

# LESSON 3

## ENVIRONMENTAL AND PUBLIC SAFETY ISSUES

- LEARN ABOUT ENVIRONMENTAL AND PUBLIC SAFETY ISSUES IN MANUFACTURING.
- LEARN THE BASIC SKILLS FOR GIVING A PERSUASIVE SPEECH.

### Before You Read

**I** Work in small groups. Draw from your own experience to answer the following questions.

1. Give examples of types of industrial waste and talk about some possible situations that may produce it during the manufacturing process.
2. Do you think there are any measures we can take to deal with industrial waste safely? What are they?

**II** In the box below are some key words from the reading. Work in pairs and check whether you know what they mean; if necessary, consult a dictionary.

impact	ecosystem	hazardous	chemicals
non-degradable	disposal	toxic	recycle



## Reading

Industrial waste refers to waste derived from industrial operations or manufacturing processes. There are two main kinds of industrial waste: **inert** solid waste and **hazardous** waste. The former, often dry in nature, consists of non-reactive, **innocuous** materials such as paper and cardboard, scrap metal, wood **pallets**, packing materials, sand, stone, and **demolition** **5 debris**. The latter, non-**degradable** in nature, poses a potential hazard to humans or other living **organisms** because it can be **lethal**, biologically magnified, or tend to cause cumulative **detrimental** effects.

In the past, industries traditionally **discharged** waste products directly into the environment without previous treatment, and thus produced a negative environmental impact. In recent **10 years**, many countries have shown an interest in the management of industrial waste in order to protect the environment. For example, in countries such as Finland, Austria, Canada, the USA and Australia, so-called “eco-industrial parks” have attracted considerable interest. These sites integrate industrial development, environmental protection measures and improved community relations to provide both economic opportunities and protected **ecosystems**.

**15** In Taiwan, the amount of industrial waste generated in 2000 reached 19.47 million tons, including 1.61 million tons of hazardous and 17.86 million tons of non-hazardous waste. Nearly 6,000 of the roughly 20,000 chemical substances regularly used in Taiwan are highly **toxic**. Under the Toxic Chemicals Control Act, the Environmental Protection Administration (EPA) published a list of 252 toxic chemicals for which the production, import, export, sale or **20 use** must be approved in advance by the agency responsible at the central government level. Moreover, companies that make use of toxic substances are required to first propose plans for properly disposing of them, and are then assigned deadlines for establishing **disposal** systems. Companies that have filed a plan and received a deadline will be free from **prosecution** until the deadline passes, and those which fail to do so are subject to heavy fines, ranging from **25 US\$11,111 to US\$37,037**.

In 2000, the EPA in Taiwan launched the National Industrial Waste Disposal and Management Program and set up the Industrial Waste Control Center to monitor the complete life cycle of industrial waste, from generation to disposal. With the guidance of the Industrial Waste Control Clean Strategy, which was approved by the Executive Yuan on **30 January 17, 2001**, the EPA coordinates with the Industrial Development Bureau to promote proper treatment of industrial waste. Under the Waste Disposal Act that came into effect in October 2001, manufacturers must assume responsibility for managing industrial waste by

establishing effective waste control and treatment systems. Managers of firms which dump hazardous waste that results in the loss of life may even be sentenced to life imprisonment.

- 35** In order to create a good environment for industries in Taiwan to manage and recycle waste, the EPA has revised the relevant industrial waste reuse regulations. For example, the Resources Recycling and Reuse Act has been enacted to further both economic development and environmental protection through waste reduction, **sustainable** resource use, recycling and reuse. Manufacturers are required to reduce waste, resource use and the generation of toxic
- 40** substances, and increase use of recycled materials. Moreover, the EPA has also **streamlined** the application paperwork and approval process to accelerate the reuse and recycling of general industrial waste. In industrial waste exchange centers, for instance, the administrative process has been greatly simplified. A supplier or buyer only needs to submit a reuse review application to an exchange center, which, after review and approval, is then immediately
- 45** sent to the EPA for further approval. In this way, the applicants can reuse or exchange non-hazardous industrial wastes without a complicated and time-consuming process involving numerous governmental levels.

