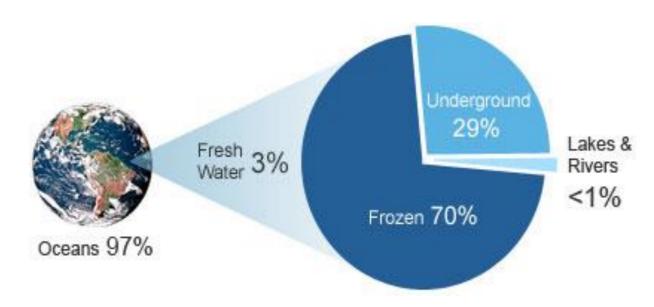


The Blue Planet - Planet Water

70% of the planet's surface is covered in water, but only 2.5%-3% of this is fresh water. Over two thirds of this fresh water is trapped in ice at the poles and so is unavailable to us. The amount of available, clean, fresh water is therefore precious! This precious water has been filtered and recycled by nature via the rain cycle for millions of years. The water that flows out of your tap is the same water that the dinosaurs drank and that your grandchildren will drink! All other species on the planet also need this water.



UN Water and the Sustainable Development Goals by 2030

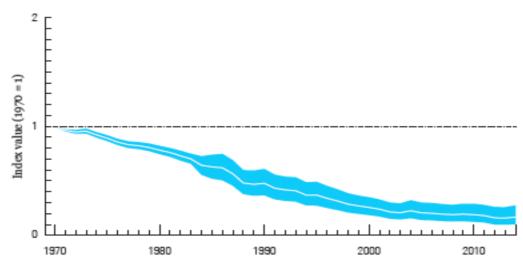
| Targ | Targets for SDG 6 - Ensure availability and sustainable mgt. of water and sanitation for all. | | | | | |
|------|---|--|--|--|--|--|
| 6.1 | Achieve universal and equitable access to safe and affordable drinking water for all. | | | | | |
| 6.2 | Achieve access to adequate and equitable sanitation & hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations | | | | | |
| 6.3 | Improve water quality by reducing pollution , eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally. | | | | | |
| 6.4 | Substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity | | | | | |
| 6.5 | implement integrated water resources management at all levels, including through transboundary cooperation as appropriate | | | | | |
| 6a | By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes. | | | | | |
| 6b | Expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse tech. | | | | | |
| 6c | Support and strengthen the participation of local communities in improving WatSan mgt. | | | | | |

Freshwater Biodiversity – The Freshwater Living Planet Index Worldwide Fund for Nature Freshwater ecosystems provide habitat for at least 126,000, or around 1 in 10, known species of fishes, molluscs, reptiles, insects, plants and mammals despite covering less than 1% of the Earth's surface. These ecosystems are also the most threatened – they are strongly affected by habitat



modification, fragmentation and destruction; invasive species; overfishing; pollution; forestry practices; disease; and climate change. In many cases, these combined threats have led to catastrophic declines in freshwater biodiversity.

The 3,358 populations – representing 880 species of mammals, birds, amphibians, reptiles and fishes – in the Freshwater LPI **show an 83% decline**, equivalent to 4% per year since 1970. The largest declines are seen in populations in the Neotropics (-94%), the Indo-Pacific (-82%) and the Afrotropics (-75%), especially in reptiles and amphibians, and in fishes.



83% Decline in Populations of Freshwater Species since 1970

Wetlands

Wetlands are marshes, fens, bogs, and swamps. Once disregarded as wastelands our wetlands are places of great beauty and wildness. These unique habitats are host to a great diversity of plants and animals. Unfortunately, we are losing our wetlands at an alarming rate. **Up to 87% of the global wetland resource has been lost since 1700.** We lose wetlands three times faster than natural forests. In Ireland between 1990 and 2006, it is estimated that we lost a further 10% of our wetlands drained for agriculture. Visit the <u>www.iwt.org</u> website to see what they are doing to protect Ireland's wetlands.

Irish Bogs

Peatlands originally covered more than 17% of the Republic, but the introduction of large-scale, mechanised turf extraction schemes for fuel and horticultural peat in the 1940s, forestry programmes commencing in the 1950s and the intensification of agriculture following Ireland's entry to the EU in 1973, have seriously depleted the area suitable for conservation. Today, according to the IPCC, only 19% of Ireland's original peatlands remain in a relatively intact condition. This is a 92% loss in raised bogs and an 82% loss in blanket bogs; in the North only 10% of raised bogs and 14% of blanket bogs (of conservation interest) remain. Visit the <u>www.ipcc.ie</u> website to see what they are doing to protect Ireland's wetlands.

