

Sustainable Development Project

**“Evaluate your daily actions in terms of the
environment”**

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Introduction:

In today's modern world people's daily lives go relatively unnoticed. From the time they wake up in the morning, until the time they go to bed at night, questions are never asked of their daily activities. People are often oblivious to the things that go on behind the scenes. In this project I hope to get you, the reader, to open your eyes and examine for yourself, your own personal impact on the environment. I will also hope to show you effective and achievable ways to cut the cost of your bills and help protect the environment.

Our Environment and everything in it is part of a very tight knit community that stretches the length of the globe. We have learned to co-exist with our surrounding and live in relative harmony with the earth. We as a species however, have evolved the ability of higher intellectual thought. This has enabled us to harness the great powers that this planet has to offer. As we have progressed through time, our people have become ever brighter and ever smarter; this simple fact has led to incredible new ways of life. Things like cars, planes, laptops and strawberries in the depths of winter were notions that people in the past could never have even dreamed about. But it is also the use of commodities like these in our everyday lives that has begun to destabilise our precious planet. If action is not taken now it will have major repercussions in future years. Not just for us but for future generations.

Before I conducted my research I was truly un-aware of exactly what I was doing to the environment just by living the way I was living. It is my firm belief that the majority of people think like this, it is however a very sad fact.

To get a clear understanding of my environmental impact I picked three days, completely at random. This allowed me to produce an average representation of my everyday life. I chose to look at exactly what I was doing from the time I got up in the morning until the time I went to sleep at night. From this I was able to break down my day into hourly intervals, in which I could take note of my various actions. Each action was then linked to some object that had a certain degree of environmental impact. From the offset, it was clear that writing a daily log of my activities was something I had never done before because I had never felt it necessary to do so. But after my first days recordings I knew that some things were good, and some things were appalling.

So my daily averages came out something like this. It is a broad mix of daily actions with general Environmental impacts. General environmental impacts really should not be a term that I can throw about lightly. When you think about it, why must my way of life have an adverse effect on the Environment? Who gave us the right to treat the planet which-ever way we want. Eventually this bad behaviour is going to catch up on us.

Evaluating my lifestyle:

Average composite of 3 days

<u>Time</u>	<u>Subject</u>
08:45	Bathroom light on, Flushed toilet, Top on.
08:50	Breakfast. Microwave porridge, boiled kettle, TV on, two lights on.
09:10	Brushed teeth, tap on, light on, flushed toilet, light on in hall.
09:30	Got bus into college, 7 people on it.
10:00	Lecture. Blinds closed. Projector on. All lights on. Daylight hours.
11:00	Same as above.
12:30	In classroom. 2 laptops on, Computer on (not being used).
14:45	Bus home from college.
15:00	Made cheese and ham toasty, TV on, 2 lights on.
15:45	Drove into college. Lecture, heating on, windows open.
17:00	Drove home from college.
17:15	Cooked dinner. Pasta, mince, sauce. 2 Hobs on for 25 mins. TV on. 2 lights on.
19:30	TV off. Lights off. Light in room on. Laptop on.
21:30	Laptop off. Lights off. Flushed toilet.
21:35	Drove into the Arena.
21:45	Swimming Pool.
23:05	Drove home. Lights on in kitchen and bedroom. TV on.
00:00	Turned off all lights. Went to bed.
00:00	Overnight space heaters on.
06:30	Heaters turn off.

Electricity:

The use of electricity in our homes is undoubtedly an excellent commodity to have. However, electricity use in the home adds up to be one third of the total electricity use for Ireland. It is a simple statement like this that should help people open their eyes and realise that this excess energy use is helping to burn a hole in our pockets. While it does make our lives more comfortable, perhaps it is time to exercise some restraint.

Lighting in the home is something that I found to be a considerable consumer of electricity. In my student accommodation, I pay for electricity every month. I also however pay extra money for maintenance, including replacement of light bulbs. They supply us with ordinary old-fashioned 60W bulbs. So far this year I've had to get 10 replacement bulbs for 6 lighting fixtures. On average lights are on for no more than 5-6 hours daily (week days). If they were to replace our bulbs with 15W CFLs, I would save about $6 \text{ hours} \times 3 \times 0.045 \text{ kW} = 0.8 \text{ kWh}$ per day. If I was using American figures of 0.6kg CO₂/kWh electricity then that's 0.49kg CO₂ per day.

