OUR SCHOOL
WASTE MANAGEMENT MANUAL

PREVENT PLASTICS

switchasia GRANTS PROGRAMME

Funded by the European Union

သန့်မြန်မာ THANT MYANMAR

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CONTENTS

Preface of Prevent Plastics Myanmar 1

Preface of the Green Development of School and Waste Disposal Management Team 3

Summary 5

Part (1) General Knowledge 6

(1) What is waste? 7

(2) How many types of waste are there? 7

(3) Who is producing these wastes? 8

(4) The reason behind the increasing quantity of waste 9

(5) How many tons of waste is generated daily in Myanmar? 9

(6) Waste Management in Myanmar 10

- Waste Management in Urban Areas 10
- Waste Management in Rural Areas 11

(7) Wastes in the environment and their adverse effects 13

Part (2) – Plastics 17

(1) Definition of plastic 18

(2) The status of plastic usage in Myanmar 18

(3) Types of plastics 18

(4) The decomposition lifespan of plastics 19

(5) Adverse effects of using plastics 20

(6) 9 Ways to possibly avoid the usage of single–use plastics 20

(7) The 3 main ways to reduce the usage of single–use plastics 23

Part (3) – Waste Management at schools 25

Formation of a school–based waste management team 26

Action Planning and Implementation 27

Waste collection system 28

Making a waste–bin 29

Composting 30

Creating a mini–garden within the school compound 31

Waste reduction 31

Awareness campaign 31

Awareness–raising activities regarding wastes 32

Circular Economy 43

What are Greenhouse gases? 45

Waste awareness –related poems and songs 47

Preface of Prevent Plastics Myanmar

Dear Respectful Teachers and Students,

Not only nowadays also since the previous era, environmental degradation has occurred all over the world and has been the main culprit that destroys the ecosystem. Our generation is responsible for preserving the ecosystem through actions like replanting trees, reducing waste products, and implying circular economy.

Prevent Plastics believes that introducing the upcoming generations to lifestyles that may benefit the environment is a practical approach to implementing a sustainably developing environment and expanding the existing knowledge.

Prevent Plastics project is a 4–yeared project funded by the European Union (EU). It aims to promote production and consumption by expanding the knowledge associated with sustainable waste management systems in Myanmar.

Prevent Plastics also believes that this "Plastic and Waste Management Knowledge Teacher's Handbook" will hugely support everyone in enriching environmental knowledge and implementing the reduction of polluted waste with ease. Most of these plastics are from unregulated dumping sites, and they are seriously affecting our surrounding environment and the ocean. According to scientists, there will be more plastic bags than fish in the ocean by the year 2050.

We are still looking for the innumerable harmful effects of plastics, and according to current findings, there are more harmful effects on the environment and the health of human beings. Thus, it is high time we promptly implemented and made a change.

To carry out the processes related to the environment, it is necessary to have transparency in addition to the strategy, positive preparations, and procedures. Therefore, teaching students about environmental conservation as a part of the primary education curriculum plays a fundamental role in letting them understand the importance of a sustainable environment and grow up in a prosperous society.

Dear teachers...

We have much faith in the skills and proficiency of our teachers. We strongly believe that you will be able to teach the students to protect the living things around them with compassion by sharing the knowledge gained from this handbook.

In conclusion, we would like to thank U Naryaka, the Principal of Phaung–Daw–Oo, teachers and faculty members of Phaung–Daw–Oo School of Monastary Education, and members of Prevent Plastics team, those who enthusiastically try to implement the environmental knowledge sharing to the upcoming generations.

DENIS K.SCHAEFER
Team Leader
Prevent Plastics Myanmar

Preface of the Team of Green Development of School and Waste Disposal Management

Most consumer products come with more or fewer side effects. For example, though foods with sweetness may be a requirement for human beings, they can cause diabetes as an untoward effect. Buildings constructed with iron pillars and plaster plates may be strong enough and quick to complete but may not be able to accommodate the weather. Although Vitamin C tablets may improve blood circulation, they may impact renal health when taken in large amounts. To reduce such kinds of side effects and to be sustainable, we need to practice mindfully moderate consumption. Each one of us needs to practice this. Only then will the consumer products become those products that will effectively benefit the environment with the fewest side effects. Plastics have been widely used as consumer goods. Therefore, mindfully moderate consumption of plastic products has become questionable whether society can stay sustainably clean and healthy.

Side effects of Plastics

Though consumer products have pros and cons, in the case of plastic products, only their few pros have been obvious, and many of their cons are inconspicuous. Only with a mindful inspection can we see them. Plastics are sustainable, easy to carry, cheap, and readily available nearby. These are the obvious pros of plastics. Several globally impacted cons such as being harmful to the health of human beings, land animals, aquatic life, and birds, being impactful to the forests and environment, and ruining the ecosystem are inconspicuous as they take time to develop slowly.

According to the studies, plastic products have a lifespan that lasts thousands of years. Even though their lifespan alone does not seem to be a problem, they can harm the existence of others. Discarded plastic products can remain undestroyed and present on earth, in lakes and ponds, and in the atmosphere for thousands of years and can cause the globally impacted disadvantages as mentioned above.

Since there are more cons than pros, it is necessary to mindfully and moderately reduce the use of plastic products compared to other consumer products. Environmental experts have also suggested methods to solve the problems of plastics. More are still continuously in search. People from a variety of classes and societies need to cooperate with awareness.

Starting with the schools...

Since schools comprise students from different social classes, they are the most basic extensive groups of people. Schools are the starting point to deliver the practice of mindfully and moderately reducing the use of plastic products quickly and widely to people from different social classes while following the observations from experts. Therefore, it is necessary to build up the practice of mindfully reducing the use of plastics among teachers and students, who are the primary contacts of schools.

This handbook believes that methods of handling plastic waste disposals will be relayed effectively to the students through the teachers. This handbook includes the teaching methods that will effectively help the children with the learning activities regarding plastic waste management based on their intellectual development. Also, it is necessary to provide the teachers with the Training of Trainers (TOT) to apply this effectively. Only then will the schools become the ideal centers to rely on for the public as plastic–free zones and knowledge–sharing places for plastic–free awareness.

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Summary

In part 1, students will get to clearly understand the general knowledge regarding waste disposal, which is worth knowing. In this part, topics such as "what waste is, types of waste, who are disposing of these wastes, the reason behind the increasing quantity of waste, how much waste is being disposed of in Myanmar, how wastes are being managed in urban and rural areas in Myanmar, the negative effects of them and how impactful they are to the environment" will be learned.

In part 2, students will study the most discarded type of waste and the plastics that can destroy the environment. The kinds of stuff from which plastics are produced, the status of plastic usage in Myanmar, types of plastics, the decomposition lifespan of plastics, adverse effects of them, and ways to reduce using these terrible plastics will be explained thoroughly.

After learning about the adverse effects of waste and the worst type of waste that is threatening the environment in the fore mentioned parts, students will understand how to manage to reduce the waste in our surroundings by learning through the activities in this book. Starting with the schools, let us follow the activities in this book to manage the waste effectively in our surroundings up to the national level through applications of the procedures in this book.

Waste is related to the consumption habit of people and through learning the consumption habit, we can visualize the economic system. This book introduces the students to learn about waste products, the lifestyles of human beings, nature, and the well–balanced economy.

PART 1

GENERAL KNOWLEDGE

In part 1, students will get to clearly understand the general knowledge regarding waste disposal, which is worth knowing. In this part, topics such as "what waste is, types of waste, who are disposing of these wastes, the reason behind the increasing quantity of waste, how much waste is being disposed of in Myanmar, how wastes are being managed in urban and rural areas in Myanmar, the negative effects of them and how impactful they are to the environment" will be learned.

1

WHAT IS WASTE?

"Waste" is something that is disposed of by humans as it is no longer useful, for example, excreta, damaged stuff and utensils, and unrecyclable things.

Plastic bags used for packaging, sewage water (grey water), pieces of water pipes, pieces of construction materials, batteries, pieces of broken glasses, and boxes are all wastes. Some wastes are harmful since they can damage the environment.

