

Students manual ROCvA – rewriting Nov-Jan 2022-23

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- What waste does a hairdresser produce?
- What are the effective way of reducing the waste a hairdresser (salon) produces?
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Water

- What are the rules and laws (legislation) about water pollution in your country?
- Setting up a water-efficient (dream) salon
- Companies that make products helping reduce / reuse / recycle / purify water
- Corporate Social Responsibility in relation to water

Waste

- What are the rules and laws (legislation) about waste in your country?
- How do you set up a low-waste salon
- Saving costs with smart waste management
- Corporate Social Responsibility in relation to waste

Module 1

Chapter 5: Water

Goals: In this chapter we will look at water in general as an important natural resource vital to all beings as well as economies and at the impending water scarcity. We will also look at water pollution and why it can be detrimental to the world's limited clean water supplies. Next to the threats we will find out what can be done about water pollution and unnecessary water waste by each and everyone of us.

Objectives:

- Learning facts and figures about water
- discussing the causes of impending water shortage and water pollution
- getting familiar with ways to save water in our households and to minimize water pollution
- introduction to some smart water cleaning projects and learning about water purification

Introduction

Water is the liquid that comes down from the clouds as rain, forms streams, lakes, and seas, and is a major constituent of all living matter and that when pure is an odourless, tasteless, very slightly compressible liquid with the H₂O formula which appears bluish in thick layers, freezes at 0° C and boils at 100° C, has a maximum density at 4° C and a high specific heat. Water is a poor conductor of electricity and a good solvent.



Image by onllyouqj on Freepik

Water is also an essential natural resource, the main constituent of Earth's hydrosphere and the fluids of all known living organisms (in which it acts as a solvent). It is vital for all known forms of life, even though it provides neither food, energy, nor organic micronutrients. Its chemical formula, H₂O, indicates that each of its molecules contains one oxygen and two hydrogen atoms. Water covers about 71% of the Earth's surface, mostly in seas and oceans (about 96.5%).

On our planet a water cycle exists in which seawater evaporates, condenses in the atmosphere and falls back as precipitation, after which rivers and groundwater return it to the sea. Seawater is also

called salt water because many salts are dissolved in it. When seawater evaporates, the salts remain in the sea, so precipitation does not contain salt, this is called fresh water, the water humans can use.

Of all water on Earth 97% is found in oceans and seas as salt water. The rest is subdivided into fresh and saline groundwater (23,300,000 km³), ice (24,000,000 km³), surface water (lakes and rivers, 190,000 km³) and water vapor in the atmosphere (14,000 km³). The proportions vary slightly due to several factors, including climate.

People can only use fresh water. The tap water we have easy access to in most European countries is of such good quality that you can drink it without extra filtering directly from the tap. In some countries it's better to buy drinking water instead of using the tap water or use special filters.



Interesting fact: Can you imagine that a household uses around 130 litres of perfectly clean drinking water to do the dishes, operate a washing machine or flush the toilet? The good news is that this amount has decreased since 2003 and this has to do with the household appliances (like dishwashers or washing machines) becoming more and more economical in a way that they use less water. We are wasting quite some good quality drinking water while 40 percent of (Sub-Saharan) Africa is completely without access to clean water.

Also most industries make use of water – it is essential for the economy of each and every country. Not every industry is careful about what kind of waste substances that come into the water. According to the Dutch newspaper Trouw, hairdressing industry (salons as well as cosmetics and hair colour manufacturers) belong to the top 10 of most polluting industries. This is due to the numerous chemicals that are used in the treatments like dyeing or perming of the hair. These oftentimes harsh chemicals when rinsed off the treated hair flows directly into the sewage. Hardly any salons filter these waste waters yet. This means that if we want the water supplies of our planet to stay accessible to as many people as possible and have our waters and the oceans clean and vital, the hairdressing industry among others should minimize its impact on the world water resources. And the hairdressing students - the beauty professionals of tomorrow - should learn how to do this.



Image by aleksandarlittlewolf on Freepik

Water - a resource threatening to become scarce. Why should we save water?

Just some alarming facts and figures to start with: over the past 40 years, the world's population has doubled and use of water has quadrupled.

Today, about 4 billion people, representing nearly two-thirds of the world population, experience severe water scarcity during at least one month of the year.

Up to 40% of the world's population will be living in seriously water-stressed areas by 2035.

If we continue doing what we are doing today, by 2040, there will not be enough water to quench the thirst of the world population and keep the current energy and power solutions going.

By 2050, the world population will have grown to 9.7 billion people. Water demand is projected to grow by 55 percent, including a 400-percent rise in manufacturing water demand.

Water scarcity is a big and ever growing problem in the world. It has to do with the geographic and temporal mismatch between fresh water demand and availability. It means that in a lot of places (the North of Africa, lots of regions in Asia) have trouble getting access to fresh water. This can be due to physical or economic reasons. Physical water scarcity means there's just not enough water available in the region to satisfy all the needs of the ecosystem. Economical water scarcity means that there is no sufficient infrastructure to make water available there where it is needed.

The main reasons for the growth of water scarcity on the planet:

- the growing water demand due to the population growth,
- higher living standards with increasing water demand,
- the dietary consumption of more animal products,
- expansion of irrigation in the agriculture.

Moreover, deforestation, the climate change (combination of floods and droughts), water pollution and wasteful water use (like flushing the toilet or operating a washing machine with clean fresh water) can result in the shortage of water supply.

For example in the Netherlands, the famous 'water country', in the last couple of years there's been an impending water shortage, especially due to hot summers.



Question: what problems / challenges does humanity face in case of water shortage / water scarcity? Can you think of different aspects of our life we need water for?

How can we save water with simple steps and why should we?



Water saving tips

Since water is one of the vital resources threatening to become really scarce as mentioned before, it is of paramount importance that we all do a little bit our best to save water wherever possible.

There are many ways that you can save water around your home. You may find the following tips helpful.

1. Use a bowl in the sink when washing fruit, vegetables or dishes. You can then use the waste water to water your plants.
2. Fill a jug of water and put it in the fridge for when you want a cool drink.
3. Turn off the tap when you clean your teeth. A running tap uses up to nine litres of water a minute.
4. Wait until you have a full load before using your washing machine or your dishwasher. Some new washing machines use less than seven litres of water for each kilogramme of clothes, while modern dishwashers can use as little as 10 to 15 litres of water a cycle.
5. If possible, take a shower instead of a bath. A five-minute shower uses about 40 litres of water. This is about half the volume of a standard bath.