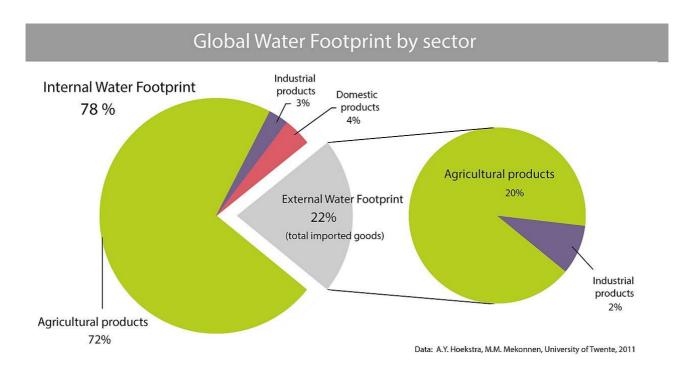
The Water Footprint

According to the Water Footprint Assessment Manual: The water footprint can be regarded as a comprehensive indicator of the use of freshwater resources, next to the traditional measure of water withdrawal. The water footprint of a product is the volume of freshwater used to produce the product, measured over the full supply chain. It shows water consumption volumes by source and polluted volumes by type of pollution; all components of a total water footprint are specified in location and over time.



The **Blue Water Footprint** refers to consumption of blue water resources (surface and groundwater) along the supply chain of a product. 'Consumption' refers to loss of water from the available ground-surface water body in a catchment area. Losses occur when water evaporates, returns to another catchment area or the sea or is incorporated into a product. The **Green Water Footprint** refers to consumption of green water resources (rainwater insofar as it does not become run-off). The **Grey Water Footprint** refers to pollution and is defined as the volume of freshwater that is required to assimilate the load of pollutants given natural background concentrations and existing ambient water quality standards. This important water resources indicator was developed by Arjen Hoekstra.

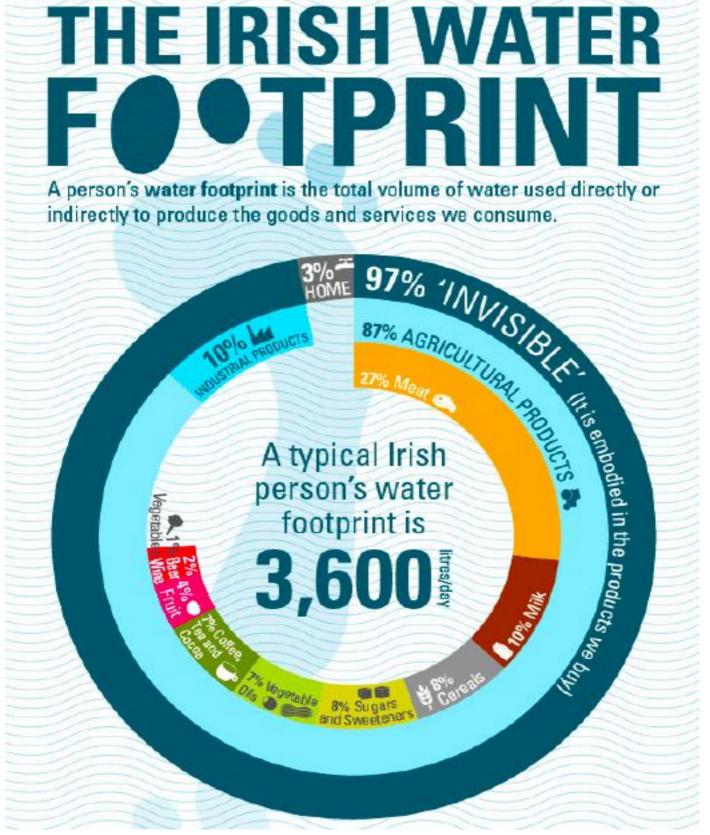
Most of the world's food comes from rain-fed agriculture including in Ireland. **Agriculture accounts for 92 per cent of the global water footprint** and almost one third of this is for animal products. Industry and manufacturing takes up 4.4 per cent, while only 3.6 per cent is used for domestic water supply. An average of just over one-fifth of a country's water footprint is imported.



