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# Ref: Level 13 > Unit 4 Animals and species.docx

that is related with Environment, e.g. environmentally friendly product = green product

# Part 1) Recycling trash-

## Words

* depot /ˈdɛp**əʊ**/  , depots /ˈdɛp**əʊz**/

1.N A depot is a bus station or train station. **[ a bus depot /ˈdɛpəʊ/ 公共汽车站; a station depot /ˈdɛpəʊ/  火车站； recycling depots /ˈdɛpəʊz/: (waste废品) 回收站 ]** e.g. She was reunited with her boyfriend in the **bus depot** **/ˈdɛpəʊ/**of Ozark, Alabama.在 **汽车站** 重新团聚了。  
e.g. Speaking of waste, when do have things to recycle, make sure that you know here the **recycling depots ((废品)回收站)** near your home are, and also which materials can be recycled there, e.g. can, tins, plastic, paper, card box, old spectacles/glasses, etc.

e.g. Take all your recyclable garbage to **recycling depots ((废品)回收站)** weekly or monthly, and you’ll drastically **reduce, reuse, and recycle your waste (3R).**  
  
2.N A **depot** **/ˈdɛpəʊ/**is a place where large amounts of raw materials, equipment, arms, or other supplies are kept until they are needed. 仓库; 库房 depot **/ˈdɛpəʊ/**= warehouse [ food depots食物储藏室 ]

* degradable /dɪˈɡreɪdəbəl/:  (of waste products, packaging materials, etc) capable of being **decomposed**分解 chemically or biologically (废料、包装材料等)可降解的 e.g. Phosphate ester polymers are **degradable** in nature, and **environment-friendly环保的.**
* degradable or bio-degradable 可生物降解的
* compose => decompose => **decomposable** 可分解的

e.g. A shift towards **decomposable** goods would continue economic growth, decrease garbage growth.  转向可分解的商品经济将继续增长，减少垃圾的增长

* 废金属 **scrap** metal e.g. **In hindsight/retrospect,** **scrapping** the car was the right thing to do. On one hand, you reduce your trash by recycling the **scrap metal**. On the other hand, you earn extra cash. 事后来看，把车当**废铁**卖了,算是做对了
* **garage sale（旧货出售）称为 car boot sale //garage:**  车库；汽车修理厂
* spectacle /ˈspɛktəkəl/

1. A spectacle is a strange or interesting sight. 奇观 e.g It was a spectacle not to be missed.
2. A spectacle is a grand and impressive event or performance. 盛大的活动/演出 e.g. Ninety-four thousand people turned up for EXO’s 3rd concert, such as a **spectacle**. 参加了这个盛大的活动。
3. Glasses are sometimes referred to as **spectacles**. 眼镜  
   e.g. Speaking of waste, when do have things to recycle, make sure that you know here the **recycling depots ((废品)回收站)** near your home are, and also which materials can be recycled there, e.g. can, tins, plastic, paper, card box, old spectacles/glasses眼镜, etc.

* blip: 1)  (雷达等仪器上的)小光点 blips on radar screen **2) . A blip in a straight line, such as the line on a graph, is a point at which the line suddenly makes a sharp change of direction before returning to its original direction. (直线上的)转折点; 跳点**
* **供需 supply and demand** e.g. The price changes according to **supply and demand**.

## 3R for trash in U.S.

在美国，一句常见的回收口号slogan是 3R=**'Reduce, Reuse, Recycle(回收).' E.g.**

e.g. “reduce”

* The best way to **reduce** trash is to stop buying so much.
* I'm trying to **reduce** the amount of trash I create.
* A shift towards **degradable**/**decomposable** goods可降解 would continue economic growth, decrease trash growth.
* You know you can probably **reduce** your trash by **recycling回收** half of it, rather than having it sit forever in the city **landfill垃圾填埋场**.

e.g. “reuse”

* He doesn't need new glasses/**spectacles**. Can't he **reuse** these old **spectacles**?
* Don't throw away those toys. Children's Charity will **reuse** them.

e.g. “recycle”

* They **recycle** this **cardboard** and turn it into clothing!
* Let's recycle this **cardboard**. Will the **recycling center** accept it?
* I put out my **recycling bin** Monday nights. (绿色回收) 垃圾桶

## “3R” in British

在英国**，garage sale（旧货出售）称为 car boot sale //garage:**  车库；汽车修理厂

## 文化点：在美国，垃圾通常进行分类categorize，类别包括:

* 垃圾trash that can be reduced by recycling half of them
* **可降解degradable** 垃圾（如丢弃的食物）  
  //nondegradable trash, e.g.plastic packaging包装 **Plastic isn't biodegradable生物降解, but it does decompose分解 and it takes about 20 years for such a plastic cup to decompose.**
* 可回收的物品(recycling)。回收垃圾可进一步细分为金属(**scrap metal废金属)**、纸板cardboard box、纸张、glass bottle玻璃和塑料