6. Use a water-saving device in your toilet cistern. Depending on the size of your cistern, you could save between one and three litres each time you flush the toilet.
7. Using a watering can in the garden instead of a sprinkler or a hosepipe. Garden sprinklers and hosepipes left running can use between 500 and 1000 litres of water an hour.
8. Think about fitting a water butt to collect rainwater off your roof. Water butts usually store about 200 litres of water. As well as being better for watering your plants, using rainwater in the garden reduces the amount of treated water you use.
9. Check your property regularly for leaks on your internal plumbing.
10. Try shortening your regular shower routine with 2 minutes (make it for example 5 instead of 7 minutes). Also making your water temperature 1-2 degrees lower will help you save some energy and is good for your health (if you have heard about the Ice Man Wim Hof, then you know that. Otherwise look up the Wim Hof method online!)

If you have a water meter, all of these tips may help you to reduce your water and sewerage bills.

Even if you do not have a meter, using water wisely and cutting down on the amount of hot water you use will lower your gas and electricity bills. It will also reduce the amount of climate-changing greenhouse gases you release into the atmosphere.

Using less water will also help reduce the greenhouse gases that are released from collecting, treating and supplying clean water.

Water pollution in general. Ocean clean-up project

- Polluting one of our most essential resources - water
- Causes of water pollution
- What can we do to prevent or minimize water pollution?
- Plastic soup and the Ocean Clean-Up Project



Knowledge activation: scan this QR code and watch the video [appr. 3 min]

Video: <https://youtu.be/Om42Lppkd9w>





Question: why do you think water pollution is a big problem for humanity?

QUOTE:



"Thousands have lived without love, not one without water" (British poet W. H. Auden)

Despite us knowing how essential water is for our lives, we keep polluting it. Our rivers, reservoirs, lakes, and seas are drowning in chemicals, waste, plastic, and other pollutants. Some 80 percent of the world's wastewater is dumped—largely untreated—back into the environment, polluting rivers, lakes and oceans.

Water is a universal solvent which makes it very vulnerable to pollution of all kinds. Due to this quality of water we have our favourite lemonades and blue waterfalls. But also toxic substances from farms, towns and factories dissolve easily into and mix with it, causing water pollution.

Causes of Water pollution

Agriculture

Not only is the agricultural sector the biggest consumer of global freshwater resources, with farming and livestock production using about 70 percent of the earth's surface water supplies, but it's also a serious water polluter. Around the world, agriculture is the leading cause of water degradation. Every time it rains, fertilizers, pesticides, and animal waste from farms and livestock operations wash nutrients and pathogens—such bacteria and viruses—into our waterways. Nutrient pollution, caused by excess nitrogen and phosphorus in water or air, is the number-one threat to water quality worldwide and can cause algal blooms (see picture below), a toxic soup of blue-green algae that can be harmful to people and wildlife.



Image by wirestock on Freepik

Sewage and wastewater

Used water is wastewater. It comes from our sinks, showers and toilets (think sewage) and from commercial, industrial and agricultural activities (think metals, solvents and toxic sludge). Stormwater runoff occurs when rainfall carries road salts, oil, grease, chemicals and debris from impermeable surfaces into our waterways.

Oil pollution

Consumers account for the vast majority of oil pollution in our seas, including oil and gasoline that drips from millions of cars and trucks every day. At sea, tanker spills account for about 10 percent of the oil in waters around the world as well regular operations of the shipping industry.

Radioactive substances

Another cause of water pollution is radioactive substances generated by uranium mining, nuclear power plants and the production and testing of military weapons, as well as by universities and hospitals that use radioactive materials for research and medicine. Radioactive waste can persist in the environment for thousands of years, making disposal a major challenge.

Other types of water pollution are solid waste plastic pollution (see 'the plastic soup' item to learn more), toxic waste, thermal pollution and sediment resulting from soil erosion or construction activity that can be carried into water bodies by surface runoff.



TASK: what do you see as one of the major risks for water pollution in your region? And in hairdressing? Which of the 4 causes described in detail above does this risk belong to?

What Can You Do to Prevent or Minimize Water Pollution?

Of course as we could see the biggest pollutants are industries, agriculture and other large organisations. But we are all accountable to some degree for today's water pollution problem. Fortunately, there are some simple ways you can prevent water contamination or at least limit your contribution to it:

- Learn about the unique qualities of water where you live. Where does your water come from? Is the wastewater from your home treated? Where does stormwater flow to? Is your area in a drought?
- Reduce your plastic consumption and reuse or recycle plastic when you can.
- Properly dispose of chemical cleaners, oils and nonbiodegradable items to keep them from going down the drain.
- Maintain your car so it doesn't leak oil, antifreeze or coolant.
- Don't flush your old medications! Dispose of them in the trash to prevent them from entering local waterways.
- Be mindful of anything you pour into storm sewers, since that waste often won't be treated before being released into local waterways. If you notice a storm sewer blocked by litter, clean it up to keep that trash out of the water. (You'll also help prevent troublesome street floods in a heavy storm.)
- If you have a dog, be sure to pick up its poop



TASK: *find more quotes that have to do with the importance of water for our lives*

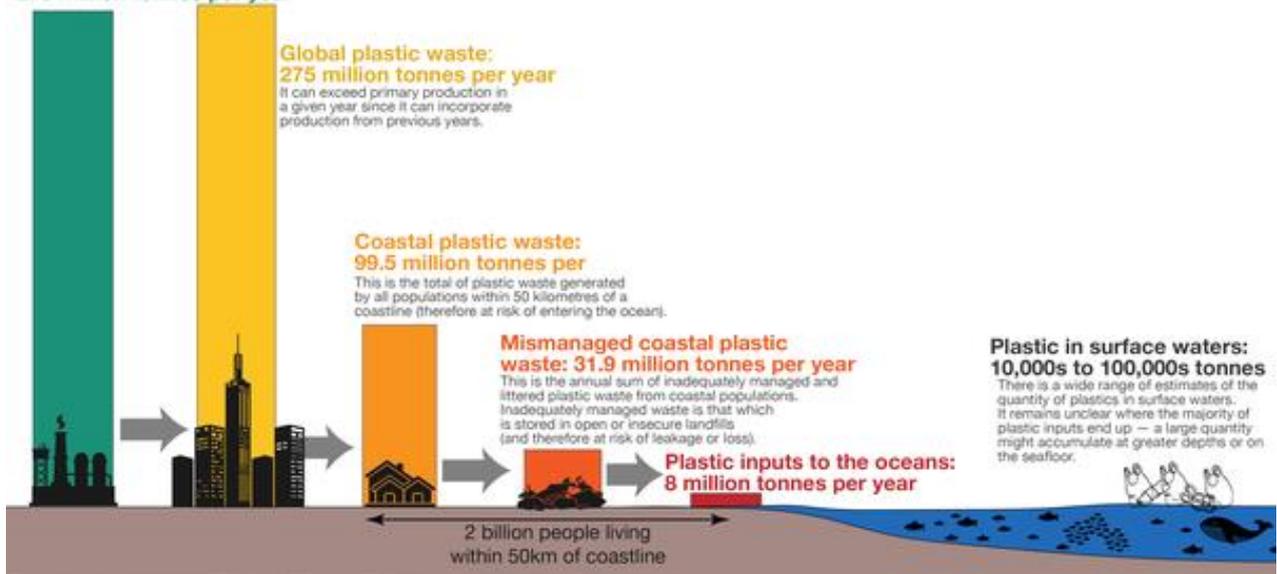
Plastic soup and the Ocean Clean-Up Project