Each Irish consumer's water footprint is 3,600 litres of water a day. Only 3% of this is used at home for drinking or washing. The vast majority (97%) is embodied in the agricultural and industrial products we use. Of the food we eat, most water is used to produce meat and animal-based products, but also to produce the cereals, sugars and sweeteners, vegetable oils and fruit and vegetables we consume. **72% of the Irish water footprint is imported** in goods imported into Ireland.



GLOBAL ACTION PLAN INTERNATIONAL



When we import consumer goods for example coffee, we are not simply importing coffee beans, but at the same time a lot of water that is used for the cultivation of coffee.

| Food (litres water) | Food (litres water) | Consumer goods (litres water) |
|---------------------|---------------------|-------------------------------|
|---------------------|---------------------|-------------------------------|



GLOBAL ACTION PLAN INTERNATIONAL

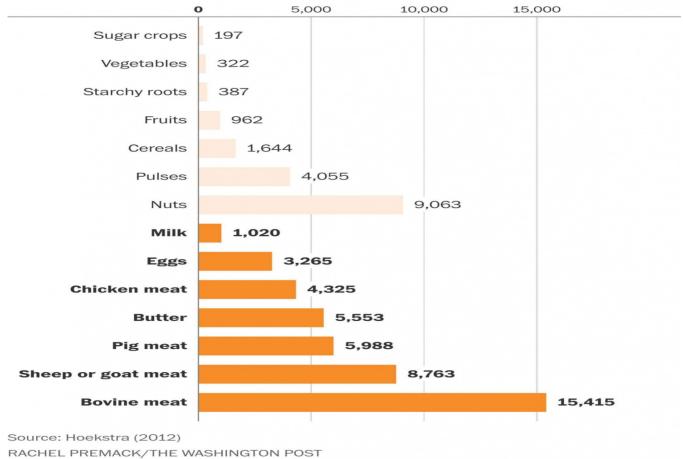
| 1 slice of bread | 40 | 1 kg bananas | 859 | 1 kg ordinary paper | 2,000 |
|-------------------------|-------|-------------------|--------|----------------------|---------|
| 1 kg bread | 1,300 | 1 tomato | 35 | 1 sheet of A4 paper | 10 |
| 1 kg cheese | 5,000 | 1 kg strawberries | 276 | 1 kg recycled paper | 20 |
| 1 kg sugar | 1,500 | 1 egg | 200 | 1 PC | 20,000 |
| 100 g chocolate | 225 | 1 beefburger | 2,400 | 1 mobile phone | 3,000 |
| 1 glass of orange juice | 170 | 1 kg beef | 15,500 | 1 car | 400,000 |
| 1 cup of tea | 130 | 1 kg pork | 4,800 | 1 cotton T-shirt | 2,700 |
| 1 cup of coffee | 140 | 1 kg chicken | 3,900 | 1 pair jeans | 11,000 |
| 1 glass of milk | 200 | 1 bag crisps | 185 | 1 pair leather shoes | 8,000 |

www.waterfootprint.org

The most significant action you can take to reduce your water footprint is to consume more plant-based foods as shown below.

You need 48 times as many liters of water to produce the same amount of beef as veggies

The graph below shows the average amount of water in liters used to produce a kilogram of crop and animal products.