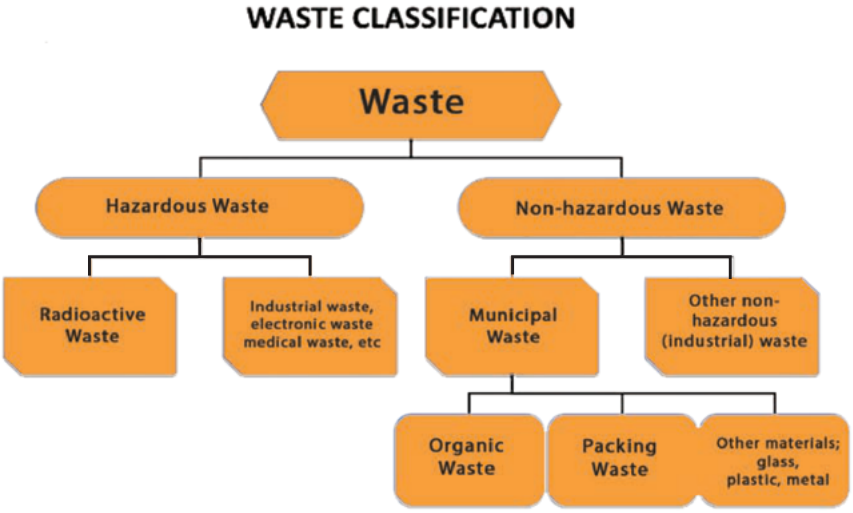
2

HOW MANY TYPE OF WASTE ARE THERE?

Wastes can be classified into easily decomposable wastes, non–easily decomposable wastes, and hazardous wastes. Easily decomposable wastes include leaves, sticks, papers, cards, pieces of uncooked vegetables from the kitchen, peels of fruits, and leftovers.

Non–easily decomposable wastes include pieces of iron, cans, bottles, broken electronic devices, pieces of plastic utensils, single–use Styrofoam boxes, single–use cups, pipes, plastic bags, beverage bottles, and plastic bags used in packing foods. Non–decomposable wastes can be divided into recyclable wastes (or) re–sellable wastes. Pieces of iron, cans, bottles, broken electronic devices, and pieces of plastic utensils are re–sellable and recyclable wastes. Hazardous wastes include chemical waste, industrial waste

electronic waste, and medical waste



3

WHO

IS PRODUCING THESE WASTES?

Besides the usage by people, supporters of waste generation such as waste producers (Eg. Plastic bag industries) and waste-generating areas are also involved in the increasing trend of waste production. In Myanmar, waste-generating sites and businesses can be seen below. These are from houses, schools, universities, hospitals, industries, animal husbandry, agriculture, and businesses (E.g., Restaurants, hotels, printing industry, tourism, water industry, and tourists).

Questions

1. Is there any other site or business that generates waste in Myanmar?
2. Choose 2 waste-generating sites from the above-mentioned lists. Make a list of the most generated waste.
3. What type of waste can be produced from extra business equipment?

4

THE REASON

BEHIND THE INCREASING QUANTITY OF WASTE

Out of many reasons behind increasing waste, the increase in world population is one of the main reasons behind it. Due to the growth of the world population and the development of technology, the production of necessary materials for people is rising rapidly too. People are voluntarily buying food, clothes, electronic devices, and other products they want. Some products are produced locally and most are imported from foreign countries. Among these products, those made of plastics do not decay naturally.

People are also widely using these plastic products daily. Since factories are producing many consumer products and using different ways to persuade people to use these products, many people are buying these. An increase in production is followed by an increase in waste generation.

5

HOW MANY

TONS OF WASTE IS GENERATED DAILY IN MYANMAR?

20250 tons of waste are being generated daily in Myanmar. According to the report of the Yangon City Development Committee

(YCDC), 2300–2500 tons of waste are generated per day in urban areas like Yangon. It is found that each person is generating waste at a rate of 0.5 grams per day. The types of wastes that are disposed of are as follows.

6

WASTE MANAGEMENT

IN MYANMAR

Waste management can be classified into urban and rural. Generally, although there is the City Development Committee that manages waste disposal in urban areas, there is no such system in rural areas.

WASTE MANAGEMENT IN URBAN AREAS

In the urban areas of Myanmar, either daily or on alternate days, the City Development Committee, the in-charge team of the Environmental Management Department, and the Urban Environmental Conservation Department are collecting kitchen waste from households with waste

collection vehicles. They carry out the task of taking these wastes to the final regulated dumping sites. For carrying and taking the household wastes to the final dumping sites, cleaning taxes are collected three-monthly in each township. Service charges for kitchen wastes in Mandalay are as follows.

Construction Type	# of Stories	Monthly fee (MMK)	
Bamboo building	1	500	
Bamboo building	2	600	
Wooden building	1	900	
Wooden building	2	1000	
Brick building	1	1200	
Brick + wood/bamboo combo	2 - 3	1500	
Reinforced concrete building	1 - 2	2000	*Rate goes up by 500 MMK for every additional story,up to 12.
"Housing estate"	n / a	2000 / residential apartment	

Non-kitchen wastes and industrial wastes are served through an on-call system. The system of directly dumping the wastes onto the ground at the final dumping site can be seen significantly in urban areas. Wastes are not sorted starting from the site of waste sources and there is no process of the waste stream or treatment at the dumping sites. Therefore, waste collection vehicles dump the waste easily at the final dumping sites without sorting it out. With the rising trend of waste generation, these unmanageable wastes are all around our surroundings due to the inadequate staff power and waste collection vehicles of the City Development Committee, lack of frequent waste collections, and poor technology.

WASTE MANAGEMENT IN RURAL AREAS

There is no such system as City Development Committee to collect the waste in rural areas. Wastes are disposed of by the following means.

(1) Incineration – The incineration method is seen in rural areas mostly. Dry leaves and plastic wastes from households are incinerated in the uplands or within the compound of the house yard easily.

(2) Disposing into the water – The second method of disposing of waste into water is seen in the rural area near rivers, streams, and lakes in addition to the urban areas. Factories built alongside the rivers are also excreting their sewage water into the rivers. Besides, factories on the land are releasing industrial wastes recklessly into the water through sewage drains. The voyage passengers are also disposing of the waste in the water.

(3) Dumping directly onto the ground – the third method of solving the domestic waste problems in rural areas is dumping the mixed waste directly on the ground without sorting out dry and wet waste.

(4) The adverse effects encountered at the final dumping site – Although the City Development Committee is collecting almost all the municipal wastes, these collected wastes are disposed of by the open dumping system at the final dumping site through ground holes without undergoing proper waste treatment procedures. Because these dumping sites do not have appropriate waste management, the following adverse effects can impact the environment.

Through these wastes, the permeation of leachate into the water occurs and leads to the damage of aboveground and underground water, consequent pest infestation, and water pollution.

- Due to the circulation of methane gases emitted from the dumping site, greenhouse gases, and hazardous and toxic gases in the atmosphere, global warming can occur and result in air pollution.
- Since some components of the wastes are permeable to the ground, they can damage the earth and soil.
- Because the wastes are scattered and not piled properly, they produce bad smells and can increase the infestation with insects, pests, mosquitoes, flies, and rats which can harm the health of human beings.
- Due to dumping the wastes improperly, scarcity of land fields for further dumping can occur.
- With the ongoing open dumping system, the environmental temperature can increase and can react with the latent heat within the dump, which can lead to sudden ignition of the dump.

Besides, since the final dumping site exists near the residential areas, it can significantly pollute the aboveground water, underground water, and the environment. If the municipal wastes continue to be dumped without any control, major impacts can occur and pollution from the dumping site can have adverse effects on the environment.

7

WASTES

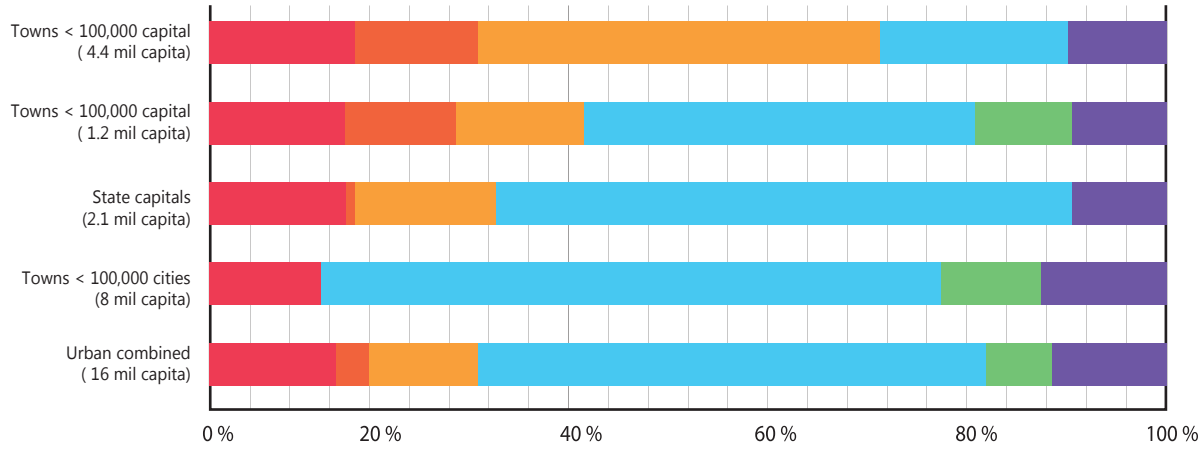
IN THE ENVIRONMENT AND THEIR ADVERSE EFFECTS

Those littered wastes are reaching the environment in various ways and not only harm human health but also lead to the death and destruction of animals.