Have you ever heard the expression 'plastic soup'? Plastic soup is a term used to name the pollution of the world ocean with plastics, ranging in size from large original material such as bottles and bags, down to the so-called microplastics formed from the fragmentation of plastic material. Marine debris is mainly discarded human rubbish which floats on, or is suspended in the ocean. 80% percent of marine debris is plastic.

The pathway by which plastic enters the world's oceans

Estimates of global plastics entering the oceans from land-based sources in 2010 based on the pathway from primary production through to marine plastic inputs.

Global primary plastic production:
270 million tonnes per year



Source: based on Jambeck et al. (2015) and Ertesen et al. (2014). Icon graphics from Noun Project.

Data is based on global estimates from Jambeck et al. (2015) based on plastic waste generation rates, coastal population sizes, and waste management practices by country.

This is a visualization from OurWorldinData.org, where you will find data and research on how the world is changing.

Licensed under CC-BY-SA by the authors.

Image source: Wikimedia 'The pathway by which plastics enters the world's oceans'

Why is plastic soup dangerous?

Next to the harm to the wildlife (sea animals getting entangled in plastic, animals eating plastic and getting too full stomachs but no energy and eventually dying, plastics having entered the entire ecosystem, also being found in the human bodies and even babies), humans get plastic into their bodies which can pose some serious health issues on them.

The biggest health issue with (micro)plastic for the humans are the following: getting through the rest of the food chain and the environment into our bodies, the plastic particles are so small that they even get into all organs through the blood stream. This results in inflammatory reactions in the body and endocrine disruption and lowered fertility. These issues are primarily caused by flexibility agent bisphenol A (BPA) and plasticizers. To know what other health risks there are more research is needed.



Image from Freepik: Plastic Soup and potential damage to the sea wildlife



Optional: TASK Search the web for some examples of wildlife / sea life having trouble with plastic soup. What animals are these? In which way are they threatened by the plastic in the ocean / environment? (Tip: the website of the Plastic Soup Foundation)

Ocean CleanUp project

In order to beat the Plastic Soup problem a Dutch foundation - Ocean CleanUP project - has been set up. It is a non-profit engineering environmental organization based in the Netherlands, that develops technology to extract plastic pollution from the oceans and intercept it in rivers before it can reach the ocean. It was founded in 2013 by Boyan Slat, a Dutch-born inventor-entrepreneur of Croatian and Dutch origin who serves as its CEO.

After initial testing and prototyping in the North Sea they deployed their first full-scale prototype in the Great Pacific Garbage Patch. They also deployed their river technology, the Interceptor, in two locations in 2019, revealed the project publicly in October 2019 and deployed another in 2020. In 2022, the first Interceptor Original deployed in the United States is installed in Ballona Creek near Los Angeles, California. The organization also conducts scientific research into oceanic plastic pollution and its effects on the environment, wildlife and humans.



Image from <https://theoceancleanup.com/media-gallery/>, copyright by The Ocean CleanUp Project



Optional: TASK Study the website of the Ocean CleanUp Foundation. What do you think made this project successful in creating a device to scoop the plastic out of the oceans which some previous projects / attempts failed to do?

Waste water purification: who does it and how it happens?

Water purification is the removal of substances from the water. It comes in different degrees. Although water has a self-cleaning capacity, if water is too heavily polluted, additional artificial water purification processes are required so that fauna and flora in the water can recover.

Disposals of waste water requires special equipment, permits and expertise. Waste water should be discharged in accordance with all the legal guidelines. Equally important is where and how the waste water flows.

Some examples are:

- Drinking water pipes
- Booster pumps
- Drinking water treatment
- Buffering drinking water
- Desalination of seawater and making it drinkable.
- Boiling and collecting the evaporated pure water.
- Pumping seawater through membranes that pull out the salt (osmosis)
- Hydroloop: recycling water is the efficient and affordable way to use less water. Water is then recycled at the place where it is used.

Water purification plants are establishments that make sure our waste waters get purified.



Optional TASK:

Look up information about the experiments on the use of pollutant-extracting plants to decontaminate water



Optional TASK: Study the principles of water purification by the award-winning company [Hydraloop](#)

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image: Flaticon.com

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Module 1

Chapter 6: Waste

Goals: introducing the concept of waste and waste management in general, understanding why waste is a growing world problem and what can be done about it. Touching upon the notion of circular economy.

Objectives:

- Find out facts and figure about waste and why it is a growing problem
- Ways of minimizing the waste with reduce – reuse – recycle principle
- Getting acquainted with concept of circular economy and waste as new raw material
- Learning to monitor the use of microplastics

Introduction

The world generates 2.01 billion tonnes of municipal solid waste annually, with at least 33 percent of that—extremely conservatively—not managed in an environmentally safe manner. Worldwide, waste generated per person per day averages 0.74 kilogram but ranges widely, from 0.11 to 4.54 kilograms. Though they only account for 16 percent of the world’s population, high-income countries generate about 34 percent, or 683 million tonnes, of the world’s waste.

It is very important for the whole world to become more aware of the importance of the environment and what we do with our waste. Research has shown that in Europe, for example, we are still not doing enough to maintain the environment to be sustainable for the long term future. In Europe only each household produces more than 16 tonnes waste per year. Only as little as 40% of this waste (this is primarily metal, woods, glass and plastics) is being recycled. The rest is placed in landfills or burned. In some countries up to 80% still goes to the landfill.

Obviously, if we do not want the world to turn into one gigantic landfill, we have to do something about this.

Why is waste a growing problem?