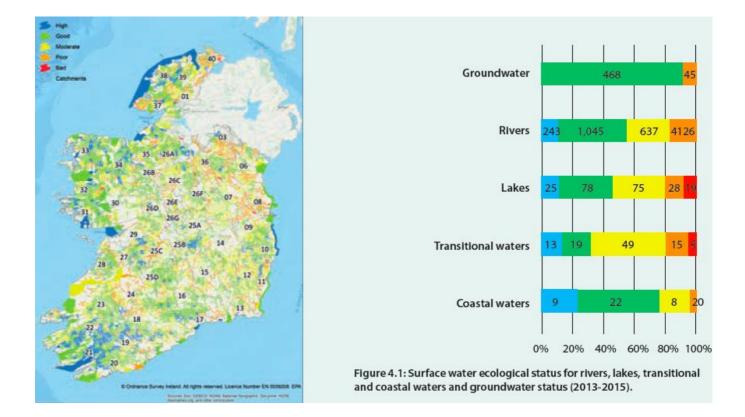


Water Quality in Ireland

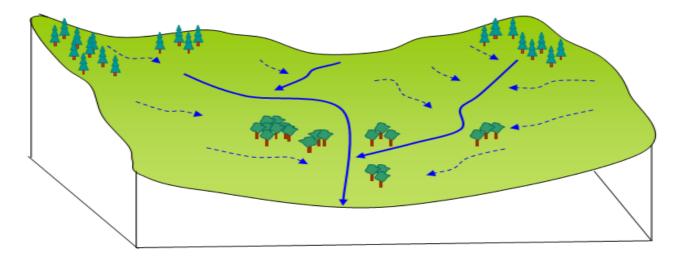
The below map shows the status of Ireland's water bodies (rivers, lakes, estuaries, etc.). Blue indicates High Status Sites and Green indicates shows Good Environmental Status (GES).



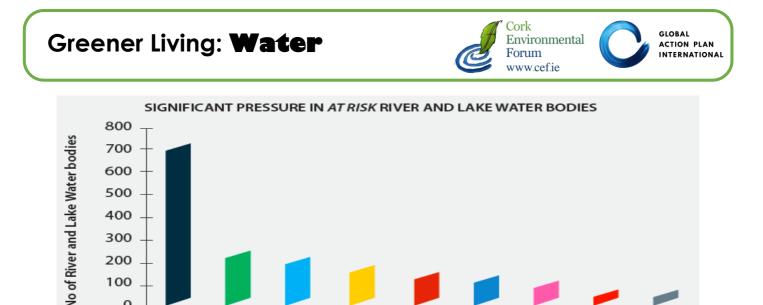
Over 50% of Ireland's estuaries, lakes and rivers are failing to meet GES.



A catchment is the land area where all the water that falls drains to a specific water body. It is also a community related by water.



In order to determine the status of all the water bodies and to decide where to intervene in order to try to improve the water bodies the EPA undertook a catchment characterisation process. The EPA measured what were the different pressures on these water bodies (there is often more than one pressure). Agriculture was identified as by far the leading cause of the deterioration of Ireland's water bodies and a significant pressure in 64% of 'at risk' waterbodies. At the same time as Ireland is failing to meet its Climate Change obligations it is also failing to meet its water quality goals.



Extractive industry

Significant Pressure Figure A: Frequency of significant pressures on at risk river and lake water bodies

Forestry

DometicWesteWater

UtbanBunOff

Industry

othe

from Ireland's River Basin Management Plan 2018

Hydromorphology is how water flows are affected by physical structures like weirs and dams. Globally there are 6,374 large dams already in existence and 3,377 planned or proposed large dams.

Why act?

0

Agriculture

Water Quality - Keen to be clean

Urban Wate Wate

Hydronorphology

All of the water that leaves your house ends up somewhere! Either a treatment plant or a septic tank. Treating this water is expensive and energy consuming. Many of the detergents and cleaning agents that we use pass through untreated. The water will eventually end up in a river, lake or the sea and many of these chemicals can have a harmful or even fatal effect on the fish insects and plants.

Action!

Choose to purchase shampoo, soap, washing up liquid, washing machine and dishwasher powder that is environmentally friendly. Experiment with using less of the above products.

- \Rightarrow Never dispose of chemicals such as paint, oil or medicines in the toilet or drains. Small amounts can contaminate large amounts of water. Contact your local council for waste disposal options.
- \Rightarrow Bleach is also highly toxic to aquatic life and should not be used in the home.
- ⇒ Don't use any pesticides or herbicides anywhere. Irish water has stated that one drop of pesticide can pollute a 20 km length of stream. 3,000 tonnes are sold in Ireland every year.

Who supplies our Water?

Irish Water is Ireland's national water utility that has the responsibility for the development and delivery of water and wastewater services to homes and businesses. Irish Water is responsible for the operation of public water and wastewater services. In rural areas homes will often have their own stand-alone system of a borehole with a septic tank. There are also Group Schemes in operation. Ultimately each individual has an important role to play in keeping our water ecosystems healthy.