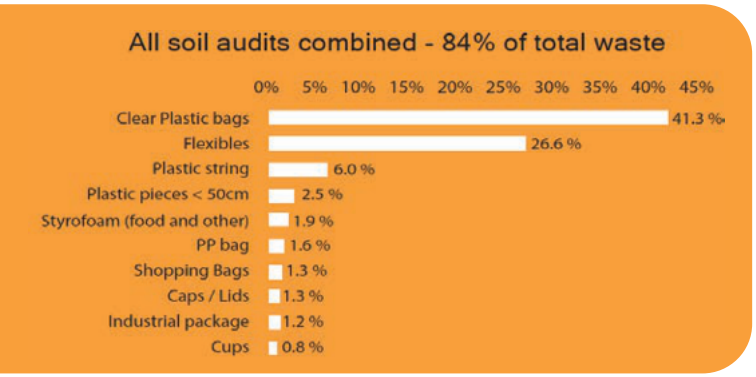
(1) When wastes are incinerated, dioxide gases are emitted into the environment as toxic gases. These toxic gases together with the smoke can cause air pollution. When these gases reach the bloodstream and urine as humans inhale them,

they can cause cancer and respiratory diseases in humans.

The orange lines in the following table indicate the amount of waste incinerated from households in the residential areas in Myanmar.

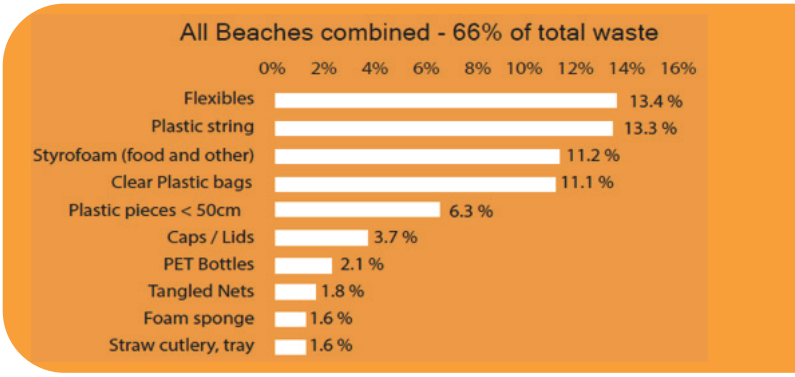


(2) Wastes are usually disposed of using methods such as dumping on the ground and landfilling. When these wastes reach the ground, they can destroy the soil. Reduced quality of the soil can interfere with the agricultural sector. In addition, due to unregulated dumping, adverse effects such as narrowing space for residential areas, contracting disease-causing animals, releasing bad smells, and having impacts on the image of urban and rural areas can occur. Besides, since methane gases are one of the gases that can have climatic changes, the release of these gases from the dumping sites can lead to the effect of climate change.



The environmental conservation department has made a study on the waste that people littered. As mentioned in the above table, single-use plastics comprise 41.3%, flexible plastic bags used in packaging, Eg., coffee sachets, and betel packs, clear plastic bags used in packing fried potato chips comprise 26.6%, plastic strings comprise 6.0%, small plastic pieces comprise 2.5%, single-use Styrofoam boxes used for packing foods and other products comprise 1.9%, water bottles, and caps and lids of other bottles and boxes comprise 1.3%, industrial waste comprise 1.2%, and single-use cups comprise 0.8%. When wastes are compared based on their percentage of composition, it is obvious that the use of single-use plastics is the highest.

(3) Disposing the waste into water is one of the commonest methods of waste disposal seen not only in Myanmar but also all over the world. Disposing of waste in the water can largely pollute the water and is threatening the life of aquatic animals. The Ayeyarwaddy River, which is the blood and lifeline of Myanmar, is regarded as the ninth most polluted river in ASEAN. Every day, nearly 119 tons of plastic waste are discarded into the Ayeyarwaddy River. Besides, these plastics can reach the sea via rivers, streams, and lakes, and consequently 8 million plastic wastes are being disposed of into the sea. When exposed to salty water, waves, and sunlight, these plastic wastes are degraded as plastic pieces and become plastic particles. These particles are called microplastics. Fish eat these microplastics and humans consume these fish. Microplastics can enter the human body by various means like consuming fish and consuming salt made from seawater.



Every week, each person is consuming an ATM card equivalent to 5 grams of plastic and that amount is equivalent to 70,000 microplastic particles. Likewise, about 130,000 microplastic particles from water bottles are entering the human body, and consuming these microplastics can cause kidney disease, reduced fertility, difficulty in conceiving, and chronic diseases.

The waste that humans littered can wander in the water for years, and they can be seen in the above table according to the research of the experts and the environmental conservation department. The above table consists of the lists of waste types and their percentage of compositions from all beaches in Myanmar. Silver-colored sachets, likely coffee sachets comprise 13.4%, plastic strings comprise 13.3%, single-use Styrofoam boxes used for packing foods and other products comprise 11.2%, plastic bags comprise 11.1%, plastic pieces measuring 50cm comprise 6.3%, water bottles, and caps and lids of other bottles and boxes comprise 3.7%, PET plastic bottles comprise 2.1%, fishing nets from the fishing industry comprise 1.8%, plastic foam sponges comprise 1.6%, and single-use plastic utensils such as knives, spoons, and forks comprise 1.6%. Water consists of a total of 66% of waste.

Questions

1. Why is increasing waste production becoming a problem for a country?
2. Where do the wastes come from?
3. What kind of adverse effects can occur if we do not dispose of wastes systematically?
4. What are the problems at the final dumping site?
5. What is the best way to reduce the waste at the final dumping site?

Part (2)

Plastic

In part 2, students will learn about plastic, which is the most discarded type of waste, and which can cause much damage to the environment. The kinds of stuff from which plastics are produced, the status of plastic usage in Myanmar, types of plastics, the decomposition lifespan of plastics, adverse effects of them, and ways to reduce using these terrible plastics will be explained thoroughly.

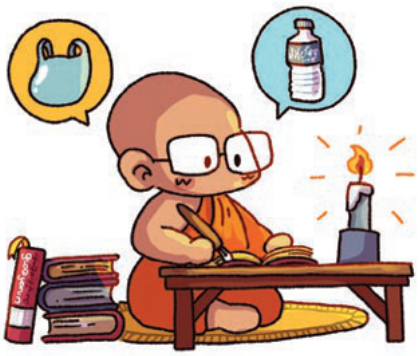
1

WHAT
IS PLASTIC

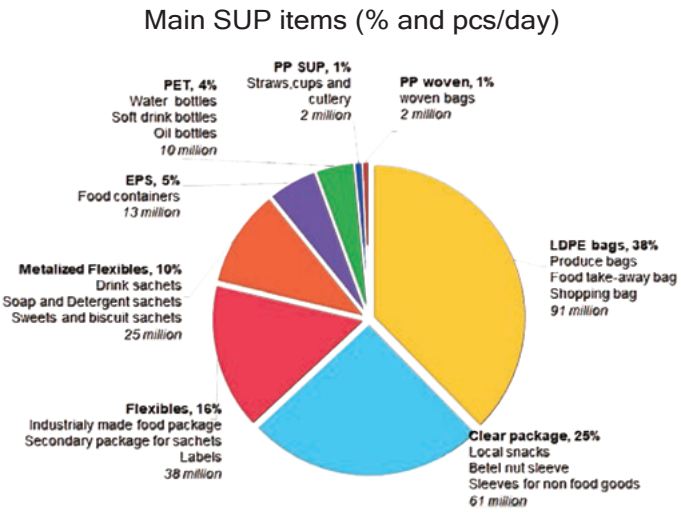
Plastic is a very useful product made of petroleum products. Plastic is involved in various ways in our daily routines. Plastic exists in various forms, and we are using it uncontrollably every day. Plastics are cheap, easy to use, and sustainable. Examples of plastics are plastic bags, water bottles, Styrofoam boxes, single-use plastic pipes, cups, and forks. Though easy to use, plastics do not decay easily. They can last for hundreds and thousands of years. Plastics like single-use Styrofoam boxes never decay. In addition, they can give adverse effects on our surroundings and animals.

2

THE STATUS OF
PLASTIC USAGE
IN MYANMAR



Myanmar started using single-use plastics in the 1990s, and the usage accelerated after the year 2010. Between 2012 and 2017, the rate of solid waste disposal rose 3 times and that of plastic usage rose 8 times. Nowadays, single-use plastic bags, water bottles, Styrofoam boxes, and pipes are widely used in Myanmar. Since they are easy to carry and cheap, people are using them easily. The following diagram describes the percentage of



the usage of most commonly used single-use plastics per day between 2020 and 2021. This is an estimated research conducted by Thant Myanmar, funded by the world bank

Plastics are the most commonly seen type of waste in our daily lives. These plastics can be classified as follows.

