

# Presenting Practical Solutions for a Zero-Waste Life

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**Abstract—** Wastes and garbage are basic daily life challenges that remain in nature for a long. The study stated the practical guidelines for the first steps to start a green and zero-waste life. The study stated how to buy and consume to leave less waste and, finally, how to manage waste if we produce it.

**Keywords:** Green life, environment, nature, waste.

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## I. INTRODUCTION

If we cast a deeper glance at the issue of waste, we will figure out how far the reality is from our eyes. For instance, the first plastic toothbrush was mass-produced in 1780, but it needs about 1000 years to decompose in nature. This means that the first toothbrush produced by a human is still somewhere on this earth! Thus, instead of discussing the significance of waste management, it is enough to look at the time needed to decompose a part of everyday consumables.

Plastic bags and packaging 500 to 1000 years

Menstrual pads and diapers 500 to 800 years

Cigarette butt 1 to 12 years

Wet wipes 100 years

Synthetic fiber fabric at least 100 years

Plastic bottle 450 years

However, do the statistics mean that plastics are necessarily completely decomposed after the stated period?

Many plastic materials remain in nature even after this time because of the lack of suitable conditions for decomposition and are only divided into very small pieces, called micro-plastics and nano-plastics. These small pieces have caused the reduction of soil fertility and are swallowed by various organisms and could even find their way into their living tissue and be transferred to the higher food chain.<sup>1</sup>

The effects of microplastics on humans are still being examined; however, their destructive effects have been widely seen on other organisms, especially worms and aquatics.

The first step to reduce household waste is to know its types and disposal methods.

### The base of a zero-waste life

A zero-waste lifestyle does not equate with not producing any waste but fulfilling a series of expectations and performing realistic tasks. One must try to produce the least amount of waste with the right methods. Indeed, it is almost impossible to reach the point without waste, but it is good to challenge ourselves and see how much we can reduce our waste production to zero.<sup>2</sup>

However, our method in doing so must be reasonable and possible as the habits that last are the ones that are far from extremes and strictness.

Zero-waste life without plastic does not mean throwing away all the disposable items in the house and replacing them with nature-friendly options as soon as we step on this path. Indeed, one must use all the useful tools at home properly. Nonetheless, while buying again, it is better not to use disposable containers or use high-quality and durable multiple-use options if one buys plastic containers. Ultimately, replacing them with metal, glass, and degradable alternatives is the best way.<sup>3</sup>

Many of our needs are not real and are created by advertisements effects. It is critical to separate real and false needs and avoid unnecessary and emotional purchases. This is because many of the products offered on the market have no difference from their similar options, and some manufacturers try to resell the same product to people simply by changing the name or appearance of the product. It suffices to consider this consumption pyramid to avoid such purchases.

Now, this pyramid is explained briefly.

While purchasing, the first question one must ask oneself is, "Do I need this product? Alternatively, can I possess a similar product with the same use and still meet my needs?" Remember that most purchases are formed by inducing a sense of need in us. If we can still use a product by repairing or upgrading the previous, "Why should we replace our mobile phone with the new models on the market while it still meets our needs? What content and advertisements have penetrated our minds that our old phone no longer suits us like before?"

Another option we must consider while purchasing is that some devices could be used once a year or even less. Thus, why should we store them for a long time for no use and finally replace them or throw them away after a few cases of use? Some furniture, accessories, party dishes, and birthday decorations are among these items. For instance, instead of buying a china service for 24 or 48 people, we can buy the amount of our daily use and borrow or rent some dishes when

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<sup>1</sup> Ecological Intelligence, Daniel Goleman

<sup>2</sup> www.lamazuna.com

<sup>3</sup> www.greenecodream.com

the need rises.<sup>4</sup>

It is necessary to have many accessories, such as a toolbox, drill and so on, but we do not need them constantly.