|  |  |
| --- | --- |
| Types of recycling trash  可回收垃圾 | How to deal with各种垃圾或不要的东西 |
| Cardboard box | * Reuse them for sth in, such as for storing child’s toys in, storing books ( by redesign, paint, or restructure to create a new bookshelf~~) * They **recycle** this cardboard and turn it into clothing! * You can put all of your cardboard in a special **recycling bin** in the courtyard. |
| wine bottles and other glass bottles | * I'm taking the bottles and cans to **the recycling center**. * Redesign them, paint them, and make them as **vases** [vɑːz][ veɪz] for flower. |
| plastic bottle | Plastic isn't **biodegradable生物降解**, but it does **decompose**分解 and it takes about 20 years for such a plastic to **decompose**.   * Reuse them to store cold water for watering plants, esps for pot plants（肉肉植物）, juice, or vinegar * Use scissors to cut and redesign by coating with colourful packing it to make an interesting, creative ornament装饰物, such as the cover for the low-energy bulb, a beautiful container for keys |
| spectacle**s**眼镜 | * Donate them to a charity * The aluminum [ə'l**ʊ**mɪnəm] and plastic in these old **spectacles眼镜** can't be recycled. Let's put them in our **garage sale/car boot sale**  我们把眼镜放进我们要出售的旧货里。 |
| aluminium **can**  [ə'l**ʊ**mɪnəm] | Put them to **the recycling center** |
| Old car | Sold the old car for **scrap meta**l废铁 |

## Describing graphics (e.g. charts)

## Types of graphics

|  |  |
| --- | --- |
| 上升 | rise = increase = go up  mount：稳步上升 steadily**, level out** |
| 猛的急速大幅度的上升  **soar/rocket/skyrocket/hike** sharply/dramatically/significantly |
| 下降 | decline = fall = go down |
| * 猛的急速大幅度的下降   **plummet**/**plunge** sharply/**alarmingly**/dramatically/significantly   * (价格、利润或汇率) 暴跌 If something (e.g. stocks, exchange rate, benefit), the value of something **slumps or nosedives,** it falls **suddenly** and by a large amount  e.g. Net profits **slumped**/**nosedived** by 41%. 净利润暴跌了41%。 e.g. When stock market opened this morning, the IBM stock slumped/nosedived dramatically by 50% points, an **all-time** low record in history史无前例的底点 |
| 平稳 | leve**l o**ut = go steadily |
| 起伏不定 | **fluctuate** = go up and down  **blip**: 1)  (雷达等仪器上的)小光点 blips on radar screen 2. A blip in a straight line, such as the line on a graph, is a point at which the line suddenly makes a **sharp** change of direction before returning to its original direction. (直线上的)转折点; 跳点 |
| 达到最大值 | **peak = ma[x o]ut = reach the highest level** |

## In retrospect/hindsight V.S. Looking ahead/Going forward

|  |  |
| --- | --- |
| 反思结果; 反省 | 展望未来 |
| * **Looking back**, you can see why it's **a throwaway/disposable society.** * **Looking back,** you can see how we created **a throwaway society.** 回首过去，明白之所以成为 **一次性(throwaway/disposable)社会**的原因 | **Looking ahead,** we should place limits on **trout**鳟鱼 fishing. 展望未来.. |
| * **In hindsight,** we let too much sit in the **city landfill**.   事后来看，xxx ( behind => hindsight)   * **In hindsight,** **scrapping** the car was the right thing to do. 事后来看，把车当**废铁**卖了,算是做对了。  //scrap metal: **废铁** | **Going forward,** we need to reduce our waste.  **Going forward,** I think we’ll see the trash number plunge:)  **Going forward**, the key is to reduce waste. 往前发展，关键在于减少垃圾 |
| **In retrospect,** we **should have considered** more from user experience point of view. //subjunctive mood  **In retrospect,** it **would have** been better if I had taken his insightful advices. //subjunctive mood |  |

|  |
| --- |
|  |
| 你也可以对过去做假设的类似表达，反思过去行为的结果。 |

|  |  |  |
| --- | --- | --- |
|  | **We should have** thought about the consequences of our actions. | 我们应该考虑好自身行为的后果。 |

|  |  |  |
| --- | --- | --- |
|  | **It would have been better if we'd** sold the car for **scrap meta**l. | 我们要是把车当 **废铁** 卖了还好了。 |

# Part 2) Protecting our environment, e.g. rain forest

## Words

* throwaway /ˈθrəʊəˌweɪ/ V.S. disposable

1. A **throwaway/disposable** product is intended to be used only for a short time or only once, and then to be thrown away. 一次性的; 用完即弃的 **[ a throwaway/disposable society 一次性社会（非可持续发展的, 非环保的社会; throwaway razors/shavers一次性剃须刀; throwaway/disposable chopsticks 一次性筷子; throwaway/disposable diaper; throwaway/disposable underwear 一次性内衣 ]** e.g Looking back/In hindsight, you can see how we created a throwaway/disposable society. 回首过去，明白之所以成为 **一次性社会（非可持续发展的, 非环保的社会** 的原因

2. **随意的不经意的(讲话、动作)**  If you say that someone **[ makes a throwaway remark or gesture ],** you mean that they make it in a casual way, although it may be important, or have some serious or humorous effect. e.g. ...a throwaway remark she later regretted. ...一句她脱口而出的评论

* **disposable /dɪˈspəʊzəbəl/**

1.ADJ A disposable product is designed to be thrown away after it has been used for a short time or only once, disposable = throwaway 一次性的; 用完即弃的   
**[ a throwaway/disposable society 一次性社会（非可持续发展的, 非环保的社会）; throwaway razors/shavers一次性剃须刀; throwaway/disposable chopsticks 一次性筷子; throwaway/disposable diaper; throwaway/disposable underwear 一次性内衣 ]** e.g. ...disposable/throwaway diapers suitable for babies up to 8lbs. …使用的**一次性尿布**  
e.g **Looking back/In hindsight**, you can see how we created **a throwaway/disposable society**. **回首过去**，明白之所以成为 **一次性社会（非可持续发展的, 非环保的社会）**的原因