3

TYPES OF PLASTICS

1. PET (Polyethylene Terephthalate) (Eg. – water bottles, cold drink cans)
2. HDPE (High-Density Polyethylene) (Eg. – shampoo bottles, grocery bags)
3. PVC (Polyvinyl Chloride) (Eg.– water pipes, medical equipment)
4. LDPE (Low-Density Polyethylene) (Eg. – plastic bags, plastic toys)
5. PP (Polypropylene) (Eg. – plastic strings, carpets, tapes)
6. PS (Polystyrene) (Eg. – Styrofoam boxes, plastic boxes)
7. Others (Eg. CDs)

Among the above-mentioned types of plastics, products made of PET, LDPE, PP, and PS are most commonly seen in Myanmar.

4

THE DECOMPOSITION LIFESPAN OF PLASTICS

According to the study by the research team, 20250 tons of waste are disposed of daily in Myanmar, and the disposal of plastic waste comprises 11% of this. These plastic wastes may take several years to decay. The following picture describes the decomposition lifespan of different types of plastics.

Plastics which are easy to buy are also very useful. But they have disadvantages and adverse effects, too. The harmful adverse effects of plastics can have a huge impact on the earth and living things and can be worrisome. Plastics may take 400 to 1000 years to decay naturally, so they are very difficult to decompose.

5

THE ADVERSE EFFECTS OF USING PLASTICS

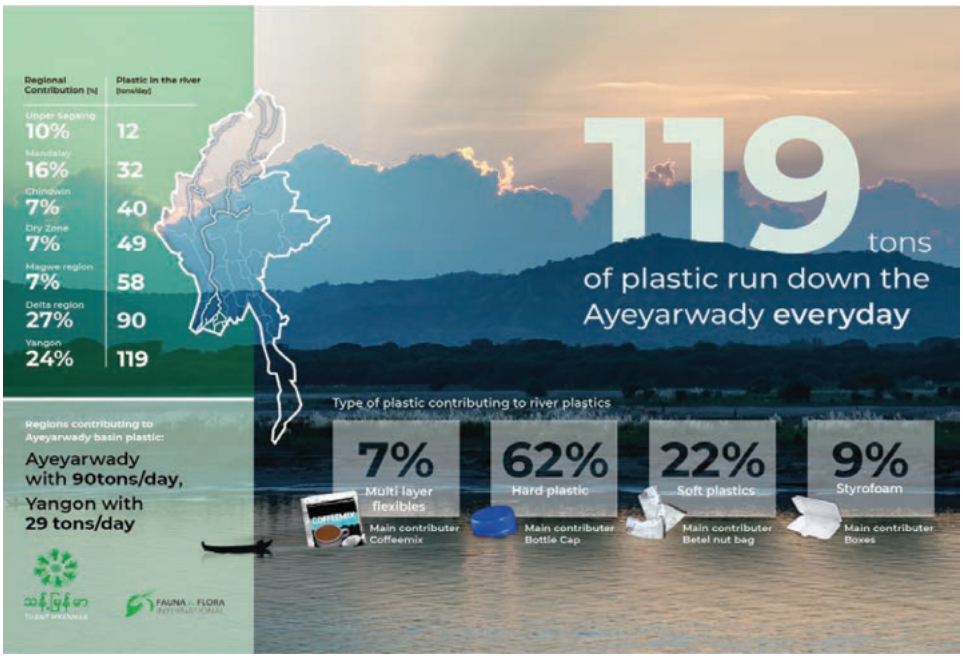
The adverse effects of using plastics are mentioned below.

(1) Plastics can affect the environment very badly. For example, they can cause climate change, soil damage, and atmosphere and water damage. Plastic products can block the

oceans, seas, and water flow of lakes, and can lead to receding water levels and floods. Both making and re-using plastics can release toxic gases and remnants that can pollute air, water, and soil.

(2) Plastics can harm the health of humans badly. The dioxide gases released from the ignition of plastic products can cause respiratory diseases like asthma, cancers, infertility, difficulty in conceiving, dermatological diseases, and traumas. Besides, they can cause intense hormonal imbalances in men and women.

(3) Many land and aquatic animals are dying due to plastics. For example, 1 out of 3 aquatic mammals are trapped amidst the plastic wastes that are disposed into the sea. According to WWF (World Wildlife Fund)'s report, a million sea birds are dying and nearly 100,000 aquatic animals are lost per annum. Inside the stomach of 90% of the sea birds are the pieces of microplastics which they mistakenly consume, assuming as their food. The aquatic animals usually consume microplastics, assuming them as their food. Microplastics can cause hormonal changes and can reduce the reproduction capacity of aquatic animals and resources like coral reefs. The experts have reviewed that if the usage of plastics is not yet reduced in the coming 2050, there will be more plastics than the number of aquatic animals in the ocean.



Via the rivers, streams, and lakes, the wastes discarded by the people living in Myanmar massively flow into the Ayeyarwaddy River, which is the blood and lifeline of our country Myanmar. Plastic wastes comprise 119 tons of this waste. As described in the above figure, the percentage of most common types of plastic waste are coffee sachets – 7%, Styrofoam boxes – 9%, single–use plastic bags used in packing betel, which is one of the most used products – 22%, and plastic water bottles and caps – 62%.

Questions

1. How can the adverse effects of plastics impact humans and the environment?
2. What kind of adverse effects can microplastics have on aquatic animals?
3. By which means are humans consuming plastic products?

6

9 WAYS
TO POSSIBLY AVOID
THE USAGE OF
SINGLE–USE PLASTICS

Do you think can we live each day of our life without using plastics? We can live our lives without damaging the environment by complying with the following nine ways to live without plastics.

1. Using a personal shopping bag
2. Using recyclable water bottles
3. Bringing own cups
4. Using lunch boxes for food
5. Avoiding the use of single–use pipes, spoons, and forks

6. Trying to cook and eat at home as much as we can and not dine out
7. Avoiding the use of balloons at festivals
8. Avoiding the use of bags made of plastics
9. Sharing the above tips with friends

Questions

(1) By which means are you reducing the usage of plastics for yourself?

(2) What kinds of difficulty did you have to face?

(3) How did you overcome it?

7

THE 3 MAIN WAYS

TO REDUCE THE USAGE OF SINGLE-USE PLASTICS

There are 3 ways to reduce the amount of single-use plastics that we use daily and are increasing in quantity. These 3 ways can effectively help to preserve the environment and prevent wastes from unregulated accumulation. They are Reduce, Reuse, and Recycle.

Reduce – The best solution to control the increasing quantity of plastic waste is to try to avoid the usage of single-use plastics and purchase plastic products thoughtfully. For example, instead of using bags, bottles, and cups made of single-use plastics, we can use cotton bags for shopping and carrying meat, fish, and food alongside refillable water bottles to reduce the usage of plastics.

Questions

(1) Describe the products we can reduce using to decrease waste production.

(2) Describe the advantages of single–use plastics.

Reuse – To reduce plastic usage, when using plastic products like plastic bags and cups, we can reuse them to hold other things without discarding them. We can replace them with the use of repeatedly reusable products. It is necessary to check sanitation before reusing.

Questions

(1) Are you also reducing plastic usage with the Reuse method?

(2) Make a list of reusable products.

(3) Describe how you will reuse the listed products.

Recycle – We can recycle used plastic products and reuse them as alternative products. By recycling the products from our households, schools, and office, we can reduce the increment rate of plastic waste. There are many ways to recycle them. For example, growing plants by using remodeled and painted plastic bottles, and selling to shops that buy used plastic products can reduce the usage of plastics as well as can support Recycle method.

Questions

(1) Describe the recyclable plastic products.

(2) Describe the advantages of recycling plastic waste.

Part (3)

WASTE MANAGEMENT IN SCHOOLS

After learning about the adverse effects of waste and the worst type of waste that is threatening the environment in the fore mentioned parts, students will understand how to manage to reduce the waste in our surroundings by learning through the activities in this book. Starting with the schools, let us follow the activities in this book to manage the waste effectively in our surroundings up to the national level through applications of the procedures in this book.

Schools are one of the places where waste is produced and the systematic management of the waste from school also plays an important role. To manage the waste systematically, the following steps should be prioritized. The first step is to have consent from the Headmaster. The second step is to study the status of waste production from school. During the study, the following questions should be asked.

Questions

(1) What type of waste is the school producing the most?

(2) How are the currently produced wastes handled?

(3) How many waste bins are there in the school?

After getting consent from the Headmaster and having studied the status of waste production from school, the following 3 steps should be done.

Number (1) – Formation of the waste management team in the school

Number (2) – Action planning and implementation

Number (3) – Awareness–raising activities regarding wastes

NUMBER 1 FORMATION OF THE WASTE MANAGEMENT TEAM IN THE SCHOOL

At least 4 teachers who have an interest in environmental affairs, high school students, and staff like school cleaners should include when forming the waste management team in the school.