One of the ways to manage such goods is to share them. For instance, one can buy these tools jointly with the other members of the apartment or family and keep them in a certain place so all members can access them if necessary. If you use this method, remember to share the rules and methods of using the tool.

Many goods that we need are available in the market as second hand. For instance, cell phones, televisions, cars, bicycles, furniture, and so on, so why not visit websites such as Divar and Sheypoor before buying the desired product? Second-hand goods are not necessarily depreciating; the previous person might have decided to sell the goods simply because they are bored or not to use them. Buying secondhand can keep the goods in the consumption cycle much longer. Be sure to consult with experts in this field before purchasing second-hand electronics or cars.

Another measure that can be taken to deal with consumerism is to build or restore other items at home. For instance, if you are interested in gardening, preparing a seedling tray is unnecessary, and you can easily make your seedling tray using a paper egg holder. Making cloth bags and handkerchiefs from old clothes, making vases by making small changes in jars and bottles and many other small and big examples can solve our needs creatively and interestingly.<sup>5</sup>

### **Types of waste**

The first category of waste is recyclable and can be recycled and return to the cycle of consumption if separated and go through the correct steps to the factory. Among the wastes widely recycled in our country (Iran), the following can be stated: most plastic packaging containers, hard plastics, all kinds of metal cans and aluminum foils, all types of bottles and plastic cans, cartons and cardboard, all kinds of office paper, books and clean newspapers, electronic waste, and all types of metals.

Only 9% of the recyclable plastics in the world find their way to the recycling plant.

The second waste category is compostable and will be decomposed and turned into fertilizer within a certain period if suitable conditions exist. These include food waste, plant leaves, paper and cardboard, napkins, tea bags, cloth and fibers, lint, hair and natural feathers, egg shells, disposable paper, and plant containers.

The third waste category does not fit in any of the above categories. The management and recycling of this type of waste are mostly overlooked given its high cost or difficulty and is burned, buried, or left in nature, such as tubes and combined packaging, infectious waste, types of foam and Styrofoam, synthetic fiber fabrics, film plastic (e.g., chips

packaging, which is silver inside), plastic bags and disposable plastic containers.<sup>6</sup>

### **Wet and dry waste**

In the discussion of waste management from the origin, the first and easiest step is to separate recyclable waste from other waste. With this, one helps nature greatly and significantly preserves the national capital. Do not be afraid at all; do not think it is a tough job. Prepare two garbage bags for dry and wet garbage to start.

Wet waste includes food and edible waste that can be decomposed, and dry waste includes glass, paper, plastic, and all kinds of metals. However, separate hazardous waste such as hospital and battery waste from dry and wet waste.

The next step is to think more seriously about composting or drying waste, as reducing the waste leachate production is a very important step in a zero-waste life.<sup>7</sup>

Garbage leachate is not harmful to nature in limited dimensions and becomes a problem when it dissolves heavy metals or toxic substances in other wastes, finds its way to the lower layers of the soil, and pollutes vast sources of soil and soil underground water. No matter what method you choose to reduce leachate, the important thing is to take a step in this way as much as possible.

The easiest way to control leachate is to dry the waste. Note that there is no need to take 100% of the wastewater. It is enough to leave it in the open air for 12 hours and preferably in the sun before throwing it in the bucket to absorb excess water. Moreover, be sure to consume the edible part of fruits and vegetables to the last drop to prevent the gathering of flies and mosquitoes.

Many people in Iran deliver it to livestock farms after drying the waste. This is seen as very valuable at first glance, but remember that industrial animal husbandry is not only one of the environmentally destructive industries but, in most cases, how animals are treated inhumanely.

Only the production speed of products is important in the modern industry of livestock and poultry breeding in the world, and these creatures are seen only as a product production factory. Meanwhile, it is sometimes forgotten that these creatures are alive, see, hear, and feel pain. Hence, it is better to avoid delivering these products to industrial livestock farms as much as possible and deliver them to small rural livestock farms, nomads, or shepherds so that they can use them in the cold season if you want to do this as these people treat their animals like their family members.