2. **Disposable products** can be referred to as disposables. [ **disposables (generally speaking)**一次性物品 ] e.g Currently, **disposables** **account for about 80% to 85%** of the $3 billion-plus annual diaper market. 一次性物品**占**年销售额

3. **Your disposable income** is the amount of income you have left after you have paid bills and taxes. **[ disposable income可自由支配的 (收入) ]** e.g. Gerald had little **disposable income**. 没有多少 可**自由支配的收入**。

* an alarm rate 惊人的速率
* **随便吃几口；先吃点东西垫垫肚子 Grab a bite! … OK, just grab a bite**
* **Well, let’s not go that far我们不要扯太远了. Pls return from digression.**
* digress /daɪˈɡrɛs/, digression . 离题;跑题 **[ Please return from digression 回到正题，别跑题]**

1. If you digress, you move away from the subject you are talking or writing about and talk or write about something different for a while. e.g. I've **digressed** a little to explain the situation so far, so let me now recap. 我刚才稍微**离题**说明了迄今的情况，现在让我重述一下要点。

2.digression. E.g. OK, let’s return from **digression** 回到正题，别跑题

* deforest /diːˈfɒrɪst/, deforestation   [,di,fɔrɪ'steʃən] n. 采伐森林；森林开伐

1. If an area is **deforested**, all the trees there are cut down or destroyed. 砍伐森林 e.g. the 400,000 square kilometres of the Amazon basin that have already been **deforested** 已被砍伐的40万平方公里的森林。

2. 森林砍伐 deforestation e. g. One percent of Brazil's total forest cover is being lost every year to deforestation. 由于滥伐，巴西的森林总覆盖面积正在每年减少百分之一

* ecology, **eco**logical /ˌ**eːkə**ˈlɒdʒɪkəl/ , **eco**logically

1. Ecological means involved with or concerning ecology. 生态的 e.g. Large dams have harmed Siberia's delicate **ecological balance**. 大坝损害了西伯利亚脆弱的**生态平衡**。 **[ eco-friendly = environmentally friendly ]**

2.生态地 ecologically/**ˌeːkəˈlɒdʒɪkəl**/   e.g. It is economical to run and **ecologically** sound. 运行高效且有益生态

* **footprint**
* **生态排放量:** [**ecological/ˌeːkəˈlɒdʒɪkəl/  footprint**](javascript:void(0);)
* **碳排放量:** [**carbon footprint**](javascript:void(0);) is the amount of carbon, like carbon dioxide or carbon monoxide/mɒˈnɒksaɪd/ that is ejected/discharged排放
  + **Primary carbon footprint**: the sum of carbon you release by **directly** using **fossil fuels**, e.g. gas, oil, coal
  + **Secondary carbon footprint**: indirectly, e.g. buy imported goods, a frequent flyer
* **内存占用 memory footprint**: refers to the amount of main memory that a program uses or references while running
* (分数的)分子numerator= the dividend of a fraction/分母denomi**nator** [dɪ'nɒmɪneɪtə] V.S denomi**nations** of banknotes, e.g. 500 or 1000 rupees纸币的面额
* thermal /ˈθɜːməl/ , **thermometer /θəˈmɒmɪtə/**温度计

1. Thermal means relating to or caused by heat or by changes in temperature. 由热引起的; 由温度变化引起的 **[ thermal power stations 热电站 ; thermal energy 热能 ]**
2. Thermal streams or baths contain water which is naturally hot or warm. 天然温热的 **[ thermal spring 天然温泉 ]** e.g. Volcanic activity has created **thermal springs** and boiling mud pools.
3. **[ thermal clothes ]** are specially designed to keep you warm in cold weather. 保暖的 (衣服) **[ thermal underwear 保暖内衣; 保暖袜 thermal socks ] e.g.** My feet were like blocks of ice despite **the thermal socks**. 尽管穿着**保暖袜**，还是像冰块。
4. A thermal is a movement of rising warm current. 上升的暖气流 e.g. Birds use **thermals** to lift them through the air. 鸟类利用上升的暖气流升空。

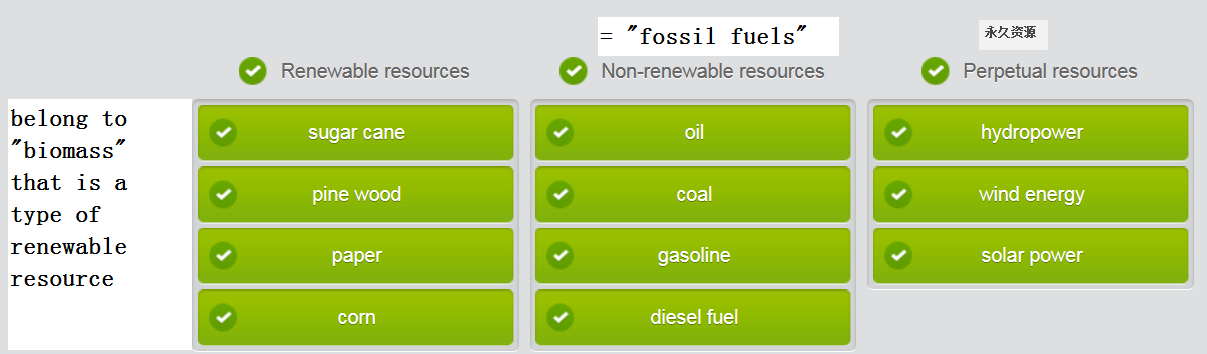
* **thaw** [θɔ]  V.S **thwart/foil a plot = fail a plot (使阴谋失败)**