NUMBER

2

ACTION PLANNING AND IMPLEMENTATION

In the case of action planning, it is necessary to carry out the tasks according to the following table.

Agenda	Activity	Responsible Person	Time	Place
Waste Collection System	Collecting waste and cleaning the waste bins by the respective teams in the classroom.	Students	Daily	Classroom
	Collecting waste at the school canteen.	Shop owners within the school	Daily	Canteen
	Collecting waste within the school compound.	Cleaners of school	Daily	School entrance, playground, and school toilets
Waste Bin	Students create one by themselves.	Members of each team	2 to 3 days	Classroom, canteen, school entrance, toilets, and playground
Self-solving System	Waste incineration.	2 teachers from the waste management team of the school	Once a week	Within the school compound

	Composting.	1 teacher and 2 students from the waste manage-ment team of the school	Within 3 to 6 months	Shady places within the school compound
	Creating a mini-garden within the school compound.	1 teacher and 3 students from the waste manage-ment team of the school.	Monthly	Within the school compound
Waste Reduction	Making a campaign.	1 teacher and 2 students from the waste manage-ment team of the school.	Monthly	School canteen and shops near the school
	Transforming to a plastic-free school canteen.	Headmaster, Waste manage-ment team, and shop owners of the canteen.	From 6 months to 1 year	School Canteen

The step-by-step procedures, as mentioned in the above table, are as follows.

Waste Collection System

The first step of managing waste in school is to collect the generated waste. Only after collecting the waste can they be systematically managed. In implementing the waste collection system, it is necessary to collect the waste daily and to have the cooperation of students of the waste management team, school cleaners, and shop owners of the school canteen. The waste collection system should involve collecting wastes in the classrooms, at the school canteen, school entrance, playground, and toilets. After collecting the waste, the waste bins should also be cleaned. Among the collected wastes, the re-sellable products should be kept by the responsible person for school cleaning, and he should get the profits gained from selling them.

Making a waste bin

It is necessary to make and have a waste bin for the students to dispose of their waste systematically. Having waste bins will keep the school clean of waste, and will be time-efficient for waste collection. Sack bags, fish nets, bamboo baskets, and old rice bags, which are easily available products, can be used for making waste bins. When making such waste bins, water exit holes should be included. Waste bins that do not have sun-resistant properties should not be used. In addition, the waste bins should be labeled as dry waste and wet waste. After making waste bins and placing them systematically in the classroom, playground, toilets, school canteen, and school entrance and exit gates, students will be able to dispose of the waste systematically.

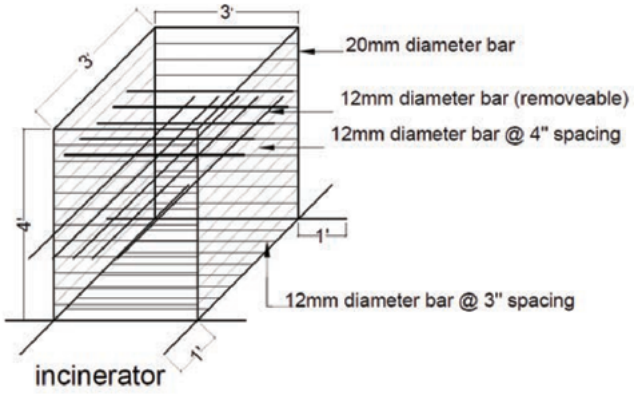
Time required	– About 1 hour to make a waste bin
Materials required	– Easily available old paint buckets, sack bags, fish nets, bamboo baskets, and old rice bags
Participants	– Students and teachers from the waste management team
Place to make the waste bin	– Within the school compound
Difficulties	– Lack of sustainability of the waste bin

Self-solving system

Wastes from school can be disposed of using the self-solving system without delivering them to the external dumping sites. The self-solving system consists of 3 steps, and the step-by-step procedures are –

Waste incinerationမီးရှို့ခြင်းပြုလုပ်ခြင်း

The plastic waste from schools can be solved by waste incineration.



Time required – For the incineration of wastes, the above–illustrated product should be made at the dedicated shop. The time taken can be 2 to 3 days.

The detailed measurements of the basket

Materials required – 1/2 inch iron = 12mm, 3/4 inch iron = 20mm

Participants – Students and teachers from the waste management team

Difficulties – Inability to incinerate in the open space in the rainy season, having the smell of smoke, the possibility of bursting if incinerated products contain broken glasses, the need for land space

(Note – only plastics should be incinerated, and incineration should be done at a place far away from children and school buildings)

Composting

Among the wastes produced by the school, easily decomposable wet wastes can be used for composting, and the problem with the wastes from the school compound can be solved by making the compost basket at a reasonable price. The compost can be taken from the compost basket only after 3 to 6 months.

Time required – 1 and 1/2 hours to make compost

Materials required – An iron filter, a stick, a wire, a PVC pipe

Participants – Students and 3 teachers from the waste management team

Difficulties – A compost basket can be mistaken for a waste bin, and waste can be mistakenly disposed of in it. Practically, only easily decomposable wastes should be placed into the compost basket, and plastic wastes should not be discarded into it.

Creating a mini-garden within the school compound

If a mini-garden is created within the school compound, the students can become in touch with nature, and can happily learn at school. It can take nearly a month to have a perfect mini-garden within the school compound.

Time required – About 3 hours

Components – Seedlings and seeds, water, compost

Participants – Students and 3 teachers from the waste management team

Difficulties – The need for the land space

Waste Reduction

To become a waste-free school, waste reduction plays an important role alongside solving the existing waste. As a part of waste management in school, waste reduction can be done in two ways. They are –

Making a campaign

To have a campaign once a month about the adverse effects of plastic waste at the school canteen, and snack shops around the school.

Time required – About 2 hours to run a campaign

Materials required – Campaign posters

Participants – Students and 2 teachers from the waste management team

Difficulties – Lack of interest of the shop owners

Transforming to a plastic-free school canteen

To have a meeting with the shop owners of school canteens and encourage them to use and sell other replaceable products instead of single-use plastics.

For example, during the lunch break, arrange to let the students eat with plates at the shop instead of having takeout, and carefully pack some snacks with paper instead of single-use plastics. The transformation to a plastic-free school canteen may take from 6 months to 1 year.

Time required for preparation	– About an hour to have a meeting
Cooperators	– The Headmaster and the teachers
Difficulties	– Lack of interest of the shop owners, and decrease in the variety of snacks to sell

NUMBER

3

AWARENESS–RAISING ACTIVITIES

REGARDING WASTES

When teaching students, educating them with practical activities can enhance their interest and improve their memorizing capacity.

Procedure (1) – Categorizing the wastes

Aim of Procedure (1)

To enable the students to differentiate between dry wastes and wet wastes and discard them separately into the respective waste bins.

Materials required	– A waste bin for wet wastes, a waste bin for dry wastes, wastes
Time required	– About 30 minutes

Steps to perform

- Separate the students into 3 teams, and give either a waste bag or a waste bin to each of the teams to collect the waste around the school for 10 minutes.
- After collecting the waste, explain to the students how to differentiate between dry waste and wet waste.

Procedure (2) – Waste differentiation and setting lifespan

Aim of Procedure (2)

To differentiate between easily decomposable wastes and non-easily decomposable wastes, and to study the decomposition lifespan of the wastes.

Materials required – 10 flashcards with pictures of non-easily decomposable wastes, 10 flashcards with pictures of re-sellable wastes, 10 flashcards with pictures of useless plastic wastes, 3 bins with separate labels based on the waste category.

Time required – About 15 minutes

Steps to perform

- Divide the teams depending on the number of students involved in the procedure
- Give each team 30 flashcards and 3 waste-bins equally
- After that, tell the students to differentiate the type of waste according to the flash-cards given to each team, and to discard each waste card into the respective waste bin for decomposable wastes, re-sellable wastes, and useless wastes.
- The teacher will have to check the discarded cards in each waste bin.
- Then the teacher will have to set the wrong cards aside and explain why it is wrong, and complete the procedure by telling the students that plastic waste can take thousands of years to decay.

Procedure (3) – Recycling

(Recycling the discarded single-use plastics)

Aim of procedure (3):

To let the students know that water bottles can be recycled in new forms.

To develop a love for nature

Materials required – water bottle, knife, scissors, dye bottles, plants

Time required – 1 hour

Steps to perform

- The teacher should divide the students into teams with 5 members in each team.
- Give them the water bottle, knife, scissors, and dye bottles, and let them create new forms and designs based on their ideas.
- Let them bring plants from their homes and grow the plants in the newly re-created bottles.
- Let the grown plants be placed in front of their respective classrooms
- After a week, the teacher will have to give an award to each team that could perform the best and most tidily.