### **Eco-bricks**

After separating the waste, you will notice that many items used in our daily life are not decomposed and are not classified as recyclable in our area.

Humans have been using these various methods to dispose of their waste for many years, and despite the progress of

<sup>4</sup> [www.greenmatters.com](http://www.greenmatters.com)

<sup>5</sup> [www.thehomemadeexperiment.com](http://www.thehomemadeexperiment.com)

<sup>6</sup> [www.fairysouthern.com](http://www.fairysouthern.com)

<sup>7</sup> [www.mygreencloset.com](http://www.mygreencloset.com)

science and the multiplication of our waste production, the method of waste management has not changed significantly. In the meantime, you may wonder what to do with all this non-recyclable and non-decomposable waste. Firstly, the number of unsustainable purchases should be reduced, and sustainable alternatives should be sought - such as buying in bulk, paying attention to product packaging when buying, or removing unnecessary items such as disposable containers. These are the major steps a layperson could take in this modern age.<sup>8</sup>

Finally, all of us know that it is almost impossible not to produce non-recyclable waste unless we decide to dedicate all our thoughts and time to this work and constantly look for new and temporary solutions, or if we all produce the products we need from scratch, which is beyond the ability of most working members of the society. Thus, the idea of eco-brick started to take shape in Guatemala and developed over time.

Eco-brick is a PET plastic bottle filled with non-recyclable plastic particles and is compressed to very high strength. For instance, the standard weight of a 1.5-liter bottle should reach 500 grams to be used in a non-structural role in all kinds of buildings.<sup>9</sup>

Making this brick can prevent a large amount of plastic from being scattered in nature while making people aware of the amount of waste they have produced.

One can make benches, hedges or simple structures with the lowest cost using your bricks.

If one does not intend to construct a building with these bricks, they can donate them to groups such as the Espe Environmental Protection Group in Iran, which use these eco-bricks to implement popular projects across the country.

It is very important that if you make an eco-brick, you must bring it to the ideal weight so that it can be used, or the production of non-standard eco-bricks will cause many PET bottles to be removed from the cycle of the valuable recycling industry.

### **Kitchen waste**

Most of the waste in a house is produced in the kitchen. It is not that difficult to transform a normal kitchen into a zero-waste kitchen. It just requires a little re-arrangement and research; when the family members learn the right ways to use the new kitchen, zero-waste life will start.

Before anything else, let us introduce you to the simple objectives. The kitchen is commonplace and is called the heart of the house. It is where you cook, eat, drink, talk and sometimes even study. Therefore, with all the activities in this place, it is not misplaced that most household waste is produced here.<sup>10</sup>

Optimizing is a vital element in setting up a zero-waste kitchen, making cooking healthy and easy, and even making

you enjoy tasks that seemed boring before. In a zero-waste kitchen style, time, costs, and energy consumption are saved. We start by examining the disposable items occupying the entire space of our kitchen: paper towels, coffee or tea bag filters, all kinds of disposable containers, sandwich envelopes, freezer nylon and cellophane, garbage bags, dishwashing sponge, dishwashing liquid, and mineral water bottles.

### **Reducing food waste:**

Humans constantly produce waste - while farming, producing various products, traveling, in restaurants, school, home and other places. Remember that one can feed almost all the hungry people in the world with the food we throw away. Awareness of food waste has increased a lot over the years. However, we still witness thoughts that value food based on price, not nutritional value or the time and energy used to produce it.

### **Food storage methods:**

By proper food storage, we increase their shelf life and thus reduce waste production per capita.

Try not to fill the fridge a lot as air circulation between foods helps the fridge work better.