When looking forward, global waste is expected to grow to 3.40 billion tonnes by 2050, more than double population growth over the same period. Overall, there is a positive correlation between waste generation and income level. Daily per capita waste generation in high-income countries is projected to increase by 19 percent by 2050, compared to low- and middle-income countries where it is expected to increase by approximately 40% or more. Taking into account the predicted world population growth in the coming years, the solid waste generation is possible to become an even bigger and more alarming problem.

Reduce – reuse – recycle and how to do it wisely

In her book ‘The Hidden Impact’ and on the website the Dutch environment enthusiast Babette Porcelijn tells us how we can rethink our lives into making them ‘greener’ and eco-friendlier.

You can reduce your impact on the environment in three ways: choosing better alternatives, searching for other solutions and sometimes a little less is more. Better, Other ways, Less: B-O-L.

BETTER

Making something 'better' means making polluting things cleaner. There is a lot to gain from that. In recent years, for example, airplanes and greenhouses have become more energy efficient. 'Better' is a step on the way to 'good'. Useful, but still in progress.

OTHER WAYS

By 'other ways' Babette means a sustainable alternative. And there are already many of them. The train (using green electricity) instead of the airplane, solar panels instead of grey electricity and legumes instead of meat. 'Other ways' can lead to a system change.

LESS

Half of the Dutch people have difficulty keeping their weight healthy and their houses are full of stuff. Put that next to the two biggest impacts on the environment: stuff and eating meat! Less consumption makes the most sense. And maybe a little less will make us happy. The best part is, it is super easy. You can start today!

BOL (better-other-less) model for the 3Rs

	Things	Food & Drinks	Mobility	Living
Better	thrift store, 2 nd hand, recycled	Seasonal & local foods/crops	No car (using the shared car options)	Green electricity, small house, well insulated
Other	No gifts but food/drinks/experiences for my birthday	Mostly vegetarian/vegan	Public transport, bike	Solar panels, solar boiler
Less	I buy almost nothing, only what I really need	Keeping leftovers, eating from smaller plates	Working close to home, no more flying	Short showers, heating pre-programmed, draft strip

The examples of the BOL-principles of becoming 'greener'.

In order to keep as much material out of the landfill as possible, it is important for each of us to do our part. One of the ways to put that plan into action is through the 3 Rs of waste management — Reduce, Reuse, Recycle.



Image by rawpixel.com on Freepik

1. Reduce means to cut back on the amount of trash we generate (think of using less shampoo or conditioner while washing your customer's hair, using a solid and reusable lunch box instead of plastic sandwich bag to reduce the use of plastic)
2. Reuse means to find new ways to use things that otherwise would have been thrown out (for instance, arrange a garage sale with the contents of your wardrobe you do not use so that others can enjoy the items or bring your own textile bag to the grocery store)
3. Recycle means to turn something old and useless (like plastic milk jugs) into something new and useful (like picnic benches, playground equipment and recycling bins). In that way we can make waste the new raw material!

What is circular economy?

In our current economy, we take materials from the Earth, make products from them and eventually throw them away as waste – the process is linear. In a circular economy, by contrast, we stop waste being produced in the first place.

The circular economy is based on three principles, driven by design:

- Eliminate waste and pollution
- Circulate products and materials (at their highest value)
- Regenerate nature

It is underpinned by a transition to renewable energy and materials. A circular economy decouples economic activity from the consumption of finite resources. It is a resilient system that is good for business, people and the environment.

The circular economy is a systems solution framework that tackles global challenges like climate change, biodiversity loss, waste and pollution.



Image by Freepik



Optional TASK:

1. If you want to learn more about the circular economy and examples of it, watch this YouTube video about circular economy (about 10 minutes):
<https://www.youtube.com/watch?v=NBvJwTxs4w&t=310s>.
2. Check out the website of the circular Urban Development in Amsterdam [De Ceuvel](#). Name at least 3 examples of sustainable and circular solutions they make use of at De Ceuvel

How can waste be the new 'raw material'?

In a circular economy, waste is the new raw material. There is no longer the line (as in the linear economy): produce, consume and then throw it away. This saves raw materials, the environment and reduces CO2 emissions. It stimulates innovation, new business activity and employment.

In a circular economy, nearly all products used by people will be reused again and again. If a product is broken, it will be repaired. And if that is no longer possible, new products are made from it.

In a circular economy, manufacturers design products to be reusable. For example, electrical devices are designed in such a way that they are easier to repair. Products and raw materials are also reused as much as possible. For example, by recycling plastic into pellets for making new plastic products.

There are also products that are not often used or stand still, such as drills and cars. In a circular economy, these products are used more intensively, for example by sharing them with others. On balance, this means that fewer products and therefore fewer raw materials are needed.

In a circular economy we treat our environment responsibly. For example, by preventing litter on streets or in the natural environment. The government is already taking steps in this direction, for example by banning free plastic bags. More than 80% of consumers say they often or always take their own bag instead of buying a single use plastic bag from the shop.

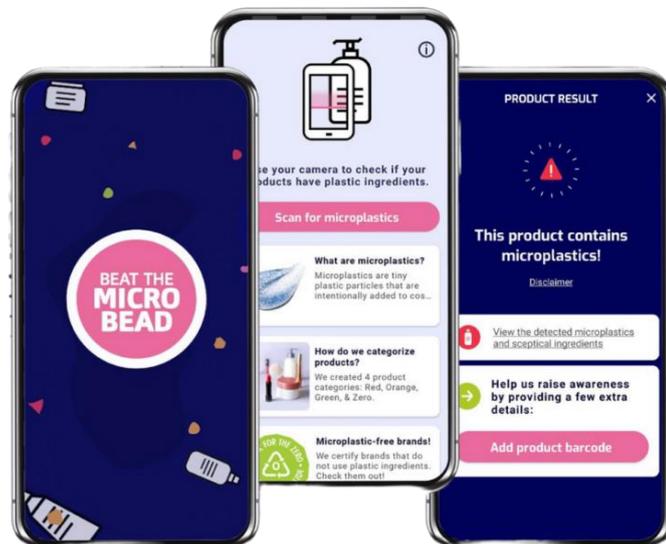
A properly functioning circular economy does not only depend on the government and industry. Consumers, too, have a role to play: choosing sustainable products must become the new standard. Consumers also contribute to a circular economy by using things longer, repairing them or taking them to the recycling shop. The government wants to stimulate this behaviour by giving the circular economy a place in education and by conducting campaigns.

Beat the microplastics

Since microplastics are potentially very dangerous for the health of the wildlife as well as us humans, being aware of whether or not we get exposed to them through the products we consume is essential. There is a handy tool you can use for checking if the products you buy or use contain the microplastics. By monitoring this, you can opt for alternative. By consuming less products containing microplastics we as consumers will force the manufacturers to produce safer products, with less or no microplastics in them.

