathing Water report found that water in five of Dublin's 15 beaches failed the minimum EU mandatory standard. Poor water quality is caused by periodic sewage discharges, pollution from contaminated surface streams especially after heavy rainfall amongst other factors. In 2017, waste water from 28 of Ireland's 179 large towns and cities did not meet the treatment standards set in the Urban Waste Water Treatment Directive, according to the EPA (2018). At a national level, Ireland is behind most other EU countries. Ireland's drinking water is due to comply with EU standards by 2020, 16 years after the deadline for compliance. Poor quality of water can impact people's well-being.

The approach:

For this reason, it is important that policy measures are put in place to reduce the level of water contaminated, as well as reducing the level of water lost as a result of infrastructure failures. According to the EPA (2018), there are a number of things being done to improve and monitor water quality. These include local level action on catchment areas via three regional Local Authority Water & Community Offices. There has been greater investigation into diffuse pollution, whereby substances leach into surface waters and groundwater as a result of rainfall, soil infiltration and surface runoff. Schemes in place to assist with this are associated with the agricultural industry; Glas, LEADER and Locally Led Agri-Environment Schemes. The EPA (2018) said that in 2017, untreated sewage from coastal and estuary areas were discharged into the environment every day. These discharges came from 38 different areas across the country. Irish Water (the national utility for the treatment of water) will provide treatment at 4 of these affected areas by the end of 2019. However, there are still long delays in building many of the treatment plants needed to eliminate discharges of untreated sewage. These delays mean that the remaining 32 areas are likely to continue discharging raw sewage into 2021.

KIGALI

The issue:

As a growing city, Kigali is experiencing challenges of both water pollution and inadequate levels of water. As a result, sewage and wastewater from informal settlements often flow in open drains and can seep into groundwater and run into wetlands. Due to new housing developments in the city, storm-waters often flow into open drains. When accumulated floodwater stagnates, it can pose health hazards, and floodwaters can carry toxic substances used in factories and industrial garages into the surrounding wetlands. On the other hand, even though Rwanda generally receives abundant rainfall, water can become increasingly scarce in Kigali during severe dry periods.

The approach:

Efforts are being made to increase the use of recycled water through the use of rainwater harvesting. This would substantially cut down on water consumption for activities such as toilet flushing and watering public areas. Policy measures are also seeking to improve water resources management so it is integrated, sustainable and satisfies demand to support economic development through water collection, water conservation and improved water use. Kigali recognises the negative impact industries based beside wetlands can have on human healthy and ecosystems. As a result they have began relocating these factories around the Nyabugogo wetland to reduce potential impacts and threats. According to State of Environment and Outlook Report 2013, "about 83 per cent of citizens have access to improved water sources. Some households, businesses and industries have private septic tanks to receive wastewater".

“ Although water quality is at the core of sustainable development, 80% of global wastewater flows back into ecosystems without being treated or reused and 3.1 billion people across the globe lack access to safely managed drinking water ”

The New Times

“ Globally, at least 1.8 billion people use a drinking-water source contaminated with faeces [...] that can transmit diseases such as diarrhoea, cholera, dysentery, typhoid and polio. Contaminated drinking water is estimated to cause 502,000 diarrhoeal deaths a year.” ”

WHO (2019)

ENERGY EFFICIENCY

“ As the global population grows, so too will the demand for cheap energy, thereby increasing greenhouse gas emissions and creating more dangers to our environment. ”
UNDP (2019)

DUBLIN

The issue:

In the SEAI's report 'Energy in Ireland 1990-2016', it was found that Ireland is not doing enough to reduce its dependency on fossil fuel as its primary energy source. It also stated that individuals, businesses and communities are key to addressing this problem. Although energy import dependency was reduced from 88%-69% from 2016-2015, reducing the annual energy import bill from 4.6 billion euro to 3.4 billion, there is still a heavy reliance on Corrib gas, a finite fossil fuel.

The approach:

The redevelopment of York Street, off St Stephen's Green, includes 66 new Council apartments arranged in five blocks. This development is constructed with highly insulated building fabric and optimises solar energy through south facing glazed balconies. Each block has a group heating system with individual apartments fitted with heat exchangers and heat meters to accurately measure and bill individual energy users.

Over the long-term there are a number of options Dublin City Council and its citizens can take to improve their energy performance and reduce their dependence on fossil fuels. The introduction of carbon neutral and low-energy buildings and the development of a low-carbon transport system will help Dublin to reduce its carbon emissions. In order to reduce wasted energy, employees working for Dublin City Council are being encouraged to 'Switch-Off' as part of the Minus 3% campaign. By switching off everyday office appliances when they are not needed, employees could save thousands of euros on their annual energy bill. Money saved from this initiative can then be spent on staff resources. Recently Ireland has become the first country in the world to divest from fossil fuels in order to achieve climate goals.

KIGALI

The issue:

Rwanda has made comparatively higher strides towards energy efficiency in comparison to Ireland. Similarly to Dublin, reducing dependency on oil imports and developing alternative renewable energy resources will help the economy by reducing energy costs and promoting economic development. There is huge public interest in Kigali to promote better health, economic growth, and development, mitigate climate change and create sustainable futures for its people. Although generationally ingrained practices of wood and charcoal burning are present in Kigali, there are many clean alternatives abundant to help Kigali become a more energy efficient city, such as hydropower, solar and geothermal; however, wood and charcoal are still a major source for energy and demand is growing.