AREAS DISCHARGING RAW SEWAGE

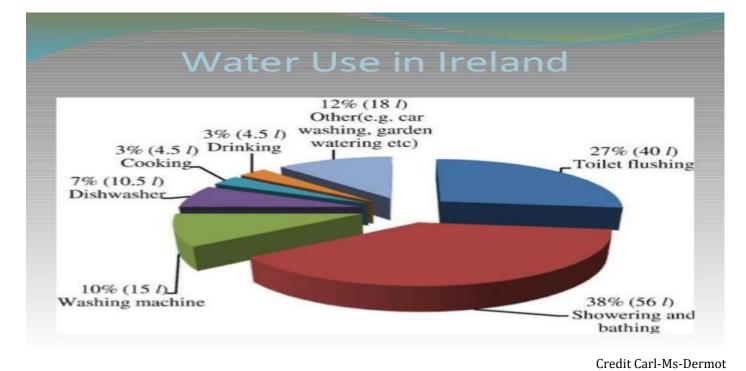


Slurry from Animal Farms spreads untreated 25 times the waste from the human population.

Although out daily use of water in the home is just 3% of our total water use it is still good to be respectful of this precious resource. The effectiveness of your actions will be much greater if you discuss them with the rest of your household and get them involved.

All of the water that enters your home is treated to drinking water quality - yet we drink or cook with less than 5% of that water.







Tackle that trickle - Why act?

- A tap dripping at one drop per second can waste 10,000 litres of water per year
- A leaking toilet can use up to 15,000 litres of water in a week
- Leaks can cause secondary problems like dampness.

Action!

Get a plumber to fix leaks or get a book and some tools and go for the DIY approach.



Go with the flow

Almost 33% of water that comes into your home leaves via the toilet. This means 33% of all the expensive water treatment getting it up to drinkable quality before it gets to your house is not needed. In addition to this when the water leaves via the toilet it is treated as foul using many more chemicals and energy even if that particular flush was just a piece of tissue.



Do you need to flush the toilet after every pee?

 \Rightarrow If you need to buy a new toilet get one with a dual flush. Planning regulations for new houses.

An average household will save 17,250 litres of water a year by halving the number of flushes.



Tanks a lot

The average toilet tank holds about 9 litres of water. This much water leaves your house every time you flush the toilet.

Action!

Take a 1 litre plastic bottle or 2 half-litre bottles. Remove the labels and fill the bottles with water. Place the bottles into the toilet tank taking care that they will not interfere with the toilet mechanism. Now every flush will use 1 litre less water.



This action will save 1 litre per flush, that's about 3,500 litres per year



Scrub a dub dub

- Washing dishes with the tap running can use 100 litres of treated water. This costs money if it has been heated. Filling the washing up bowl you might use only 9 litres per day.
- Dishwashers use between 20-55 litres per load.
- Washing machines use between 70-120 litres per load.



Do small amounts of dishes by hand and always use a washing up bowl.

- \Rightarrow Never pre rinse dishes for the dishwasher under running water.
- \Rightarrow Make sure the dishwasher or washing machine is full before using.
- \Rightarrow Does that clothing really need washing? By only washing clothes when needed, they will keep their new look longer.

By using the dishwasher or washing machine 1 time less each week you could save over 7,500 litres of water each year plus energy on your electricity bill and wear tear on the machine.



Facin' the basin

Letting the tap run whilst you brush your teeth for 3 minutes in the morning and three minutes at night can waste between 50 and 130 litres of water per day, that's 350- 910 litres per week or 47,500 litres a year! Shaving can use another 50 litres every time.

Action!

When washing, run the water at low force to wet your skin and soap. Turn off the water whilst you wash and turn it back on to rinse. Or fill the basin.

- ⇒ Turn the tap off whilst you clean your teeth. Fill a glass to rinse you mouth.
- \Rightarrow Run the tap at low pressure whilst shaving or fill the basin.

The above actions can easily reduce your washbasin water use by 85% and could save 50 litres per day. That's over 1,800 litres per year with a few simple changes.

Why act?

Squeaky clean

A bath can use 80 litres, a four-minute shower about 40 litres, a four-minute power shower, 125 litres.



- Take more showers and fewer baths and get rid of the power shower!
- ⇒ Do you really need a shower every day? Try having a wash instead sometimes.

The above actions will definitely save you money - and reduce your greenhouse gas emissions.



Why act?

Greener gardening - Why act?

Watering gardens and lawns can consume enormous amounts of water and as in the other actions this water is all treated. For example lawn sprinklers can use 800 litres per hour. The following actions are therefore amongst the most important that you can make.

Action!

- Water early in the morning to avoid heavy evaporation during the warmer part of the day.
- \Rightarrow Keep the grass 5-8 cm long to provide natural shade that will keep the soil moist.
- \Rightarrow Choose species of plants that do not have a high water need.
- \Rightarrow Experiment with mulching techniques to retain moisture.
- \Rightarrow Place a water butt under the down pipe from the house roof to collect rainwater
- \Rightarrow For small areas use a watering can rather than a hosepipe.
- ⇒ Check your hose for leaks and fit an on-off trigger at the nozzle end.