When examining use of electricity it is important to think carefully about every aspect. If you take a moment to examine your immediate surroundings you will quickly realise that there are so many things requiring the use of electricity.

In the kitchen alone there are 7 major electrical devices. The main and largest appliance in your kitchen is the refrigerator. It consumes the most electricity by a fair margin. A typical self defrosting fridge can use 1200 KW of electricity each year. That value is close to what a typical house uses for lighting.

Your typical Electric oven can use, over a 60 minute interval, on average, 1kWh. The oven in my house gets used at least twice a day, this equates to 2kWh as we do not share the oven, cooking our meals at separate times. A family household on the other hand may only use half this energy as they would make one large evening meal, thus being more efficient.

My typical microwave oven gets used between 2-3 times daily. The microwave is set to full power for every use and is used for 2.5 mins. Average each time. It is also used 5 times a week which in total equates to 25mins use weekly. This in terms of Wh for my 1500W microwave is 625Wh per week. Over my 27 weeks of college, my academic year, this number equates to 16.875kWh. If I take where my electricity is coming from a mixture of coal powered plants and natural gas. Averaging their outputs to be 650 grams of Carbon per kWh (these figures include generating equipment and processing the fuel) that's a grand total of 10968.75grams of Carbon which is quite a large quantity of carbon for just a microwave.

Other appliances such as the kettle and TV also consume a measurable amount of electricity. Both approximately 165kWh/year. They are significantly smaller than other larger appliances, so are easy to forget about their impact, but when the figures are put in front of you it is easy to see that they do carry a sizeable electricity use.

Waste/Rubbish:

Ireland is Number 8 in world rankings for the production of municipal waste. We produce 560kgs per person per year. In my student accommodation there is bin collection once a week. This is when people throw all of their waste away. In these modern times, there are still no recycling facilities. This may be the case for rural areas where recycling companies do not extend their services. Recycling has become one of the most important things in the 21st century because of simple yet very logical facts such as this: it takes 16kWh of electricity to refine 1kg of Virgin Aluminium, but for a single 20g drinks-can to be produced from the point at which its mined from the earth, it takes as much as a 40W bulb continuously lighting for 5 hours. For my own waste, I throw out a black refuse sack of rubbish, once every two weeks, this equates to an average weight of 23kgs. However, at least half of my rubbish is recyclable, if the facilities were in place. This means that I could slash my fortnightly waste in half, one half to be recycled and the other to the landfill.

Water:

Water waste within the home has become increasingly easy to measure due to the fact that our water now, for the majority of the country is monitored, controlled and supplied by. There are still people that are able to access old well's and that provide enough water for their entire house-hold. For the rest of the country our water supply is under the control of the 88 local authorities around the country. I conducted my own experiment to see just how much water I used and the results are as follows: In my shower, the shower head displaces approximately 3gallons of water per minute. If I take this figure and multiply it by the time spent in the shower, 5minutes and then multiply this by the number of showers I take a week, which is 5, I get a number close to 75 gallons of shower water a week

If I apply the same counting to toilet flushing, I can see that for every flush my toilet uses between 4 and 7 litres of water. If I say that I flush my toilet three times a day, to put this in perspective it could be the same as saying that I've now used as much water as people in some developing countries use in one day, this is inclusive for all their needs for a single day. Toilets can add up to be 30% of a household's indoor water consumption. Over a life-time a single person can flush the toilet as many times as 140,000. In a single week however, 105litres literally goes down the toilet.

In the kitchen, when washing the dishes I don't put the stopper in the sink. Each minute, approximately 2 gallons of water flows through a faucet. If I take 3 minutes to wash my dishes, then potentially I could be using 6 gallons to wash my dishes. Dish washing occurs three times daily, breakfast, lunch and dinner. At this stage I have not even factored in the water I drink or use for cooking. I drink 1.5 litres of water each day on average. Over a five day period I will consume 7.5 litres of water. When cooking pasta/ frozen vegetables/ potatoes I will add 750ml to each in a sauce pan, most of which will then be discarded once the food is cooked. Such a waste of water, surely there is a better alternative to wasting this water so recklessly.