The EPA has plans to develop more policies and management strategies to achieve the goal of Zero Industrial Waste. Concerning technical assistance, the first step is to upgrade and

**50** integrate core recycling and reuse technologies in industries. Regarding economic incentives to promote the recycling and reuse of industrial waste, findings ways to strengthen related measures and regulations will be an important focus in the future.

## After You Read

*Answer the following questions with the information from the above reading.*

1. What are two main kinds of industrial waste?

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2. According to the Toxic Chemicals Control Act, what should companies do when their manufacturing process involves the use of toxic substances?

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3. How has EPA's revision of industrial waste reuse regulations helped industries manage and recycle waste?

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## Vocabulary Comprehension

### ESP Vocabulary

*This vocabulary is commonly used in the field of business when discussing environmental issues.*

inert	<i>adj</i>	without chemical reactions when mixed with other substances
hazardous	<i>adj</i>	dangerous, especially to people's health or safety
demolition	<i>n</i>	the deliberate destruction of a building
debris	<i>n</i>	the broken pieces that are left when something large has been destroyed, especially by an explosion, fire, accident or demolition
degradable	<i>adj</i>	can be separated into different substances
discharge	<i>v</i>	to allow liquid or gas to leave a place, especially when this has harmful effects
disposal	<i>n</i>	the process of getting rid of something
sustainable	<i>adj</i>	capable of continuing for a long time at the same level
streamline	<i>v</i>	to improve a business, organization or process by making it more modern or simple

### General Vocabulary

*This vocabulary is used for general purposes.*

innocuous	<i>adj</i>	not likely to hurt or harm anyone or anything
pallet	<i>n</i>	a flat wooden surface used for moving or storing heavy goods
organism	<i>n</i>	a living thing such as a person, animal or plant, especially an extremely small one
lethal	<i>adj</i>	very dangerous and able to kill you
detrimental	<i>adj</i>	harmful or damaging
ecosystem	<i>n</i>	all the plants and animals in a particular area, considered as a system with parts that depend on one another
toxic	<i>adj</i>	poisonous or harmful to people, animals or the environment
prosecution	<i>n</i>	the act of accusing someone of a crime and asking a court of law to judge them

# 4

## LESSON 3: ENVIRONMENTAL AND PUBLIC SAFETY ISSUES

### Exercise

There are several forms of adjectival inflections in English, some of which appear in the reading. Please complete the chart below by making proper changes for the words in the box.

hazard	poison	sustain	manage	reuse
crime	nature	recycle	development	adventure
degrade	danger	discharge	environment	dispose

~ ous	~ able	~ al
hazardous		

## Language Focus

### Collocation

The table below shows important **Verb + Noun** collocation patterns from the reading. Pay careful attention to these verbs.

Verb	Noun	Example
cause	effects	The latter, non-degradable in nature, poses a potential hazard to humans or other living organisms because it can be lethal, biologically magnified, or tend to <b>cause</b> cumulative detrimental <b>effects</b> .
discharge	waste products	In the past, industries traditionally <b>discharged waste products</b> directly into the environment without previous treatment, and thus produced a negative environmental impact.
attract	interest	For example, in countries such as Finland, Austria, Canada, the USA, and Australia so-called eco-industrial parks have <b>attracted</b> considerable <b>interest</b> .

propose	plans	Moreover, companies that make use of toxic substances are required to first <b>propose plans</b> for properly disposing of them, and are then assigned deadlines for establishing disposal systems.
assume	responsibility	Under the Waste Disposal Act that came into effect in October 2001, manufacturers must <b>assume responsibility</b> for managing industrial waste by establishing effective waste control and treatment systems.
establish	systems	Under the Waste Disposal Act that came into effect in October 2001, manufacturers must assume responsibility for managing industrial waste by <b>establishing</b> effective waste control and treatment <b>systems</b> .
submit	application	A supplier or buyer only needs to <b>submit</b> a reuse review <b>application</b> to an exchange center, which, after review and approval, is then immediately sent to the EPA for further approval.
achieve	goal	The EPA has plans to develop more policies and management strategies to <b>achieve</b> the <b>goal</b> of Zero Industrial Waste.

### Exercise

Work in pairs and brainstorm some verbs besides the ones shown in the table that can be used to collocate with **responsibility**. An example has been done for you.