By watering your garden more efficiently you can save up to 50% of the water you normally use.

Why act?

Hand wash your car

Automated car washes use lots of water, detergent and energy and they cost money.

Action!

Wash your car at home and use a bucket rather than a hose.

Why act?

Get wise about water

By informing yourself of your local water situation you are in a better position to have an influence over local water conditions.

Action!

- Find out where your water comes from and where it goes to in your area?
- \Rightarrow Are there any plans to change the way your water is supplied and treated?
- ⇒ How do you complain about water quality or report suspected pollution incidents?

You can influence the way in which the water you use is handled.

Why act?

Rainwater Harvesting

Collecting rainwater can range from the very cheap and simple to the very expensive and complicated. Start with a simple rain barrel or water butt under a down pipe. You can use this water to wash your car or water the plants and lawn! In Ireland about 1,000 litres of water can be harvested from every square metre of available roof space over a year. Harvested rainwater is NOT for drinking.

Action!

Invest in a simple water butt/barrel and use this water for as many applications as you can where drinking water isn't required.

Is Water a Commodity or a Human Right?

Water is one of the world's most precious raw materials because it is essential for life and irreplaceable. One of the biggest





problems is the fact that today unpolluted water is scarce. The Food and Agriculture Organization of the UN assumes that by 2050 the total demand for water will rise by up to 20 percent. But already more than 200 river basins, home to some 2.67 billion people, experience severe water scarcity for at least one month every year including in europe. We need to reduce pressure on our rivers and lakes. Fresh water is not distributed equally throughout the world. 60% of all fresh water is located in ten countries (mainly in the USA, Russia and Brazil). Two thirds of the world's people receive a quarter of the global rainfall. 785 million people still lacked even a basic drinking water service. Moreover, products for water rich countries are manufactured in regions with water shortage. Globalization leads to worldwide dependencies and an increase in social injustice.

Multinational corporations such as Nestlé, Danone, Coca Cola and Pepsi are promoting their bottled water. In rich countries these companies claim that their water has health benefits. Moreover, they argue that their water is important for poor countries because it offers protection against disease. Some people say that these multinational corporations are stealing the water from the community. The corporations argue, though, that they guarantee that people all over the world receive safe drinking water. What do you think?

Bottled water costs two thousand times more than tap water. Watch the story of bottled water: www.youtube.com/watch?v=cnxuk6YK800

Websites for further Information.

Commodity Water Footprint

http://waterfootprint.org/en/resources/interactive-tools/product-gallery/

Personal Water footprint Calculator

http://waterfootprint.org/en/resources/interactive-tools/personal-water-footprint-calculator/

Sustainable Water Network, lots of information on water issues in Ireland, www.swanireland.ie

Irish Environmental Agency, <u>www.epa.ie</u>

Irish Water – the company responsible for water and wastewater services <u>www.water.ie</u>



Cork Environmental Forum



| ACTION | I WILL TRY THIS BEFORE NEXT MEETING | ACTION TAKEN | WATER SAVED | COSTS SAVED |
|--|---|-----------------|----------------|----------------|
| I will estimate my personal water footprint | | | | |
| Find out about your local water supply | | | | |
| Discover where my wastewater is treated | | | | |
| Get Involved in a Local Environmental Organisation | | | | |
| Take/Join a community action to protect a local water body | | | | |
| Discover if there are peat bogs in my area | | | | |
| Mend leaking taps/toilets | | | | |
| Use eco friendly washing powder, soaps, shampoos and household cleaners | | | | |
| Stop using any pesticides or herbicides. | | | | |
| Keep the grass 5cm long to reduce evaporation | | | | |
| Use mulch where appropriate | | | | |
| Use a watering can rather than a hose pipe | | | | |
| Collect rainwater for watering the garden | | | | |
| Take showers instead of baths | | | | |
| Make sure the dishwasher and washing machine are full before using them | | | | |
| Fill a bowl and turn the tap off whilst washing dishes | | | | |
| Wash the car at home and use a bucket rather than a hosepipe | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Thank you for participating in this course. You can find links to other resources and further information from each session at www.cef.ie/projects/greenerliving/ | | | | |