The approach:

Within Kigali, citizens are assisted in saving energy through the distribution of energy saving light bulbs. A new Special Economic Zone in the city features energy efficient lighting, energy and water metering, and wastewater and other waste recycling methods. In order to assist the number of individuals benefitting from financial savings from improving energy efficiency, the City of Kigali should offer financial and fiscal incentives to companies to comply with voluntary energy efficiency and building standards. For example, residential solar heaters create an opportunity for more people to have access to affordable solar energy.

In 2013, the "Kigali Declaration on Mainstreaming Energy Efficiency in Building Codes: Building Policies and Building Regulation" was set out. It was agreed that the Governments of East African Countries must create awareness and educate all relevant stakeholders about energy efficiency to normalize the idea. Additionally, the regulations show the importance of urgent climate change mitigation through building infrastructure and individual action.

In 2017, K-CEP was introduced into Kigali, an organization that aids developing countries to integrate energy efficiency into their cities and to reduce polluting fluorinated gases used in many cooling objects (e.g. refrigerators).

WASTE GENERATION

DUBLIN

The issue:

The level of waste being generated has been an issue for Dublin and Ireland. Ireland produces the most plastic waste in the EU. Until recently, the most common approach to managing waste was the use of landfills. This involves burying rubbish. Using landfill creates a number of negative environmental impacts including wind-blown litter and the attraction of vermin. Methane gas is also a common by-product of landfills. Government policy has seen a reduction in the number of landfills being used. There were 87 local authority landfills in 1995 compared to just 6 in 2016. According to the Dublin City Council, Annual Progress Report (2011), household recycling increased from 2%-44% and over 36,000 tones of separated organic waste was collected through the brown bin collection system in 2010.

The approach:

Incineration has become an important part of Dublin's waste management. The Poolbeg incinerator processes approximately 1800 tones of solid waste per day. Although incinerators can act as a solution to Dublin's waste problem, they often attract opposition from locals because of health and safety fears. Dublin City Council has organised local clean ups which promotes responsibility and assists residents in cleaning up the area they live in and work in. Unfortunately, fly-tipping or illegal dumping has also increased throughout the country over the last number of years.

KIGALI

The issue:

Kigali's ability to manage the waste it produces has been weakened by a number of factors. While there is a central landfill system in place, people continue to illegally dump waste and wastewaters in rivers, wetlands, ditches, roadsides and other public spaces. Poorer households and rural residents often have limited access to the city landfill and cannot afford the cost of waste collection services. Between 2007 and 2012, the amount of solid waste in Kigali quadrupled. Although there are waste collection services in place, these services do not adequately meet the needs of the areas, leaving out 13 areas from refuse collection.

The approach:

In 2007, Kigali generated approximately 500 metric tonnes of solid waste per day. By 2012, this figure was between 1,800 to 2,000 metric tonnes of waste. As many industries lack on-site waste treatment, this sometimes results in illegally sending untreated discharge into rivers and wetlands. This impacts both human health and ecosystems. The lack of waste separation systems and limited capacity to expand landfills has also hampered waste recycling efforts in Rwanda. Around 25% of solid waste in Kigali is estimated to end up in landfill. There are many initiatives to recycle waste (e.g. making briquettes for cooking fuel and sorting/selling plastics).

Positive measures taken in Kigali and Rwanda includes the introduction of a ban on polythene plastic bags in 2008. Plans have also been announced to convert waste material at dumpsites into energy to be added to the national grid. Between the ages of 18-35, people are required by law to engage in a communal litter-picking morning for three hours on the last Saturday of each month during the morning. The idea behind this initiative is to encourage people not to drop their litter on the street in the first place. This act is can also be adopted by communities with poor economic structures and less money, once written into law.

“ 99% of purchased items are discarded within six months, and the world produces 2 billion tonnes of waste annually. ”

UN Human Settlements Programme (UN-Habitat, 2018),

“ Due to a lack of proper waste facility and treatment skills, waste is discarded to landfill [...] and as a result there are issues such as bad odour, methane, risks of garbage landslides and groundwater pollution.” ”

The UNDP (2019)

TEACHER'S BACKGROUND INFORMATION FOR POINTS OF ACTION



WATER QUALITY

Local action

Make sure that no taps in your home are left running when you are not using them.

Community action

Increase the number of water harvesting systems present in your community to reduce the level of water used from the tap.

National action

Invest in the water system to fix pipes and ensure there are no leaks, which reduces the level of water available for consumption.

AIR QUALITY

Local action

Walk, cycle or use public transport rather than taking your own car.

Community action

Lobby national government to increase investment in public transport in the locality.

National action

Help people reduce their dependency on energy which creates emissions e.g. oil and gas.
Ensure companies do not cause air pollution by placing penalties on those who do not abide by relevant laws.

ENERGY EFFICIENCY

Local action

Turn off any lights or devices that you are not using (e.g. televisions)

Community action

Establish energy efficiency groups so people learn how to reduce energy use together.

National action

Remove barriers to renewable energy utilization in order to reduce dependency on imported fossil fuels.

WASTE GENERATION

Local action

Be cautious when thinking about what waste goes into which of your bins (Green or Brown).

Community action

Set up community recycling centres so more people in your community can understand how to best dispose of waste.

National action

Increase the level of waste being converted into energy. This will also help reduce dependency on fossil fuels.

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