1. When ice, snow, or something else that is frozen **thaws**, it melts/melts down (冰雪等) 融化 e.g. It's so cold the snow doesn't get a chance to **thaw**.
2. The tensions between two persons, parties, nations, or countries **thaws** means the tension is **defused**/relieved step by step **国家关系的解冻**

* **hypothesis /haɪˈpɒθɪsɪs/ ，hypothetical [,haɪpə'θɛtɪkl], hypothetically**

1. A hypothesis is an idea which is suggested as a possible explanation for a particular situation or condition, but which has not yet been proved to be correct. 假设 e.g. Work will now begin to test the hypothesis in rats. 在老鼠身上验证这一假设的工作现在要开始了

## Types of energy or resources: renewable resources V.S. non-renewable resources (fossil fuels, e.g. gas, oil, coal)



### Perpetual resource永恒的资源



### Renewable resources

e.g . Electricity can be generated by **nuclear fission核裂变**, **hydropower** ['haɪdro,paʊɚ] 水力发电, **biomass**, wind and solar energy, **tidal energy**潮汐,  biofuels

* **biomass**: the living or recently dead plants, trees, or even animals, which is a type of **renewable resources** that are used to create energy, esp. electricity. e.g Electricity can be generated by **nuclear fission核裂变**, **hydropower** ['haɪdro,paʊɚ] 水力发电, **biomass**生物量, wind and solar energy, **tidal energy**潮汐, and cars and lorries can run on electricity or biofuels.
* **Hydroelectricity**: is **electricity** made from the energy of running water. 水力(发的)电
* **Hydro-power or water power** is **power** derived from the energy of falling water and running water, which may be harnessed for useful purposes. Kinetic energy of flowing water (when it moves from higher potential to lower potential) rotates the blades/**propellers**螺旋桨 of **turbine**涡轮机, which rotates the axle**. [** [**hydropower station**](javascript:void(0);)**水电站]**

|  |  |  |  |
| --- | --- | --- | --- |
| Renewable energy source | How does it work? | Requirements | Costs |
| Solar power | * Energy from the sun gets converted into thermal or electrical energy * Solar panels are used to absorb solar energy from sun's rays * Photons are then transformed into conduction electrons | * Preferably high quality solar panels * Lots of sun light * Large surfaces to install solar panels * A lot of money for installation | * High installation costs * Quite high maintenance costs (cleaning, short circuits, cracks, corrosion) * Will cost the city $120,000 |
| Hydroelectricity **(hydropower水力发电)** | * Hydroelectricity is produced through use of the gravitational force of falling or flowing water | * A strong river with a dam built across It | * No fuel costs required * Relatively low building and maintenance costs * Will cost the city $75,000 |
| **Tidal energy**  **(潮汐)** | * a form of hydropower that converts the energy of tides into electricity or other useful forms of power * tidal waves move water into power turbines, that kinetic energy gets converted into electric energy | * ocean coast with strong tides | * relatively low cost and low ecological impact * Will cost the city $60,000 |
| Wind power | * conversion of wind energy into electricity by using wind turbines | * areas with strong winds * wind turbines | * negligible fuel costs and relatively low maintenance costs * cost of construction of the turbine and transmission facilities $80,000 |
| **Biomass** | * biological material derived | * forest residue | * relatively low |
| **nuclear fission核裂变** |  |  |  |

### non-renewable resources= fossil fuels, e.g. natural gas, oil, or coal

For details about non-renewable resources, see Level 13 > Unit “conservation of endangered species”

## Number (thousand, million, billion)

使用类似词汇表述千以上的大数。从左至右，读出每一段数字。在第一个逗号后，说出最大的计量单位 **hundred** 或 **thousand**

* **1, 000: 3”0” = a thousand**e.g.15,000 = fifteen **thousand;** 500,000 = five **hundred thousand** OR **half a million**
* **1, 000, 000: 6”0”= a million**e.g**.** 18,000,000 = eighteen **million;** 80,000,000 = eighty **million**
* **1,000,000,000: 9”0” = a billion**e.g. 30,000,000,000 = thirty **billion**
* **1,000,000,000.000 : 12”0”= a trillion** e.g.13,000,000,000,000 = thirteen **trillion**

复杂的大数读出逗号之间的三个数字，然后说出该逗号代表的计量单位范畴，例如 **million** 或 **thousand**

|  |  |  |
| --- | --- | --- |
|  | 4,536,251 = four million, five hundred thirty-six thousand, two hundred fifty-one | 4, 536, 251 = 四百五十三万六千二百五十一 |

使用类似表达来表示**百分比和分数**。分数先读**(分数的)分子numerator，再读分母denominatior [dɪ'nɒmɪneɪtə]**。分母使用序数词，例如 fifth

|  |
| --- |
| * 20% OR 1/5  = twenty percent, one-fifth, one in five |

* 25% or 1/4 = twenty-five percent, one-fourth, one in four
* 33% or 1/3  = thirty-three percent, one-third, one in three
* 50% or 1/2 = fifty percent, half
* 2/3 = two-third**s**, two in three

## Environmental effect caused by global warming 1

Many scientists believe that we are causing global warming. Increased global temperatures are causing a wide range of changes.