Food:

When I begin to think about my daily food intake, I quickly think about the types of food I'm consuming. It occurs to me that it is a mixture of meat, dairy, frozen produce and pasta's. Almost every day I have some meat with my dinner. This is a very energy intensive food because of the fact that the energy that goes into making it is a lot higher than the energy the person gets from consuming the meat. From the time the calf is born, it must be reared with care and consideration. For the most part it will receive an adequate level of life, enjoying rich feed and pastures to graze in. However this level of maintenance requires not only a farmer but machinery to help him. Every farm varies from place to place so it is quite difficult to obtain an accurate representation of what the environmental impact might. All that can be said for sure is that there is quite a large one.

I do not eat out at all during the week so there should be no considerations to take for fast food places. I also may receive one ready-made meal from home when I come back down to limerick, these ingredients will all be from my own garden and the local butcher. So the carbon footprint of

that meal will be very minimal. Perhaps I should be taking more of these meals from home, not only do they taste better, but they have an obviously lighter carbon footprint than anything I can buy in my local supermarket.

Transportation:

Most weeks I make 2 long journeys. One heading home to Kildare on a Friday and the other returning to Limerick on a Sunday. I drive my own car which is a 1997 Toyota Corolla. This car has a 1.3 petrol engine and according to internet data banks its CO2 emissions are 168 g/km. This puts my car into tax band D which is not so good in terms of the environment. But as I am a college student I do not have the means to buy myself an electric or hybrid vehicle. My own car does me just fine despite being in this tax band. The distance I cover in one single trip is in the region of 90 miles, one way. On a single trip that has the potential to be 44kg of carbon per trip, which is 88kg for both trips, which is a lot. These calculations do not include one or two small trips I make at home in Kildare.

My Carbon Footprint

I chose to use a very simplistic yet effective website for this section of my project. It's a website from the WWF called; ecoguro.panda.org. It did not show my results in tonnes or kilograms of carbon produced but in a rather different way that I thought made more of an impact on me than just stats and statistics.

The first time I did it, my result came out to be pretty bad.

I consume 3.1 planets worth of resources,

The world average is 1.3 planets

My regions average is 2.4

North American average is 3.8

East/South East Asian average 0.7.

As you can see from my first attempt I was doing very poorly indeed. To sustain my way of living we were going to have to discover 2 new identical planets to our own just to cover the resources use of people like me. I was quite shocked and appalled by the numbers I saw and decided to give it another try but this time, just change a few minor things and see what the results were:

I now consume 2.2 planets, this to me still seems awfully high, and is just below my regions average.

I lessened my effects on the planet just by employing slightly better insulation in the home, not using planes to go on holidays and not using as much dairy or meat products. A dramatic drop but not good enough.

Some Solutions worth trying

Properly insulating your walls and ceilings can reduce your emissions hugely, ranging from 250 to 2,500 kgCO₂ a year depending on the existing levels of insulation. Which in my case is not too good.

Lowering your thermostat by a single degree.

Not heating empty rooms.

Having a shower instead of a bath can save up 350kgCO₂ per year.

If you try to spend less time in your shower and use a low flow showerhead, this can reduce your emissions by up to 150 kgCO₂ per year.

When purchasing food try to buy locally and try to get seasonal foods.

Always try to keep lids on pots when cooking this will help to increase the efficiency of your cooker.

If travelling, driving at 65-80km/h leads to the lowest emissions per kilometre than at slower or faster speeds.

Try walking or cycling distances that are less than 5km.

Try to set up a carpooling system with your co-workers.

Drive economically and always check your tyre pressures before setting out on a journey.

Conclusions

I think that doing this project was for me a massive success. In recording my way of life over a number of days it allowed me to highlight problem areas within it.

Not only have I found ways to cut my bills, I have put into action ways of helping the environment. This has also allowed me to free up more of my time. Before I might have spent an hour or maybe two in front of the television, with the heater on and all the lights on, now I may spend as little as half an hour, heater on for fifteen minutes and no lights on.

This has also open my eyes to the way I used to abuse my own transport, I would have definitely taken my car for distances shorter than 5km but now opt for the healthier and better option of cycling.

In my opinion an exercise such as this would be highly beneficial to anyone who chose to do it. Not only can you discover and implement cost saving and time saving strategies within the home, but you can also feel good with the knowledge that you're helping your environment.

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