The top floor of the fridge has the most temperature fluctuations; therefore, try to avoid putting fruits and vegetables or food that needs to be cooked on that floor. It is suggested that one should store cooked or ready-to-serve foods on this floor.<sup>11</sup>

Let us review the storage method of some food samples now:

**Bananas:** Keep bananas and other fruits with thick skin at room temperature. If the skin color darkens or becomes too soft before use, freeze them to make smoothies, muffins, cakes, or ice cream later.

**Vegetables:** The best way to store vegetables is to put them in a cloth bag or towel after washing them. The cloth bag will absorb the extra moisture of the vegetable and stay wet. Air and moisture reaching the vegetable significantly increase its shelf life.

Tomatoes have a longer shelf life if they are kept in the fridge, but we suggest keeping a limited number at room temperature to experience a better color and taste, and use the tomatoes in the fridge after finishing them.

**Carrots:** Carrots and similar vegetables such as radish are roots and will stay crisp and fresh for several weeks if they are kept in a glass container filled with water in the fridge.

**Berries:** Wash the berries in a bowl of water and vinegar to kill any fungus that causes them to mold. Then dry them completely and store them in a closed container in the fridge.

Potatoes, garlic, and onions must be stored at room temperature in a dry and dark place.

**Fruits:** If you want to store washed fruits in the fridge, be sure to dry them completely.

Some fruits and vegetables emit ethylene gas, making

<sup>8</sup> [www.ecocyclesolutionshub.org](http://www.ecocyclesolutionshub.org)

<sup>9</sup> [www.goingzerowaste.com](http://www.goingzerowaste.com)

<sup>10</sup> [www.loodusegakoos.ee](http://www.loodusegakoos.ee)

<sup>11</sup> [www.loodusegakoos.ee](http://www.loodusegakoos.ee)

them and nearby fruits ripen even after being picked. Thus, we suggest keeping this category of fruits in a separate container to increase the shelf life of other fruits and vegetables. Among these are avocado, pineapple, banana, tomato, apple, kiwi, peach, plum, pear, mango and date.<sup>12</sup>

### **Housekeeping**

Did you know that almost all cleaning products on the market have some harmful chemicals? You will see the effects on the skin of your hands every time you use them without gloves. However, with a few old and very easy recipes, one can make completely harmless natural products for cleaning services at home.

The ingredients are white vinegar, lemon juice, baking soda, soap without palm oil (traditional and handmade soaps), and, if wished, vegetable oils and essences to make the product fragrant.

These materials are not only great for cleaning the house, but they are also harmless to the skin.

### **Washing clothes:**

There are many ways to reduce water and energy consumption in washing clothes. One of them is washing clothes at the proper time. This saves water consumption and increases the life of your clothes. Consider the following while washing all kinds of clothes:

Jeans: after 5 to 6 wears

T-shirt: after 2 to 3 wears

Sweater: depending on the material, after 2 to 5 wears

Bra: after 3 wears

Underwear: after every wear

Skirts and shirts: after 5 to 7 wears

Warmer or coat: after 7 wears

Remember that these cases apply when heavy sweating or additional pollution has not been transferred to the clothes, and you have worn the clothes at a comfortable temperature for 4 to 8 hours.<sup>13</sup>

### **Cosmetics**

Look at the skincare and many other beauty products on your dressing table and bathroom shelf. Studies have indicated that every woman uses about 515 chemical compounds on her skin daily, and this number may be significantly higher if she is very interested in makeup or skin routines. However, did you know that the effects of long-term use of many of these chemicals are still unknown?! Even many luxury and expensive brands still figure out the side effects of raw materials on humans and nature through trial and error.

In this era, the annoying nature of animal testing is drawing more public attention and criticism, and with the cessation of these tests, the effects of the raw materials of the products on humans and nature are facing more uncertainty.

Thus, even if you see the logo (Cruelty-Free - not tested on animals) on a product, it does not necessarily mean that the product is nature-friendly and may contain many toxic substances.

On the other hand, how can you live a life without waste with this number of products that come in plastic packaging?