* Due to **thermal/ˈθɜːməl/由温度变化引起的** expansion of the oceans and **melting/thawing解冻融雪** of land ice, sea levels are rising.
* Amounts and patterns of **precipitation**降水 are changing.
* The total annual power of hurricanes has increased **alarmingly**/**significantly**/**dramatically** in the last 30 years because their average intensity and average duration have increased.

With all these stated

* **As a result of** changing temperature and precipitation降水, the frequency, duration, and intensity of other extreme weather events, such as floods, droughts, heat waves, **blizzard**  暴风雪, and tornadoes, have increased.
* Other effects of global warming include higher or lower agricultural yields, further glacial retreat, reduced summer stream flows and extinction of (endangered) species.
* **As a further effect of** global warming, diseases like malaria are returning into areas where they had been previously eliminated.

Scientists don't all agree that humans are the cause of global warming. However, most of them do agree that increasing global temperatures have **led to** a wide range of changes.

* **Due to** increased ocean temperatures, sea levels are rising. **Consequently**, many people have lost their homes and have got to be displaced in other plces.
* Amounts and patterns of **precipitation** changing, such as rain and snow
* The total annual power of hurricanes has already increased **alarmingly**/**significantly**/**dramatically** in the last 30 years.

## Talking about **hypothetical** situations (**subjunctive mood虚拟语气**)

**谈论假设场景:** 使用包含 **what if** 和 **would** 的表达谈论假设场景

**What if = What would you do if ?: 如果xxx，那会怎么样？**

|  |  |
| --- | --- |
| A: **What if** we didn't do anything to protect the environment? | 我们如果什么保护环境的事情都不做，那会怎么样？ |
| B: Melting glaciers **would** cover some islands with water. | 融化的冰川会淹没一些岛屿。 |
| A: **What would you do if** you could make your own laws? | 如果你能制定自己的法律，你会怎么做？ |
| B: I **would** make sure everyone **stored** and **used** rainwater. | 我会确保所有人都储存和使用雨水。 |
| I'm not sure what **would** happen **if** greenhouse GHGs emissions stopp**ed** now. | 如果现在停止排放温室气体，我不确定将发生什么。 |
| **Imagine if** you **were** emperor of the world.  “were” = hypothetically, subjunctive mood | 想像如果你是君临世界的帝王。 |
| **Let's say that** you **had** all the money in the world.  “had” = hypothetically, subjunctive mood | 比方说你拥有世界上所有的钱。 |
| **Pretend for a moment** that you **were** a climate change scientist.  “were” = hypothetically, subjunctive mood | **暂时假装**你是一位天气变化方面的科学家。 |

## Reading

* Sarah: I’m really shocked about what’s happening with our planet. Last night I watched a documentary on TV which showed what our world will look like in 50 years If we don't do anything right now.
* Tom: Yeah, I saw that, too. I mean, when the guy talked about melting glaciers and ice and how he said that sea levels would rise 20 feet! Some islands and huge parts of coastal areas **would** be completely gone!
* Sarah: Yeah, we all know about global warming but…
* Tom: Uh-huh. Well, **what if** you had all the power and money to save the environment, what would you do? **//what if = what would you do if xxx 如果xxx，那会怎么样**
* Sarah: Let me see… I **would** try and cut **greenhouse gas** GHGs **emissions** as much as possible. I would also try and use the natural resources we have at hand – build huge tanks for catching and storing rainwater; use solar energy everywhere and make sure everything gets recycled. And you, **imagine if** you **were** emperor of the world! **What would you do**?
* Mike: Well, **let’s not go that far我们不要扯太远了.** But, you know, I’m an event manager at our local Tourism Council. **Let’s say that** I **had** the position my boss has. I **would** introduce so-called ‘green checklists’ for all the events that are taking place to make sure businesses take the environment into consideration when planning their events. Also, ‘sustainable tourism’ is the new keyword.
* Sarah: What does that mean?
* Mike: It means that we make sure that there is a low impact on the environment and on the local culture while we’re helping to generate income and employment for the locals.
* Sarah: Aha, I see. …. So, **what if** I told you I was really hungry now, would you take me out for lunch? **//what if = what would you do if?**
* Mike: Of course! Let’s go and **grab a bite**! //随便吃几口；先吃点东西垫垫肚子

# Part 3) Climate change (greenhouse gas emission, carbon footprint)

## Words

* **see the “cnn\_searingheat.md” file in my opensource GitHub**
* depot /ˈdɛp**əʊ**/  , depots /ˈdɛp**əʊz**/

1.N A depot is a bus station or train station. **[ a bus depot /ˈdɛpəʊ/ 公共汽车站; a station depot /ˈdɛpəʊ/  火车站； recycling depots /ˈdɛpəʊz/: (waste废品) 回收站 ]** e.g. She was reunited with her boyfriend in the **bus depot** **/ˈdɛpəʊ/**of Ozark, Alabama.在 **汽车站** 重新团聚了。  
e.g. Speaking of waste, when do have things to recycle, make sure that you know here the **recycling depots ((废品)回收站)** near your home are, and also which materials can be recycled there, e.g. can, tins, plastic, paper, card box, old spectacles/glasses, etc.

e.g. Take all your recyclable garbage to **recycling depots ((废品)回收站)** weekly or monthly, and you’ll drastically **reduce, reuse, and recycle your waste (3R).**  
  