Download the Beat the Microplastics / Microbead app and find out if there are any microplastics in **the products and packages you use / buy. In this way you can decide which products you want to purchase** for use in your salon or your household. Try scanning at least between 5 and 8 products. Start scanning!

You can find it here: <https://www.beatthemicrobead.org/download-btmb-app/> or scan the Qr-code



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MODULE 2

Chapter 5: Water

Goals: this chapter addresses the water use and water management within the context of a hairdressing salon and helps you look at ways to minimize the harmful effects on the environment water per work process / work station

Objectives:

- Introducing the notion of water use / water pollution per work station at a hairdresser salon
- Looking at ways to minimize the damage and save up water at a salon
- Becoming aware / measuring the amount of water used for different treatments
- Making the effects of using a water saving device visible

Introduction

Water is a very important topic in the hairdressing industry since most of the work processes need washing, rinsing and using water in this way or another. You can say that hairdressing is a very water-intensive industry. Also hairdressers account for quite some pollution to the water resources of our planet. We are going to have a closer look at it in the chapter to follow.

Water pollution by hairdressers / water pollution per work station



FACT Interesting fact: Did you know that, for example, with 5 minutes of rinsing a perm a hairdresser consumes 50 to 70 litres of perfectly clean drinking water?

And that with the use of chemical products and liquids, such as colouring, bleaching and perm liquid hairdressers pollute the water enormously? We are not even talking about the styling products, shampoos and conditioners. These are often full of silicones and microplastics. All these products disappear into the sewer. Treatment plants while doing the water purification, have the greatest difficulty filtering these plastic particles from the water.

Water pollution per workstation at a hairdresser salon

We are now going to look at the water pollution by hairdressers per work station, considering different processes at a hairdressing salon.



Image by prostooleh on Freepik

Cutting hair

For hair cutting, most of the time you use shampooing and conditioner application beforehand. Shampoos and conditioners are polluting the water after being rinsed off into the sewer. Try to wash the hair once, use as little product as possible (they are all well concentrated).

Use drip trays and dose limits, make sure that the screw caps are closed well after use.

Make use of sustainable and environmentally friendly shampoo (without PCB)

You might also consider asking your customer to wash their hair before coming to the appointment for a haircut – this will not save the water in general, since the customer would use the same amount of water at home, but this way you might avoid an 'unplanned' shampooing turn.

Colouring hair

Chemical residues are polluting the water. Try to avoid ammonia and sulphates in the products and use vegetable colours whenever possible.

To reduce the use of water while rinsing the colouring product, use water-saving water taps. There are for example water tap nozzles available that pulverize the water allowing to use less for the same purpose.



Image by prostooleh on Freepik

Perming and Straightening

Chemical residues from the perm liquid are polluting the water.

To reduce the use of water while rinsing the perming product, use water-saving water taps. There are for example water tap nozzles available that pulverize the water allowing to use less for the same purpose.



Image by valuavitaly on Freepik

What can a hairdresser do to have less impact on the water resources?

Businesses pay for the water they use, so making water use efficiency an everyday part of your working practices will save your business money as well as reduce the pressure on the environment.

Start by monitoring water use and see where you use most water. This allows you to focus efforts on where most water is being used and to record the reductions of time.

You can train and encourage staff to:

- Shampoo once rather than twice
- Turn the tap off between washes and report any leaks
- Washing up/mopping floors while using half buckets as standard

Use water reducing basin/shower heads

- Use low aerators: these can give you water savings up to 10 litres/min per tap per use
- Use shower heads that are designed to reduce water consumption. These can deliver water savings up to 330 litres/day

Towels

You can use eco-towels. These can be made from a variety of materials such as bamboo-pulp, or made from wood-pulp which is a by-product, normally otherwise thrown away. They are more absorbent than towels, biodegradable and single-use, meaning you are guaranteed hygiene and you don't need any detergents, water and energy to clean them.

Sorted out paper towels can be taken for composting or anaerobic digestion.

Cleaning

It is possible to almost eliminate the use of detergents by adopting a cleaning system that uses microfibers to clean mechanically rather than with water. A number of products exist that are designed for different applications, such as floor cleaning, furniture cleaning.

Also, rather than using disinfectants it is possible to achieve a high standard of hygiene by using steam cleaners. They produce a small jet of steam and have low energy requirements. Hand held units are often rated at maximum of around 1000 watts.

Chemicals

A hairdresser can decide to minimize the use of chemicals such as perm and colouring and use plant-based colouring. Both do have an impact on the use of water but plant-based products will pollute the environment less.

To sum it all up, this is a shortlist of simple steps that will ultimately help you save water:

- Be aware of your water use
- Avoid wasting water
- Choose the right products and inspire others to do the same (for example, hair colouring products without ammonia or preferably plant-based colouring products)
- Use water-saving shower- and water taps
- Only turn on the washing machine and dishwasher when it is full
- Eat less meat (since meat industry uses humongous amounts of water!) and buy as many products as possible that are organic

How to measure the quantity of water used at a salon



TASK: Calculate the amount of water needed to wash / massage and rinse the hair of a customer [to be carried out during a salon class or at an internship in the hairdressing salon]

Measurement nr.1:

Fill a special plastic bag with litres measurement (example: <https://www.conservationmart.com/p-904-water-flow-rate-bag.aspx>, you can easily find them in your country as well) up with water. Time 10 seconds with a timer while the water is running into the bag. In this first measurement experiment you are not using any water saving devices on your shower head or water faucet. See example video: <https://youtu.be/yDUCBRNpytk>



Picture by katemangostar on Freepik

Calculate how many liters of water you can save by using a water-saving tap

Measurement nr. 2:

Now use a water restricting device / nozzle on your shower head or the water faucet. Example of such a device is this: <https://ap.lc/FxPCb>. Time 10 seconds with a timer while the water is running filling your bag. Compare the two experiments. See example video 2: <https://youtu.be/mxPu3Pt7kUY>

Sources:

<https://www.conservationmart.com/p-904-water-flow-rate-bag.aspx>

<https://ap.lc/FxPCb>

<https://youtu.be/yDUCBRNpytk>

<https://youtu.be/mxPu3Pt7kUY>

Chapter 6: Waste

Goals: analysing the waste and waste management options at a hairdresser salon and looking at ways to minimize the negative impacts of it on the environment

Objectives:

- Identifying the types of waste specifically produced at a hairdresser salon
- The 3 Rs (reduce-reuse-recycle) in the context of a hairdressing business
- Looking at environmentally friendlier product alternatives for a hairdresser
- Learning about the (unexpected) ways of using the hairdresser waste as a resource

Introduction

We have been talking about waste as a growing problem earlier in Module 1. Concerning a hairdresser salon, we can look at specific types of waste being produced there and ways in which we can influence either the amount (=reduce) or type of waste produced (=reuse?) and possibly try and recycle it to something new (=recycle)

What waste does a hairdresser produce?