Procedure (4) – We don't eat trash (Nutritious food Activity)

Aim of Procedure (4)

To enable the children at school to differentiate between nutritious and non-nutritious food (snacks packed with air-filled plastic bags) at the school canteen or snack shops around the school, and to become healthy children.

Materials required
- Pictures of snacks packed with single-use plastics (snacks that are usually present at the school canteen)
- Pictures of a variety of nutritious food (local snacks)

Time required
- About 45 minutes

Steps to perform

- Display the picture cards on the table.
- hen let the students choose a card they like.
- Ask them why they chose it.
- After that, the teacher will have to choose a card of local snacks and a card of plastic-packed snacks and explain to the students that local snacks are nutritious and are good for health while plastic-packed snacks contain preservatives and they will only give a sense of satiety. Besides that, she should also explain that waste is produced as a result of the plastics used in packing.
- Then the teacher shall end the procedure by telling students to choose and eat local snacks that are both nutritious and good for health.

Procedure (5) – Waste Audit

Aim of Procedure (5):

To know the types of waste and to understand waste production rate.

Materials required
- A table with pictures for the students from KG to Grade 2
- A pen or a pencil + a sheet of paper

Time required
- It will take a day if homework is given. If it is performed in the class, will take 45 minutes.

Step to perform

- Draw a table on a sheet of paper for the waste audit.
- Together with the family members, note down the wastes that are going to be discarded to know the types of waste and waste production rate at home.
- Categorize all the noted wastes into 3 types.
- After categorizing the wastes, based on the records, share and discuss within the class the most produced type of waste from home and the waste production rate.

Procedure (5) (In Class)

Materials required
- A table with pictures for the students from KG to Grade 2, a tong, a dump within the class, a pen or a pencil+ a sheet of paper

Time required – 45 minutesSteps to perform

- Draw a table on a sheet of paper for the waste audit.
- Dump the wastes from a day–full waste bin onto the ground.
- Divide the wastes into each dump according to the waste types in the activity table.
- After dividing the waste, count the waste and take a tally. Then, put the counted wastes back into the waste bin or waste bag.
- After counting, only a teacher or a student should fill in the necessary information in the worksheet and take a record.
- Then let the teachers and students understand the most produced type of waste, and the waste production rate at school based on the records. In the end, complete the procedure by telling the students to keep on performing the waste production activities.
- Then, wash your hands thoroughly.

Procedure (6) – Let's save the little fish (Fish game)

Aim of procedure (6):

To educate the students about water pollution caused by the unregulated disposal of waste into water, and to enable the students to know and understand the pros and cons of pl astics.

Materials required – 2 bath cups, wastes

Time required – About 20 to 30 minutes

Steps to perform

- Using the 2 bath cups, separate 2 water tanks.
- Let one of the tanks be clean, and the other be filled with waste. (For example, pictures of tanks drawn with chalks on the ground, 2 places separated with illustrated labels of tanks, or clean and dirty bath cups can be used as prototypes)
- Explain to the students to consider themselves little fish.
- Let them choose the type of tank they want to live in.
- hen, let them share their reasons for choosing that tank.
- After the students have shared and discussed their reasons, the teacher can end the procedure by explaining its aim.
- If the required materials cant be available, they can still imagine the presence of a clean water tank and a dirty water tank.

Procedure (7) – Let's read the stories

Stories related to environmental conservation can be read at [Myanmar School App]

Aim of procedure (7):

Materials required – Story books or cartoon posters that describe good habits concerning waste management

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Time required – About 20 minutes

Steps to perform

- After the teacher has read the story to the students, she may end the game by explaining the aim of that story.

Facts to follow in educative storytelling

- The teacher should start the story by asking related questions to the children rather than telling the content directly to make them more interested in the storyline.
- The teacher should use appropriate hand gestures and intonations as compulsory to make the children more interested in the storyline.
- In some classrooms where children actively participate, storytelling can be interrupted when children start to shoot questions.
- In such cases, if there are activities where children can get involved lively before the storytelling, the chances of storytelling being interrupted can be reduced, and it is found that children tend to ask questions only after the storytelling has finished.
- The teacher can also perform and act together with the children by leading them in roleplay or games in the case of some stories.
- It can help the children to remember more if the lesson learned from the story is explained by comparing it with the children's answers in the end.

Ma Ni 1 (Ma Ni going to the market)

> Ma Ni is the girl who always tries to help her mother.

> Today, her mother requested Ma–Ni to go to the market for her.

> Ma Ni was happy to go since this was her first time going to the market.

> When she arrived at the market, the greengrocer grandma asked Ma Ni, "Didn't you bring any basket or bag?"

> Ma Ni didn't have a basket with her. She was thinking that it wasn't necessary because she could carry things in plastic bags. So, the green–grocer grandma gave her the vegetables by putting them in a plastic bag.

> Likewise, Ma Ni had to take a new plastic bag every time she bought a new item. By this means, the number of plastic bags in her hands slowly increased. Both of her hands were then full of plastic bags.

> When Ma Ni reached home, she was immersed in a sea of plastic bags as she had brought quite a lot of them.

> Her hands were sore, and the house looked messy and dirty with too many plastic bags, all of these making her want to cry.

> Plastic bags not only damage the environment but also make animals sick.

> Ma Ni was so upset about bringing a lot of plastic bags.

> Plastic bags can harm the earth by remaining undegradable for several years.

> That's why Mom gave Ma Ni a shopping bag the next day.

> Mom also gave her some boxes and a food container at the same time, making sure that Ma Ni brings those when she goes to the market the next time.

Mani 2 (Mani going to the market)

- The next day, when Ma Ni went to the market, she took the shopping bag that her mother gave her.
- Since that shopping bag is a beautiful cloth bag, Ma Ni likes it so much.
- As she bought some vegetables, the greengrocer grandma put the vegetables in her cloth bag tidily.
- The fishmonger aunty also put the fish carefully into her box.
- Uncle also put Mont-Hin-Khar for her mother in the food container.
- Steamed sticky rice, one of Ma Ni's favorite snacks, was also packed with a tea leaf instead of a plastic bag.
- By this means, Ma Ni arrived back home.
- The items she bought were all packed tidily and cleanly in her shopping bag.
- Because of that, it didn't get messy with a lot of plastic bags and could reduce damage to the environment. Ma Ni was really happy too.
- Now, Ma Ni has become a master in going to the market.
- The thing she takes whenever she goes to the market is her shopping bag.

Little Phoe-Maung and Friends

- Once upon a time, there was a village name Ywar-Thar Village.
- Ywar-Thar village, as its name, was very pleasant and beautiful. There were little birds and green plants.
- There lived a child called Phoe-Maung in that village. Phoe-Maung loved little birds so much.
- The little birds also were not afraid of him as Phoe-Maung daily talked and communicated with them kindly and softly.
- The little crow Maung-Mel-Tuu, the little starling Mel-Swar-Tay, The little sparrow Maung-Nhyat and the little Dove Ku-Kuu were very friendly with Phoe-Maung.
- Since the other birds such as the little gull Htait-Kwat, the little duck Phyu-Phway and the little egret Ko-Shwe-Byine lived in the water, Phoe-Maung often sat at the bank of the river and played with them.
- One day, the little egret Ko-Shwe-Byine came to the bank of the river where Phoe-Maung was sitting with a plastic bag tangled around his beak.
- "Oh... What happened?" asked Phoe-Maung surprisingly.
- However, Ko-Shwe-Byine could not answer Phoe-Maung and continued waddling with difficulty.
- The next day, the little crow Maung-Mel-Tuu came to the river bank where Phoe-Maung was sitting. One of the wings of Maung-Mel-Tuu was broken.
- "Oh... What happened to you, Maung-Mel-Tuu" asked Phoe-Maung.
- "The children from the nearby village shot me with their slingshot, then they also littered the dirty packets of the eaten snacks into the river" replied Maung-Mel-Tuu.
- "Birds were troubled eating those plastic packets. Also, I was hit with a stone from their slingshot. Have you seen Ko-Shwe-Byine?" asked Maung-Mel-Tuu.
- After hearing what Maung-Mel-Tuu said, Phoe-Maung was very upset.
- He was thinking "Why did they shoot my friends? Why did they litter the trash into the river?"