Many of these products could be easily replaced with simple, natural, and environmentally friendly ones. There is no need for complex chemical compounds or flashy products that are presented in the market with a different name and form every year to have a healthy and clean body.<sup>14</sup>

### **Clothing**

Many large manufacturers produce cheap, diverse, short-term attractive clothes and most of the average quality to encourage people to make purchases.

These producers spend a lot on advertising and creating a sense of consumer need. People buy the product and use it for a while; after a while, new advertisements render the previous product old or outdated. The sense of need is created again in the consumer, who buys it because of the good price, and this cycle continues. In the meantime, the old or unused items are left in the corner of the closet or become trash due to their low or average quality.

One of the best ways to deal with this cycle is to buy durable goods even if we have to spend several times more. Always remember that durable goods help reduce waste generation and significantly reduce costs in the long run. Furthermore, they have more basic and better performance during the period of use due to their good quality.

Among the other ways to approach zero-waste life in fashion and clothing is versatility. The simple definition of versatility is having several combinations with a limited series of choices, called a capsule wardrobe.

### **Purchase**

The waste we produce is generally the result of our home purchases. Thus, pay attention to your shopping list and diet, as 95% of household waste comes from packaging and food waste.<sup>15</sup>

It is better to start by changing the diet and reducing the consumption of processed, semi-prepared and packaged foods and replacing them with fresh samples; this will not endanger our health.

While purchasing, do not hastily put any food with attractive and colorful packaging into your shopping cart. Try to get products produced in Iran, preferably locally, so that the cost and energy spent on transporting the product can be saved besides supporting domestic producers.

It is suggested to prepare your shopping list in advance not to be surprised by the payment amount while calculating and to avoid unnecessary purchases. While purchasing, do not forget your shopping bag or cloth bag.

<sup>12</sup> www.grist.org

<sup>13</sup> www.foodunfolded.com

<sup>14</sup> www.bonappetit.com

<sup>15</sup> www.numitea.com

**Cloth and net bags:** Depending on the volume of your purchase, you can take several models of shopping bags with you to the store. One of the first challenges you may face while shopping is a large number of purchased items and the lack of cloth bags. It is recommended to bring a very large cloth bag and several small and very small bags to make weighing the products easier. Then put them in a bigger bag or basket and easily carry them to the destination.

**Jars and plastic containers with lids:** Such items can be bought easily. Shopping with personal containers helps our order a lot. It is enough to write down the items needed at home and take the same number (or more) of dishes with you. Plastic or bamboo containers are recommended for such purchases, given their light weight and durability. However, if you do not wish to buy them, you can use the containers of pickled cucumbers, sauces, and jams to buy dried fruits, olives, bulk pickled cucumbers, beans, dairy products, and coffee powder. Do not forget to ask the seller to weigh the jar before filling it so you do not have to pay extra; however, it is better to weigh the container beforehand and jot down its weight permanently.<sup>16</sup>

#### **Nature tourism**

The one who knows the value of the forest will never leave anything in nature that does not belong to it.

Transportation waste from remote and inaccessible places is a costly and usually complex activity that consumes a large amount of non-renewable raw materials. Hence, every nature tourist should transfer their waste to the relevant waste disposal site and, as much as possible, not even put them in the built-in bins to reduce the ecological footprint of natural waste management.

All the customs of nature tourism could be summed up in this one sentence: we do not leave any traces of ourselves in nature, and we do not take anything except a photo.

We will briefly talk about the right behaviors during nature tourism.

#### **Biodegradable waste in nature**

Take the leftovers with you. The sandwich with you in the forest will taste wonderful at home. Food waste must never be thrown on the ground; even biodegradable waste does not disappear within hours or days. Rotten food waste dumped on the ground may endanger the health of wild animals. There might even be a substance incompatible with the climate and disrupt the growth of plants. Besides all these, the existence of waste on the ground creates an unpleasant sight. All of us are looking for the most pristine and cleanest spots during nature tourism. Whom have you seen who likes to see seed pods or watermelons under the forest trees? However, they decompose after a few days or weeks. Ultimately, bury them in the ground if, for any reason, you cannot carry these wastes.<sup>17</sup>

#### **Non-biodegradable waste in nature**

It is better to bring your food to nature in sustainable containers. Even if you bought them with packaging. The best way is to not produce such waste in these areas.