Within a salon quite some waste is being produced. Think of

- Plastic bottles and jars from shampoo / conditioner
- Glass (some hair products can be packed in glass)
- Plastic (think of plastic gloves)
- Paper
- Foils (highlights / balayage)
- Hair colouring tubes
- Human hair
- Waste from the kitchen / coffee / tea facilities etc.



TASK: walk around a salon (it can be the salon you do your internship training at or otherwise the salon at school) and make a complete list of all kinds of waste that is produced in the salon. Do not forget the kitchen /washing machine (if available)!

What are the effective ways of reducing / recycling the waste a hairdresser (salon) produces?

Within the salon there is plenty that could be recycled. Think about hair, tubes from colouring, foils, plastic which is used for shampoo and conditioner bottles / containers.

Some of these waste types lend themselves perfectly for recycling.

Plastics

Most of the plastics are not biodegradable. To reduce plastics in the environment you can check if they can be recycled. Collecting plastic bottles (e.g. from shampoo / conditioner), cutting the bottom and the neck off and cutting it open, **you can put more than 20 bottles in one stack. In this way it takes longer to fill a basket / container with plastic items** and makes recycling easier and more efficient. Collect them and they can be used for making other (hard)plastic items.

Hair

Hair that has been cut can be used for recycling. It is important though that only hair is collected, no other items.

Hair can be used as fertilizer; hair is one of the best natural plant fertilizers you could find on earth. This is because it contains 20 minerals and trace elements, it is also very high in protein and nitrogen.

For example: 100-200 pounds of cows produce 1 pound of nitrogen, 6-7 pounds of human hair produces 1 pound of nitrogen, so it is more effective to use hair as fertilizer.

Hair can be used by oil spills. Hair can be turned into nets which can be put in a circle around an oil spill in the ocean. Because of its hygroscopic power hair can resorb the oil perfectly well.

Mixed waste

Some types of waste you cannot sort, so it goes to the mixed waste. At the recycling plant where it gets to later on, part of this waste will still be sorted – for example, metal, plastic and biodegradable items will still be recycled – but the rest will most probably end up in a landfill. The less mixed waste ends up in a landfill, the better for the environment. That is why it is our responsibility to minimize to amount of waste that cannot be made back to new raw material.

Companies like The Green Scissors (in the Netherlands) or Green Salon collective (Ireland and a few other countries) can help hairdressing salons sort and collect the different types of waste that a salon produces. They provide the suitable containers, arrange the pick up when the containers are filled up and bring the waste to the right place to getting recycled.



TASK: For a period of one week collect the leftovers from the colouring treatments into a transparent vase or bowl. Have a look at it at the end of the week, preferable with all of your team member together. What do you see? Is it much? How do you feel about what you see? How does this colouring products waste going to pollute the environment? Make a report of it and find out in what ways we can reduce it.

Environmentally friendlier product alternatives

As we have seen so far, a hairdresser can use quite a big range of environmentally unfriendly or polluting products, from shampoo, colouring and perm products with harsh chemicals to plastics (gloves) and foils. Most of these pollutants end up either in the sewer or mixed waste which means harming the environment.

However, some green minds have already thought of these consequences before and came up with some environmentally friendly(ier) products alternatives. You can buy and use greener versions of shampoo and conditioner without SLS /



TASK: In order to reduce the waste produced by a hairdresser (salon) or increase the amount of waste that can be recycled, alternative products can be used for the regular processes (think of enormous amounts of foil used for highlights / balayage). Do research into these 2 alternatives to aluminium foil (see links below). What principles of these products' work make them better recyclable? What is the price difference with regular foil?

Refoil: <https://www.youtube.com/watch?v=KOuc0NCJfvs>

Paper not foil: <https://www.papernotfoil.com/>

Hairdresser's waste as a resource



FACT

Interesting fact:

Recycled hair can be made into many (sometimes unexpected!) things:

- Nets used for oil spills in the ocean
- Fertilizer
- Hair accessories: these can include hair accessories like wigs, extensions and hair pieces for fancy celebrations.
- Hair purses: an Australian artist called Polly Van der Glas recycles materials to make things from hair purses to human teeth.
- Hair jewellery: these have also been made from the same Australian artist. Bracelets are most popular to make out of hair because they are the easiest. However, necklaces and earrings have also been made.
- Clothing out of hair: designers have also used hair in their work to make dresses and trousers.
- Sculptures: artists have also been known to make hair sculptures. A hairstylist from Beijing recreated Tiananmen Square using just recycled human hair. This is the link to the video of him creating it: <https://www.youtube.com/watch?v=cJyPpwkMOjo>
- Tribal Art: neck ornaments worn in Hawaii were made out of braided human hair. This shows a big contrast in how different types of hair can be used to make different things. The works of art are now located in the Honolulu Academy of Arts

See also the '**Entrepreneurial Innovation: hairdresser's waste as new raw material**' task in Module 3

Sources:

<https://ecohairandbeauty.com>

<https://www.thegreencissors.org>

<https://www.greensaloncollective.com/>

<https://www.youtube.com/watch?v=KOuc0NCJfvs>

<https://www.papernotfoil.com/>

<https://www.youtube.com/watch?v=cJyPpwkM0jo>

<https://honolulumuseum.org/>

<https://vanderglas.com.au/philosophy.html>

MODULE 3

Chapter 5: Water

Goals: this chapter will make you look at water management and water sustainability at a salon management level. What does it take to set up and run a water-efficient hairdresser business which is not harming the environment and even attracts customers by being more sustainable?

Objectives:

- think about and find out how water legislation is regulated in your country or region
- work out a step-by-step plan for setting up and running a water-efficient hairdresser salon
- learn about companies providing systems and products to help in more efficient water usage
- get introduced to the corporate social responsibility in relation to water

Introduction

In previous chapters we have talked about water, water pollution and water saving in general and within a hairdresser salon context in particular. This chapter provides an overview and a number of assignments which will help you get a notion of legislation around water-related issues in your country or region, think about and describe a business plan focused on water-efficiency in a potential (dream) salon and will introduce the concept of corporate social responsibility in relation to water.