- Then, Phoe–Maung and some of his bird friends went to the nearby village by boat.
- At the village, they saw the two kids, Ni–Ni and Too–Too sitting at the river bank and shooting at the birds with slingshots.
- There were also plastic packets of eaten snacks scattered around them.
- Phoe–Maung went near them and explained to them that birds are friends, and shooting them with slingshots or littering trash into the river can harm them very much.
- He told him that if they stopped doing these, the little birds would be able to live in peace and the village would be pleasant and peaceful.
- After hearing that, Ni–Ni and Too–Too were very upset with what they had done for fun.
- They promised Phoe–Maung that they would not commit such mistakes in the future.
- Phoe–Maung was also happy, and together with Ni–Ni and Too–Too, they applied topical medicine to the broken wing of Maung–Mel–Tuu and removed the plastic bag tangled around the beak of Ko–Shwe–Byine.
- Ni–Ni and Too–Too promised that they would never do such things to the little birds again.
- By this mean, besides playing with Phoe–Maung, the little crow Maung–Mel–Tuu, the little starling Mel–Swar–Tay, the little sparrow Maung–Nhyat, the little dove Ku–Kuu, the little gull Htait–Kwat, the little duck Phyu–Phyway, and the little egret Ko–Shwe–Byine became friends with Ni–Ni and Too–Too.

Crystal Angel and Plastics Goblins

- Crystal angel loved drawing, even though she was not great at it.
- She couldn't draw well but she drew a lot.

  One day, Crystal Angel went out to draw in the woods.
- But look! The flowers were not lively as they used to be.
- Crystal Angel tried to use her powers to make them well again, but none of the flowers became healthy!
- What was happening to them?
- "Dear Crystal Angel, there are some plastic goblins who are disturbing us," said the flowers. Plastic goblins?
- Crystal Angel had never heard of them before.
- When she took a look around the forest, she saw a lot of little plastic goblins running around.
- So, the angel buried them in the earth with her powers.
- But not only were the goblins unaffected, but they also began biting the roots of nearby plants.
- The plants got sicker since they couldn't use their roots to get food.
- If burying them didn't work, then water would. The angel then threw the goblins into the water. But they weren't afraid of the water either!
- They caused trouble for the fish, turtles, and other animals in the water. They made it hard for the animals to breathe and jumped around in their stomachs. This made the animals sick but the goblins were quite happy.
- Then the angel thought she could throw the goblins into the fire.
- But the plastic changed into harmful smoke and make the angel's beloved children sick when they breathed it in.
- Crystal Angel was very sad.

- How do we get rid of the plastic goblins that can't be buried, thrown in the water, or burned?
- Crystal Angel was very sad and stopped drawing.
- The children saw how sad she was and tried to find a solution.
- The Crystal Angel and the children went to the forest guardian to ask for advice.
- The forest guardian told them there was a way to weaken the goblins. What could it be?
- "Don't use plastic anymore. Use these leaves instead," said the forest guardian and he handed over a bunch of big leaves.
- They can be used for packing food, meat, and fish. Also, don't throw away the plastic you are using too soon. You can use/recycle them more than once.
- The children brought several used items from their homes. Old car tires, water bottles, juice cans, coffee mix sachets, and more!
- Crystal Angel helped with coloring them to make them all more beautiful.
- The children were happy and so was the angel.
- Over time, the plastic goblins were around less and less because no one used them anymore.
- When they were all gone, the little flowers, animals, and children became healthy again.
- They could now play with the angel happily again in the forest free from plastic goblins.

Procedure (8) – Let's take a plastic sabbath

Aim of procedure (8):

To enable the students to reduce the usage of plastics both at school and in their daily lives.

Note – To let the children ranging from 5 years to 8 years of age perform.

- Decide which day of the week will be regarded as a plastic–free day.
- Create a plastic–free classroom for a day by persuading the children to avoid bringing plastic–related products and food into the classroom once a week.
- Always remind the children about the plastic–free day the day before that day.
- Remind the children every day or every alternate day before the plastic–sabbath day to tell their parents not to give them food packed with plastics as takeout to school.

Note – To let the children ranging from 9 years to 13 years of age perform

- Create a plastic–free classroom for a day by persuading the children to avoid bringing plastic–related products and food into the classroom once a week.
- Decide which day of the week will be regarded as a plastic–free day.
- Always remind the children about the plastic–free day the day before that day.
- Remind the children every day or every alternate day before the plastic–sabbath day to tell their parents not to give them food packed with plastics as takeout to school.
- Persuade the students to avoid using plastics for 2 days both in the classroom and at home.

After that 2 days, let the students share and discuss the way they live without producing plastic waste and the difficulties they have to face in doing so.

Procedure (9) – Let's think together

- How to reduce plastics during the period of twelve–season festivals in Myanmar.
- To choose the corresponding festival for each of the twelve seasons.
- Then, tell them about the respective festival in summary.
- Discuss the types of plastic waste that can be produced from celebrating these festivals.
- Let the students think if these plastics are needed or not.
- Then, can conclude the procedure by thinking together the ways to reduce these plastics.

Tagu – Thingyan Water Festival
Kason – Bo Tree Watering Festival
Nayon – Tipitaka Festival
Waso – Dhammasekya Festival
Wagaung – Sayetanme Festival
Tawthalin – Boat Racing Festival
Thadingyut – Lighting Festival
Tazaungmone – Offerings Festival
Nattaw – Literature Festival
Pyartho – Equestrian Festival
Tabodwe – Glutinous Rice Festival
Tabaung – Sand Pagoda Festival

Can also consider the festivals celebrated worldwide. For example, Halloween festivals, Christmas, New–year, Easter, Chinese New Year, Deepavali, Eid, and locally celebrated traditional festivals.

Procedure (10) – Poster Campaign

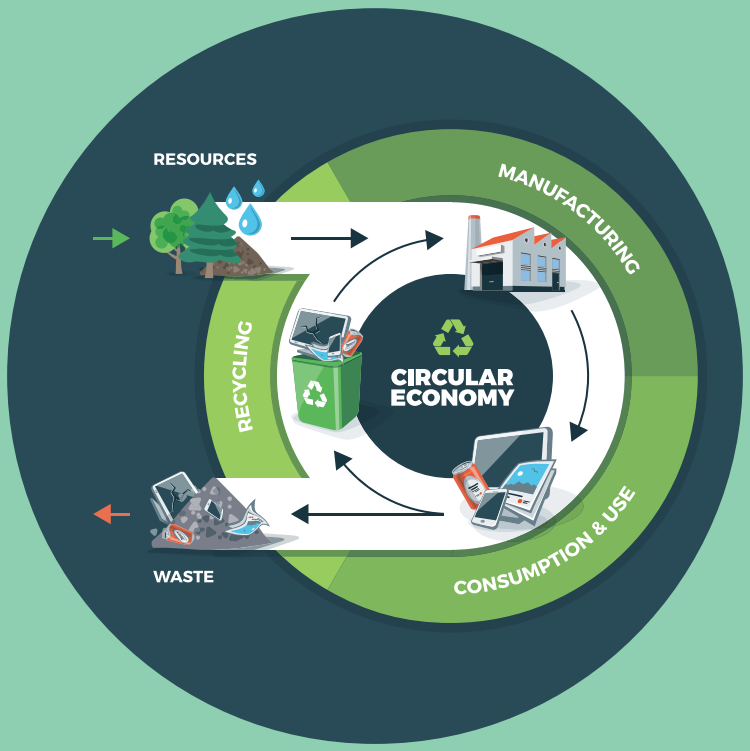
Aim of Procedure (10)

To improve the creativity of the students, and to increase the ways to reduce waste.

- Poster – A4–sized or A3–sized paper, and if not available, cardboard sheets are required. Tell the students to illustrate by sticking the corresponding news, photos, and materials on that paper that are relevant to the topic. Then choose a student or a team that can perform well according to the topic, and can appreciate their work by hanging that poster in the classroom for everyone at school to have a look at.
- Digital poster – Online campaigns can be held in case of online classes. Those children who are familiar with technology can make illustrative presentations online by exhibiting online news and giving credit to the original owner of the news and photos.
- Then choose a student or a team that can perform well according to the topic, and can appreciate their work by showing their poster through the school's media, or giving them awards.
- Drawing Campaign – The drawing campaign can be made by giving those children, who excel at drawings, a topic to draw.
- Then choose a student or a team that can perform well according to the topic, and can appreciate their work by hanging that drawing in the classroom for everyone at school to have a look at.
- Besides, the teacher can choose a student or a team based on the relevance of the given facts, and the ability to illustrate tidily with pictures, and can reward them with regionally available fruits gained naturally instead of plastic–packed snacks.

Sample Topics
- We do not eat trash
- Plastics in the water
- Say No to single–use plastics

(Circular Economy)



The circular economy is a type of economy where environmental sustainability is considered a factor while the economic benefit of a product is not reduced. Generally, the circular economy is based on the following three concepts.

- Reduction of waste and pollution
- Expanding the lifespan of products
- Rehabilitating the environmental systems

At the moment, there are two types of economy that we start practicing based on environmental sustainability. They are circular economy and conventional economy.