Check your garbage carefully and place it in them according to the markings on the bins if there are garbage bins in the picnic area. If a dust bin is not installed, you should bring them back to your place of residence.

#### **Do not put the following waste in garbage cans in nature:**

**Very dirty packages:** for instance, a plastic bag soaked in stew should be thrown away in the household trash.

**Hazardous waste:** Take your travel stove cylinders, syringes, and leftover medications with you and deliver them to the infectious waste collection point.

**Electronic-waste:** Take broken cell phones, GPS devices, cameras, and so on with you and deliver them to the electronic-waste collection point.

**Batteries:** Take rechargeable and non-rechargeable batteries with you and deliver them to the battery collection point.<sup>18</sup>

**Cigarette butts:** Besides the harm it causes the user, smoking is considered a serious threat to nature. Cigarette butts are made of plastic, and their decomposition may take up to 12 years, contrary to popular belief. Moreover, each cigarette butt can pollute and infertile the soil with a radius of one meter. Hence, if you use it, bring your cigarette butt in a can or ashtray to your residence, throw it in the household trash, or make an eco-brick with it.

#### **Pet in nature tourism**

To clean up your pet waste, you can treat it like human waste. If the animal does not bury its waste after relieving itself, you are obligated to do so. Pet owners must manage their animal excrement by themselves so as not to leave a trace of it in nature; the presence of excrement not defined for a specific area can harm its ecosystem.

Try to restrain the animal to some extent so that it does not attract native animals and attack wild animals.

#### **Planting trees**

Planting trees in nature is one of the activities that is very attractive for nature and environment lovers. However, various regions' ecosystems are very different, and this work should not be done without prior research and arbitrarily.

The balance of different species of plants in nature is maintained based on the speed of their reproduction and destruction in the vicinity of other living organisms and climate. Hence, if a non-native species is planted, the balance could be spoiled and multiply unnecessarily, or, on the contrary, it may disappear soon.<sup>19</sup>

As much as possible, try to do such activities in tree

<sup>16</sup> [www.zerowastememairs.com](http://www.zerowastememairs.com)

<sup>17</sup> [www.eco-age.com](http://www.eco-age.com)

<sup>18</sup> [www.reduceruserenewblog.com](http://www.reduceruserenewblog.com)

<sup>19</sup> Zero Waste Simple Life Hacks to Drastically Reduce Your Trash by Shia Su

planting campaigns or leave them to experts. Otherwise, be sure to plant it in a non-forest area and read about the various species in the area in question and the best time to plant each one. Overall, the time to plant most trees is at the end of the cold season.

If one's seedling is at least two and a half years old, you can also plant it in other months. However, note that the tree needs constant watering if planted in summer.

#### **Nature tourism tool**

Having some accessories while hiking not only helps reduce the waste produced during the trip, but it can also help to travel more lightly. Among these, the following items can be stated: folding grill, thermos, personal or folding spoon, fork and knife, special dishes for cooking or serving food, water disinfectant tablets, natural soap for washing dishes and body, a small towel or cloth handkerchief, toothbrush stick, flint, camel back for volume storage of water and so on.<sup>20</sup>

## **II. CONCLUSION**

A green life has many extensive aspects that call for more attention. The book tried to collect the basic and concrete foundations of this thought and present them as practical solutions. With the facilities and information we have access to in Iran, the cases are completely practical and reaching its objective is easy. There are cases that every person with any level of literacy and awareness must be aware of as we are all residents of this earth, and to some extent, we are accountable.

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