What are the rules and laws (legislation) about water pollution in your country?

In most (European) countries the distribution and purification of water is regulated by law.

In the Netherlands, for example, there is a Water Law (Waterwet) since 2009, a part of which is the 'Surface waters pollution law' (WVE or 'Wet verontreiniging oppervlaktewateren') which is dealing with the water pollution of the ground / surface waters.

In other countries, especially where water not as generously available as in the Netherlands, the government is forced to exercise even more control about the state and protection of this vital for all humans, animals and crops resource. The climate change seems to especially threaten more Southern parts of Europe, meaning for instance that the South of Spain is going to be called the new Oman in the future.

There might also be organs or institutions that are meant for water regulation in a country or region. If we keep the example of the Netherlands – a very famously water-rich country – the so-called water boards are public bodies established on the basis of the Water Boards Act that is charged with the regulation of water management in a specific region in the Netherlands. In other countries you might find



TASK:

- Search the web for the information on the legislation concerning water pollution in your country. Is there a special law dealing with the issue? If not, maybe there are institutions that deal with water policies and rules? How do those law(s) / rules apply to the hairdressers?
- Please study the water protecting law(s) – if applicable – and find out the main points of it. What does it say about water pollution? Are there any other measures concerning water usage or waste water utilization the entrepreneurs need to be concerned about?

Setting up a water-efficient (dream) salon



TASK: giving water-saving advice

Based on your results from the 'Fill the water measuring bag' task in module 2, what advice can you give to an owner of a hairdresser salon in order to save water? Write down 3 to 5 tips how to make sure the water is not wasted unnecessarily. Think of all the hairdressing processes (shampooing, cutting, colouring, perming) and other processes at a salon (e.g. washing the towels, washing the dishes, mopping the floors etc.).

My water saving tips to a hairdresser salon owner are:

- 1.
- 2.
- 3.
- 4.
- 5.



TASK: water saving as part of the business plan for your Dream Salon

Imagine you are writing a business plan intending to get a financing from the bank for opening a salon of your own. Since in the South of Europe (imagine you are located there even if you are not!) the expectation is that access to water will become less and less abundant in the near future, a decent water saving plan is an important condition for getting this financing.

What steps and procedures would you describe in your business plan to convince the bank you have thought about water saving steps in your future salon? What about minimizing water pollution?

Companies that make products helping reduce / reuse / recycle / purify water

There are companies out there which an entrepreneur (an owner of a hairdressing salon) can work with for reducing, reusing or purifying the water.

E.g. [Hydraloop](#) (a company that provides systems for collecting, treating and re-using the water from showers, baths, washers and dryers, heat pumps and air conditioning units), companies producing water-saving faucets, showerheads etc.



TASK:

- Please look up 2 or 3 of these companies on the internet. What kind of principle(s) is their water-saving or water-purifying solution based on?
- Do you know any salons or other companies that use an independent water-recycling system? If not, try to find them online!



Image by Freepik

Corporate Social Responsibility in relation to water

Every day, more and more people experience water stress. Humanity is facing a water crisis like never before, due to unequal distribution, climate change and a sharp rise in global freshwater demand. And in a few years' time, there simply won't be enough water available for all of us.

Seen from space, our planet is blue: 70% of its surface is water. But 97% of all that water is saline -- and most of the remaining 3% is difficult to access. Only 0,014% of the total amount of water on Earth is fresh and available. People, animals and nature all depend on this water for survival.

The only way our planet can renew freshwater is through rainfall on land. But the amount of rainfall is far less than the amount of water people withdraw from earth. After decades of intensive urbanization, deforestation, water diversion and industrial farming, our planet is drying out and groundwater levels are dropping.

That is why we need to act now! This is also the reason why more and more companies apply the so-called corporate social responsibility practices in their operations and processes.

Corporate social responsibility (CSR) is a self-regulating business model that helps a company be socially accountable to itself, its stakeholders and the public. By practicing corporate social responsibility, also called corporate citizenship, companies can be conscious of the kind of impact they are having on all aspects of society, including economic, social and environmental.

To engage in CSR means that a company is operating in ways that enhance society and the environment instead of contributing negatively to them. CSR helps both improve various aspects of society as well as promote a positive brand image of companies, thus creating a win-win situation.



Image by yanalya on Freepik

CRS as a marketing tool

It is important for an (aspiring) salon manager or owner to bear in mind how powerful it can be to use the CRS practices of their business in their marketing and communication messages. The customers nowadays, becoming more and more environmentally conscious, will be selecting

businesses they want to buy goods of services from based on whether or not they are involved into some kind of CSR. It is especially smart to promote these kind of practices if you are already engaged in them. Think of hanging around some posters, adding a disclaimer on your website or socials that you are saving water / sorting waste / using green hair and scalp products, are awarded a quality mark or certification etc.



TASK: Think of any actions a hairdresser salon can take to promote the CSR in relation to water?

Next to the salon itself, think of other companies engaged in the operations of the salon, like hair cosmetics manufacturers, appointments software supplier etc. What kind of water-friendly CSR actions can these organisations take?



Interesting fact: example of CSR in relation to water

ID&T (a Dutch entertainment and medium enterprise founded in the early 1990s and operating many of the largest electronic dance music events in the world) has introduced Join the Pipe project. The project is committed to a world with less plastic waste, in which everyone, everywhere in the world, has access to safe drinking water. By promoting drinking tap water from reusable bottles and refill stations the organisation aims to reduce the use of plastic. With the proceeds of their products they set up drinking water and clean-up projects in developing countries. Drinking water points are for example available in several schools across the Netherlands as well as at ROCvA, one of the participants of the Sustainable Salon projects.



TASK: study the website of Join the Pipe (scan the QR code to go there). What can you tell about the mission of the project? Can a hairdresser salon owner work together with the organisation? What are the collaboration opportunities for (small) businesses you can find about on their website?



Sources:

<https://www.hydraloop.com/why-recycle>

<https://www.investopedia.com/terms/c/corp-social-responsibility.asp>

<https://join-the-pipe.org/>

<https://www.cec-amsterdam.nl/opening-join-the-pipe-tappunt/>

<https://www.waterschappen.nl/>

Chapter 6: Waste

Goals: Introduction into a more sustainable way of dealing with waste at a hairdressing salon management level and setting up a low-waste salon

Objectives:

- getting acquainted with how legislation around waste is regulated in your country or region
- working out a plan for setting up and running a low-waste hairdresser salon
- introduction and analysis of the corporate social responsibility in relation to waste

Introduction

If in previous chapters we looked at waste and waste management in general or at a hairdresser salon in particular, this chapter will get you acquainted with the notion of waste management from the perspective of a salon owner / manager. We will first look at different ways of how legislation around waste can be arranged in your country or region, then we move on to elaborating a setting up and running a low-waste salon and we finish with looking at CRS (corporate social responsibly) concept in relation to waste.