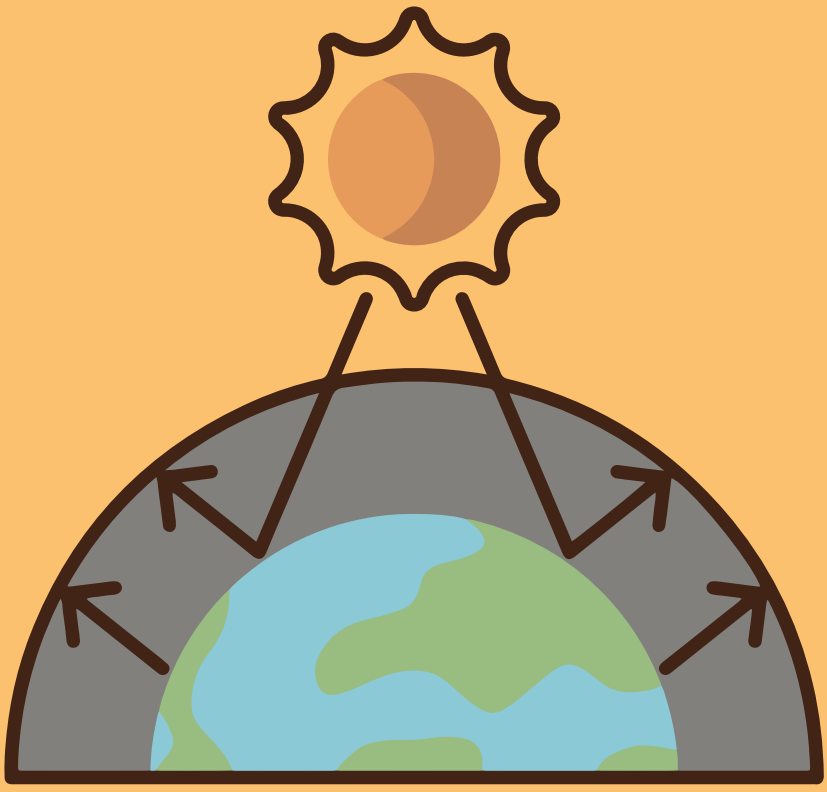
The conventional economy is the type of economy where raw materials are used for production, trading, and consumption, and the final consumer products and their remaining products after usage are disposed of as wastes through landfilling, incineration, etc. Besides, with the ongoing development of technology, the economic production rates are increased so as are the purchase rates of consumer products. The conventional economy limitlessly utilizes resources to increase the rates of purchase and consumption, and it is the type of economy that prioritizes economic efficiency for an everlasting increase in the rates of purchase and consumption. Therefore, the more products are produced, the more will be the need for raw materials and waste generation.

The difference between the circular economy and the conventional economy is that the circular economy tries to recycle and re-produce used products as long as they are usable instead of sending them to dumping sites. The three Rs, which are Reduce, Reuse, and recycle play an important role in the circular economy. For example, used water bottles can be reused in growing plants, and decorating, and even after that, they can be sent to the factories to be produced as new products and reintroduced into the market again.

Practicing the 3 Rs in our daily routines can help the circular economy. In addition, avoiding buying unnecessary things and throwing them easily, and choosing products that are produced through the least harm to the environment can also help develop a circular economy. The circular economy can protect and preserve the environment as well as can reduce the chance of climate change.

Nowadays, people are practicing conventional economy rather than the circular economy in their daily lives. It is necessary to follow the circular economy which can be very much beneficial to both humans and the environment.

WHAT ARE GREENHOUSE GASES?



Greenhouse gases are a combination of gases such as hydrogen, methane, oxygen, carbon dioxide, and nitrogen in the atmospheric layers. These gases are naturally present in our atmosphere. When the sunlight reaches the earth after passing through the ozone layer, it reacts with the atmosphere from the earth. The resultant gases generated from that reaction make the earth warm. Some of the heat bounces back into space whereas some cannot due to the presence of greenhouse gasses in the middle. That is why they are called greenhouse gases.

Due to global warming, the temperature of the earth rises slowly and massively, and due to the heat, heat waves occur and can consequently lead to adverse effects such as cerebrovascular accidents, heat strokes, elderly dying due to heat waves, cannot grow fruits due to heat, the declining level of underground water, scarcity of water, drought, torrential acid rains damaging crops, increasing respiratory disease due to elevated carbon dioxide levels, melting of icecaps and rising sea level, and the floods damaging the residential housing near the coastal areas.

Disposing of naturally decomposable products mixed with other wastes can produce a large amount of methane, carbon dioxide, nitrogen, oxygen, ammonia, sulfide, hydrogen, and other gases. According to the studies, methane gases are extracted from the earth for the use of fuel, electronic products, and industrial usage. 90% of methane and carbon dioxide are produced from dumping sites. Methane gases are colorless, odorless gases and they are produced enormously in the environment by the acts of humans. Methane is 28 times more potent than carbon dioxide and it can assist climate change. When bacteria degrade the organic wastes, they produce gases from the wastes. They can cause different chemical reactions through physical degradation, and the release of methane, carbon dioxide, and nitrogen. The amount of gases depends on the type of waste, the age of the dump, oxygen content, humidity, and temperature. For example, the higher the content temperature or humidity, the greater will be the production of gases.

Reference: New York State Department of Environmental Conservation

WASTE–RELATED
POEMS AND SONGS

When teaching students about waste, the following poems and songs can be used to make them more interested in the content.

တို့တာဝန်

အိမ် ကျောင်း သန့်ရှင်းရောဂါကင်း
စုပေါင်းအမှိုက်ရှင်း
မပျင်းမရိ တာဝန်ကျေ
နေ့စဉ်ဆောင်ရွက်ပေ
ရေမြောင်းတွေကို ဖော်ကာထုတ်
စိုက်ပျိုးရေးလည်းလုပ်
အလုပ်လုပ်ရင်း စာကိုသင်
ကျန်းမာ ပျော်ပျော်ရွှင်
ဝန်းကျင်ရပ်ရွာ သာယာဖို့
ငါတို့ကြိုးပမ်းစို့။
(စာသား - ကျောင်းသုံးပြဌာန်း/
သံစဉ် - ဦးမိုးခိုင်စိုး)

ကိုယင်ကောင်

ကိုယင်ကောင် ကိုယင်ကောင်
သိပ်ရှုံ့ဖို့ကောင်း
မစင်လည်း စား ဟင်းလည်း စား
ဟိုနဲ့သည်ကူးတာ ..
သူ့လက်ခြေတွေဆေးနေတာ
တို့ ထမင်းပွဲပေါ်မှာ
ရိုက်ပါဟာ မောင်းပါဟာ
ချမ်းသာမပေးနဲ့ကွာ ..
ထမင်းပွဲ အုပ်ထားရအောင်
သွားတော့ ကိုယင်ကောင် ..
(စာသား- ကျောင်းသုံးပြဌာန်း/
သံစဉ် - ဦးမိုးခိုင်စိုး)

စိတ်လှုပ်ရှိစရာ

အမှိုက် အမှိုက်
အမှိုက်မရှိဖို့ လိုတယ်
အမှိုက်မကောက်ချင် မပစ်နဲ့
စည်းစားဖို့ လိုတယ်
တစ်စမြင် တစ်စကောက်
ခေါင်းထဲအတွေးရောက်ကွယ်
တို့ ပတ်ဝန်းကျင် လှဖို့
စိတ်လှုပ်ရှိဖို့ လိုတယ်
(သံစဉ်/စာသား - ဦးမိုးခိုင်စိုး)

လျှော့သုံးမယ်

ဆွဲခြင်းခလေးတွေ
ကိုယ်စီသယ်လို့
ဈေးဝယ်ထွက်ဖို့
သွားကြမယ်
ကြွပ်ကြွပ်အိတ်ဆို မယူနဲ့ဗျို့
ဈေးရောက်ရင် သုံးကြမယ်
ကြွပ်ကြွပ်အိတ်ဟာ
အဆိုက်ခြစ်တော့
ဝန်းကျင်ညစ်လို့ ရှုပ်ပွမယ်
ဝန်းကျင်သန့်ဟာ
သာယာစေဖို့
ကြွပ်ကြွပ်အိတ်ကို
လျော့သုံးမယ်
လျော့မယ် လျော့မယ်
(သံစဉ်/စာသား - ဦးမိုးမိုးဝိုး)

For further references: can visit the websites/ social media of the following.

- Prevent Plastics Myanmar
- Thant Myanmar
- Green Way Myanmar
- Ellen MacArthur Foundation
- Climate Science
- WWF

အမှိုက်ကင်းစင်တဲ့
စာသင်ကျောင်းတစ်ကျောင်း
ဖြစ်ဖို့အတွက် ရှိရင်းစွဲအမှိုက်တွေကို
ဖြေရှင်းနည်းအပြင်
အမှိုက်ထွက်ရှိမှု လျော့ကျအောင်
ဆောင်ရွက်တာဟာလည်း
အရေးပါတဲ့ ကဏ္ဍတစ်ခုပါ။