2.N A **depot** **/ˈdɛpəʊ/**is a place where large amounts of raw materials, equipment, arms, or other supplies are kept until they are needed. 仓库; 库房 depot **/ˈdɛpəʊ/**= warehouse [ food depots食物储藏室 ]

* **outset /ˈaʊtˌsɛt/** [ **From the outset** V.S. at the outset ]  If something happens **at the outset of an event, process, or period of time**, it happens at the beginning of it. If something happens **from the outset**, it happens from the beginning and continues to happen. 在开始时; 从一开始 e.g. **From the outset**, decide what kind of learning programme you want to follow. 一开始就要定下你的学习计划
* **soggy['sɑgi]浸水的透湿的**
* **nonetheless** 尽管如此['nʌnðə'lɛs]  
  The **daunting** task (killer task) ahead of us is full of **formidable challenges**艰巨的挑战, **nonetheless** 尽管如此['nʌnðə'lɛs], tackling the **ozone hole臭氧层空洞**  problem shows what can be achieved if we **collectively** set our minds to solving a problem
* **eve[n i]f = even though = although = though= nonetheless**['nʌnðə'lɛs] **V.S. whereas/but:** you use **whereas** to introduce a comment that **contrasts with** what is said in the main clause. 而 (引导与主句内容相对比的评论) e.g. Benefits are linked to inflation, **whereas** they should be linked to the cost of living. 救济金与通货膨胀联系了起来，而它们应该与生活费用挂钩
* 紫罗兰; 紫色的 V.S. 暴力的 violet V.S. violent **=> UV: ultraviolet 紫外线是**
* 志趣相投的；志同道合的**like-minded people** have similar opinions, ideas, attitudes, or interests. **[ like-minded friends ]** E.g. ...the opportunity to mix with hundreds of **like-minded people.** 与数百个志趣相投的人打交道 e.g. Some **like-minded people** got together and set up the TMC group. 些**志趣相投的**人聚在一起 e.g. Frankly, zhanglu and I are not so **like-minded**… Houzi and Gaogao are **link-minded** friends.
* **microorganism** /ˌmaɪkrəʊˈɔːɡəˌnɪzəm/  A microorganism is a very small living thing which you can only see if you use a microscope. 微生物
* **consumerism** /kənˈsjuːməˌrɪzəm/
  + Consumerism is the belief that it is good to buy and use a lot of goods. 消费主义 e.g. In this age of **consumerism**, we create a lot of trash. E.g. They have clearly embraced **Western consumerism**. 接受了 **西方的消费主义观念**。
  + **Consumerism** is the protection of the rights and interests of consumers. 保护消费者利益主义
* **用户导向的社会 a consumer-oriented society**
* **地质学 geology V.S.  地理 geography V.S. 地势 topography**
* wastewater   V.S. sewage
  + wastewater: (经生产过程使用后排出的)污水，废水 **[ wastewater plant 废水处理厂]**
  + sewage /ˈsuːɪdʒ/  Sewage is waste matter such as faeces or dirty water from homes and factories, which flows away through sewers. (下水道排出的) 废物
* 经济可行的(方案) **[ an economically viable/feasible method; an economically viable/feasible proposal; an economically feasible/viable proposal ]** e.g**. In a nutshell/All in all,** as far as I’m concerned, wind power would be the most **environmentally friendly** and **economically viable/feasible 经济可行的 way** to produce renewable energy for our city.

## Types of gas that affect climate

* 1. greenhouse gas温室气体 GHGs
* **CO2 (carbon dioxide)**: people or plants exhale e.g. Humans are responsible for the increase in CO2 emissions. E.g. The most common greenhouse gas in the US is carbon dioxide, that is CO2.
* **Methane**: Methane is a colourless gas that has no smell. Natural gas consists mostly of methane. 甲烷. E.g. Many **livestock** farmers raise cattle, which produce methane generously. E.g. **Livestock**, especially cattle or sheep, produce **methane**.
  1. toxic gas:
* **CO (carbon monoxide [mə'nɒksaɪd]):** an odorless very **poisonous** gas that is a product of incomplete combustion of carbon
* **Nitrous ['naɪtrəs] oxide, 笑气（等于laughing gas**）is a dangerous by-product of some manufacturing processes一氧化二氮 是许多生产过程中危险的副产品
* **chlorofluorocarbons or CFC**s: chlorofluoro-carbons氟氯烃. E.g Many blame CFCs as the most **culprit depleting (run out of) the ozone layer.** E.g. Many blame chlorofluorocarbons footprint (CFCs) as the most culprits for **depleting (run out of ) the ozone layer**. Earth's **ozone laye**r, which protects both humans and plant life from ultraviolet (UV) 紫外光 radiation from the sun, appears to be recovering许多人认为破坏臭氧层的罪魁祸首是含 “氟氯烃” CFC.