Waste legislation in your country

In different countries the legislation and rules around waste management are arranged in different ways. Sometimes there are laws dealing with this issues, sometimes there are (semi) governmental organisations and institutions that regulate and manage it.



TASK: What are the rules and laws (legislation) about waste in your country? Where can you find the information? Study the websites of the (local) government / authorities on this subject. Is it clear what rules do hairdressers / salon owners have to follow? Is there a professional association that can help professionals or entrepreneurs with this kind of issues? What is the name of this association in your country? Where else can you go for advice? Work the answers out to a short manual for young professionals / starting entrepreneurs.



Image by redgreystock on Freepik

How do you set up a low-waste salon?



TASK: Imagine you have to write a business plan for setting up and opening of your dream salon (this might even be the task in the course of your training!).

How can you take care of the environment and make use of sustainable business practices? Imagine that only the most sustainable business plan will be granted a financing / loan and you really need the money for your dream enterprise.

Write down all the aspects you can think of to win the competition! Think of:

- What product supplier you will go for: do the products have green(er) ingredients in them?
- Whether your energy supplier provides green energy
- Ventilation in the salon
- Water-saving measures
- A more sustainable option for the foils
- Coffee cups (paper or ceramic / glass and why) and coffee / tea / sugar supplier (Fairtrade / eco-friendly)
- What kind of furniture you are going to use
- Sorting the waste
- What detergents you are going to use for washing up, laundry, mopping etc.
- Paperless administration (online communication / marketing / scheduling / finances)
- Flushing the toilet and operating a washing machine with collected rain water
- Any other green and environmentally friendly / friendlier measures?
- ...



Image by pch.vector on Freepik

Corporate Social Responsibility in relation to waste



TASK:

Corporate social responsibility (CSR) is a concept we have talked about before. It refers to a self-regulating business model that helps a company be socially accountable to itself, its stakeholders and the public. By practicing corporate social responsibility, companies can be conscious of the kind of impact they are having on all aspects of society, including economic, social, and environmental. To engage in CSR means that a company is operating in ways that enhance society and the environment instead of contributing negatively to them. CSR helps both improve various aspects of society as well as promote a positive brand image of companies.

If you think of the environmental aspect of CSR at a hairdressing salon and in relation to waste, what kind of practices can a salon owner / manager apply in order to minimize the impact of his/her business? Think of sorting the waste, using green(er) products, reusing or recycling the packaging etc. Write down all of your ideas for a more waste-efficient salon. Also here do not forget that your CSR practices can be used as a marketing tool for attracting and appealing to the (potential) environmentally-minded customers.



Image by rawpixel.com on Freepik



TASK (optional):

Entrepreneurial Innovation: hairdresser's waste as new raw material

Zsafia is a young and innovative entrepreneur from the Netherlands and she's trying something new out: textile and clothes made from **human hair**. According to Zsafia, you need 26 (chemical) manipulation steps to use the sheep wool for cloths, while it's only 2 for human hair! Human hair has amazing qualities: it's a limitless resource and it's also antiallergic. The garments she makes are still in the experimental phase, but will soon be available on the market:

In 2 groups discuss with proper arguments:

- Group 1 defends the PROS of the human hair clothes (the 'win-win' aspects)
- Group 2 is very sceptical and comes with the CONS as arguments, they are not convinced.

INTERVIEW

All I want for X-mas...
EEN BETERE WERELD

ZSOFIA MAAKT KLEDING VAN HAARAFVAL

Ons haar is een waardevol bezit. Maar eenmaal afgeknipt, gooien we het gewoon weg. Kan dat ook anders? Jazeker, en hoe! Zsafia Kollar (31) maakt er textiel van. Daarmee wil ze de textielindustrie veranderen en de wereld een beetje beter maken.

In Europa verdwijnt elk jaar 72 miljoen kilo afgeknipt haar in de prullenbak, aldus Zsafia. Hartstikke zonde, vindt ze. Als wereldverbeteraar op a mission bewijst ze met haar project Human Material Loop dat mensenhaar juist heel goed hergebruikt kan worden. "Zolang het haar op je hoofd zit, is het één van de meest kostbare bezitten aan je lijf. Maar eenmaal afgeknipt, is het zijn waarde kwijt. Vanuit die gedachte kwam ik op het idee om te onderzoeken hoe haarafval wel waardevol kan zijn."

OMDENKEN
Samen met haar team onderzoekt Zsafia wat er van mensenhaar gemaakt kan worden. "Als ontwerper heb ik veel onderzoek gedaan naar milieuvriendelijke materialen die hoe vervuילend de textielindustrie is. De grondstoffen die we nu gebruiken hebben enorme impact op ons ecosysteem. Om bijvoorbeeld katoen te produceren is veel water nodig. Daarna moet het materiaal nog bewerkt worden met chemicaliën, waarvoor veel energie en arbeid nodig is. En bij synthetische materialen zoals polyester of acrylvezels komen door de productie, het wassen, het drogen en het dragen microplastics vrij: minuscule plastic deeltjes die in je eten en bloed kunnen belanden. Om de textielindustrie te veranderen zijn grote aanpassingen en nieuwe materialen nodig."

DE PERFECTE EIGENSCHAPPEN
Kun je van mensenhaar gelijk een trui breien? Nee, maar het materiaal heeft een stuk minder vaak bewerkt te worden. "Haar is makkelijker te krijgen dan andere materialen, het tast de bodem niet aan, er worden geen giftige stoffen gebruikt en het water wordt niet vervuild. Om mensenhaar klaar voor gebruik te maken, zijn er maar twee stappen nodig. 'er vergelijking: bij wol zijn voor het hele proces van reiniging en bewerking tot textielvezel 26 stappen nodig."

Na de voorbereiding is het haar klaar om er iets moois van te maken. "Uit tests bleek het spinen van haar tot garen de beste manier om het te gebruiken. Daarna kun je ermee weven, breien of haken."

INTERVIEW

"Ik wens de kappers van Nederland heel veel klanten toe" - Zsafia Kollar

ANKO KAPPERSZAKEN 61

Scan of the Dutch ANKO December 2022 magazine article (in Dutch)*

*ANKO is the general Dutch hairdresser professionals organization