### Corpus Tutorial: TIME

In this section, you are going to review the corpus search for **TIME** introduced in Unit 2. Repeat steps 1-4 in Corpus Tutorial, Unit 2 Lesson 1 to find the verbs that frequently collocate with **responsibility** as a noun. Check whether you can find the verbs you used in the above Collocation Practice from the search results.

### Exercise

Use **TIME** to help you prepare and double check the language you use in your persuasive speech in the **Task**. Look at the following two examples. Can you find **take responsibility and bring catastrophes** in the search results? If you can, click on the verb to read the concordance lines and familiarize yourself with the contexts in which they are used. If you can't find them, look for some other verbs that collocate with responsibility and catastrophe.

State the issues	Lots of people are now deeply worried about environmental problems that are widely believed to be caused by human activities, and some believe that industrial activities should <b>take</b> most of the <b>responsibility</b> for climate change.
Give supporting examples	There is clear evidence that our Earth is getting warmer, and this is resulting in many changes to the natural environment, such as the melting of ice caps and a rise in sea level. It is likely that such changes, should they continue, will <b>bring</b> some major <b>catastrophes</b> in the future.

## Tasks

### Target Communication Skill: Presenting a Persuasive Speech

A persuasive speech is used to express an opinion about a controversial issue. The speaker has to provide information, such as reasons, facts, and examples, to build up an argument which can persuade the audience that the speaker's opinion is valid. A persuasive speech generally involves several steps.

- First, the speaker has to state the focal issue, where the audience should be informed of the general situation and be convinced that it is important to them.
- Next, there are two ways to present your argument. One is to express your stand and support your statement with evidence, and then present counterarguments, which can actually make your position more convincing if you use them effectively. The other is to present counterarguments first and then give your own opinion in response.
- Last but not least, you should conclude your speech by restating or summarizing what you've just stated.

In addition, there are some other principles for preparing an effective persuasive speech. One is to do in-depth research on the issue to collect robust evidence, for example cases or statistics, to support your view. Also, the speaker should state the position and argument clearly and logically

with the supporting evidence they have collected. Most importantly, the speaker has to pay attention to the way they speak. To persuade the audience, the speaker should sound confident and assured.

To give a successful and effective persuasive speech requires not only the ability to demonstrate your understanding of an issue, but also the skills to deliver your reasoning logically.

### Exercise

*In groups, talk about the following issue and prepare a persuasive speech. Imagine you are a representative from EPA who is responsible for persuading businesses to take environmental issues more seriously.*

Environmental issue:

There's growing concern about climate change. While many believe that human activities are the reason for the problem, others think that it is due to natural factors, and that we are now in an interglacial period. Regardless of the true facts, there are pressure groups who demand that businesses take immediate action to deal with environmental problems.



### Steps

*Please note that the positions adopted in the following steps are for your reference only, and you may argue the opposite.*

1. State the main issues on environmental problems, especially those related to business.
2. Give a counterargument that global warming is not directly related to human activities, but to natural factors.
3. Reject the counterargument.
4. Give your opinion on the issue by stating that you think global warming is directly related to human activities, especially those resulting from industry.
5. Give supporting evidence for your opinion.
6. Conclude your argument by restating or summarizing your main points.



## Excerpts from a Sample Persuasive Speech:

### Section1: Beginning

Items	Example
State the issues	Lots of people are now deeply worried about environmental problems that are caused by human activities, and some believe that industrial activities bear the most responsibility for this worsening situation.

### Section2: Middle

Items	Example
Give a counterargument	In contrast, some scientists claim that global warming is caused by natural factors. For example, some say that we are now in an interglacial period, and thus it is natural that the average global temperature is warmer.
Reject the counterargument	However, the scientists who claim this are in the clear minority, with an overwhelming majority of experts stating clearly that climate change is man made, and that it poses a clear threat to the future of our current civilization.
Give your opinion	It is an undeniable truth that global warming is closely related to industrial activities.
Give a reason and support it	A great amount of research has concluded that the recent increase in global temperature has a strong correlation with greenhouse gas emissions. (Here you may develop your argument by giving more examples of environmental problems caused by businesses and individuals.)

### Section3: End

Items	Example
Restating your opinion	We've looked at some of the environmental issues related to business, and there is no doubt that it is necessary to change our habits of production and consumption in order to protect the environment.