**climate change的词组**

|  |  |
| --- | --- |
| Nations are coming together to address **global warming**. | 各个国家携手共同应对全球变暖。 |
| In the age of **consumerism**, we depend a lot on fossil fuels. | 在消费主义的时代，我们非常依赖化石燃料。 |
| Some **frequent flyers** want airlines to use alternative energy.  Are you **a frequent flyer**? | 有些经常搭乘飞机的乘客希望航空公司使用替代能源。 |
| Rising temperatures can increase the effect of toxic substances. | 温度上升会增加有毒物质的影响。 |
| Have you calculated your **carbon footprint**, including **primary** carbon footprint and **secondary** one? | 你有算过自己的碳足迹吗？ |

## Find “reasons” (important for Writing a topic when providing reasons to support your argument)

|  |  |
| --- | --- |
| **Part of the reason** is the ice caps are vanishing. | 一方面是因为冰盖在消失。 |
| **As the** ice loosens, the penguins flourish. | 随着冰层的松动，企鹅繁衍生息。 |
| They don't get cold **because of** all those layers of fat. | 由于一层层的脂肪，它们不会觉得寒冷。 |
| **The simple fact that** not all the eggs hatch **is a reason for** concern. | 由于不是所有的卵都能成功孵化，这一情况让人非常担心。 |
| **That's why** scientists are confident about global warming. | 科学家之所以相信全球会变暖，原因就在此。 |

## Reading: Negative effect on penguins that climate change/global warming has

The first Adelie penguin (medium-sized penguins) chicks of the season started **hatching/incubating** this month. Scientists say that the simple fact that there are more of them in the south and fewer of them further north is **a sure sign** of **global warming.**  
  
There has been a dramatic decrease in the penguin population. Part of the reason is the disappearance of the ice. As the northern sea ice vanishes and penguin populations decrease, southern penguin colonies flourish as the sea ice loosens, making it easier for them to dive and fish.  
  
Adelies and Emperors are the only two species of penguins that live on sea ice. Because they have an incredible ability to produce layers of fat they are able to cope with the cold when the sea ice is heavy.   
  
Apparently, Adelie penguins have moved around, depending on the temperature, at least since the so-called Little Ice Age that occurred around the year 1200. Adelie **colonies**种群 began to appear further north during the Little Ice Age. The reason for that was that the Earth cooled slightly. However, since then, Adelie penguins have been retreating (back to South), and in the past 30 years this process (aka retreating to South) has been accelerating.   
  
When scientists were asked whether there is any doubt that this is a consequence of human-fueled global warming, they replied with a straightforward, "No."

## Intonation **语调**

你在听精通英语的人讲话时，可能听到他们在句中或句尾使用 **falling then rising intonation**（降升调）。这种语调模式可能表示说话人并未表达完自己的看法，一是他们并不确定，或者在思索合适的词

# Part 4) Hyphenated compound**连字-** 复合形容词

连字符(**-**)是一种标点符号，连接多个形容词构成名词，表示集合意义。复合形容词使用连字符，有助于清楚传达意思。单词使用连字符与否，可在词典和写作手册中查阅。一般来说，复合词如果令人混淆，就须使用连字符

|  |  |
| --- | --- |
| The village was built by 10 **like-minded** **people**. | 村庄由**志同道合的人**共同修建。 |
| They wanted to change our **consumer-oriented society。**  They believe we live in **a consumer-oriented society.** 他们认为我们生活在一个消费者导向的社会 | 他们希望改变我们这个**消费者导向的社会**。 |

The village was established over a five-year period. 这座村庄历时五年建成。

They reuse water from an on-site **wastewater plant**. 他们循环利用当地**废水处理厂**处理后的水源。

Have you seen the new **eco-village**? 你参观过那座新生态村吗

Homes are built using **environmentally friendly** methods. 房屋采用**环保的**工艺建造。

They eat only locally grown produce. 他们只吃当地种植的农产品。

# Writing: choose a “renewable energy”

Choosing a **renewable energy** source (e.g. wind, water, **hydropower**水力发电, **biomass, solar power, tidal energy**). Now prepare your presentation on which kind of **renewable energy** would be beneficial to your city. **=> Consider SWOT: strength V.S. weakness; Opportunity V.S.threat (like a coin with two side, pros and cons; advantages V.S. downsides)**

## Types of renewable energy/resources

|  |  |  |  |
| --- | --- | --- | --- |
| Renewable energy | How does it work? | Requirements (**SWOT**) | Costs (the main reason why I choose this energy) |
| Solar power | * Energy from the sun gets converted into **thermal energy** or **electrical energy** * Solar panels are used to absorb solar energy from sun's rays * Photons are then transformed into conduction electrons | * Preferably high quality solar panels * Lots of sun light * Large surfaces to install solar panels * A lot of money for installation and maintennance | * High installation costs * Quite high maintenance costs (cleaning, short circuits, **cracks/fissure裂缝**, corrosion) * Will cost the city $120,000 |
| Hydroelectricity **(hydropower水力发电)** | Hydroelectricity is produced through use of the **gravitational force** of falling or flowing water | A strong river with a dam built across It | * No fuel costs required (which means no fossil fuels, low carbon footprint, main carbon foot print) * Relatively low building and maintenance costs (need to compare with other renewable energy ) * Will cost the city $75,000 (need to compare with other renewable energy) => good ROI |
| **Tidal energy**  **(潮汐)** | * a form of **hydropower** that converts the energy of tides into electricity or other useful forms of power * tidal waves move water into power turbines, that kinetic energy gets converted into electric energy | * ocean coast with strong tides | * relatively low cost and low ecological impact * Will cost the city $60,000 |
| Wind power | conversion of wind energy into electricity by using wind turbines | * areas with strong winds * **wind turbines**   // **turbine** is a machine or engine which uses a stream of air, gas, water, or steam to turn a wheel and produce power. 涡轮机 | * negligible fuel costs and relatively low maintenance costs * cost of construction of the turbine and transmission facilities $80,000 |
| **Biomass** | biological material derived | forest residue | relatively low  but compared with other renewable resources, it takes much longer time to generate energy by biomass |
| **nuclear fission核裂变** |  |  |  |

## Sample- Wind power

**( leading sentence) In my opinion/To my mind/From my perspective/Personally**, wind power would be the most effective form of natural power to meet our city’s energy needs based on **supply and demand** in our city.

( Reason 1 ) As you know, our city is located by the sea. We have three hundred and sixty-five windy days a year. Wind power creates no waste and does not use any **fossil fuels (aka, non-renewable energy, e.g. gas, oil, coal)** or other kind of finite energy, which means it creates rare **carbon footprint, esp. the primary carbon footprint**. Compared with other **renewable resources**, like solar energy, hydropower, biomass, wind power is low-cost and highly profitable. //**in stark contrast to sth (对比) 鲜明的**

**( Reason 2 ) Last but not least**, the cost of installing **wind turbines** would come to only 80, 000 dollars, and the maintenance costs would be very low **relatively**. It would be better than solar power, as it creates less carbon, and it would be more efficient than using a “Natural living machine, aka biomass” because the **wind turbines** would need fewer people to oversee them, and therefore would be more cost-effective. => ROI

**( Ending ) In a nutshell/All in all,**  as far as I’m concerned, wind power would be the most **environmentally friendly** and **economically viable/feasible**  经济可行的 way to produce renewable energy for our city.

## My topic – hydroelectricity

* Hydroelectricity: is **electricity** made from the energy of running water. 水力(发的)电
* Hydro-power or water power is **power** derived from the energy of falling water and running water, which may be harnessed for useful purposes. Kinetic energy of flowing water (when it moves from higher potential to lower potential) rotates the blades/propellers of turbine, which rotates the axle. [**hydropower station**](javascript:void(0);)水电站

**( leading sentence) In light of the location and geographical situation of our city, from my perspective**, hydroelectricity would be the most effective and **environmentally friendly** form of renewable resource to meet our city’s energy needs based on **supply and demand** in our city.   
**// in light of = on the basis of =upon //供需 supply and demand**

**( 1st Reason: topography: mountain + abundant water + dam )** First of all, our city is located by the famous QinLing mountain, which is surrounded by two huge rivers, with arteries flowing around the city outskirts. **In stark contrast to** other inland cities, we have rather more abundant water resources and the Civil Energy Management enforcement officials have built at least three magnificent dams on the hillside. As you know, hydroelectricity is produced through use of the **gravitational force** of falling or flowing water, our dams ideally makes full use of our city’s **topography (地利)** on the basis of totally free natural gravitation to effective generate hydropower.  
**//地质学 geology V.S.  地理 geography V.S. 地势topography**

**( 2nd reason: No fossil fuel costs required, carbon footprint, primary carbon foot print; no waste=> so environmentally friendly)**

Then part of the reason that I strongly choose hydroelectricity is that no waste is created, which means we don’t need to consider letting wastes sitting in **landfills** or biodegrade problem. What is more, it does not use any **fossil fuels, like gas, oil, or coal**, which indicates that it even hardly creates **carbon footprint, esp. the primary one**. Compared with other **renewable resources**, like solar energy, thermal energy, tidal enery, or biomass, hydroelectricity is quiet environmentally friendly. //**in stark contrast to sth (对比) 鲜明的**

**( 3rd reason: low cost: Relatively low building and maintenance costs great ROI )**

**Last but not least**, the cost of building dams, building **hydropower station** would come to only 75, 000 dollars, and the maintenance costs would be **relatively** low. Even though the cost is a little more expensive than tidal energy that however needs higher requirements, it is comparatively much cheaper than solar energy and other renewable energies. And it would be more efficient than using a “Natural living machine, biomass”. Considering the return on investment (ROI), hydroelectricity is more cost-effective.

//**水电站 hydropower station**

**(Ending sentence ) I[n a] nutshell,**  as far as I’m concerned, hydroelectricity would be the most **environmentally friendly** and **economically viable/feasible** way to produce renewable energy for our city. //经济可行的 economically viable/feasible

# CNN related news about environment

## Searing heat in globe – swelter in waves of searing heat

<https://edition.cnn.com/2018/08/04/world/climate-change-deadly-summer-wxc-intl/index.html>

see the “cnn\_searingheat.md” file in my opensource GitHub

## Earth to warm 2 degrees Celsius by the end of this century

<http://edition.cnn.com/2017/07/31/health/climate-change-two-degrees-studies/index.html>

By the end of the century, the global temperature **is likely to** rise more than 2 degrees **Celsius**, or 3.6 degrees **Fahrenheit**. This rise in temperature is the **ominous** conclusion reached by two different studies using entirely different methods published in the journal Nature Climate Change on Monday.

[One study](http://nature.com/articles/doi:10.1038/nclimate3352) used statistical analysis to show that there is a 95% chance that Earth will warm more than 2 degrees Celsius at century's end, and a 1% chance that it's below 1.5 C. "The likely range of global temperature increase is 2.0-4.9 [degrees Celsius] and our median forecast is 3.2 C," said author of the first study. "Our model is based on data which already show the effect of existing **GHG emission** **mitigation (缓解alleviate) policies**. Achieving the goal of less than 1.5 C warming will require carbon **intensity**强度；强烈 to decline much faster than in the recent past."

The [second study](http://nature.com/articles/doi:10.1038/nclimate3357) analyzed the previous emissions of **greenhouse gases (GHG)** and the burning of **fossil fuels** (such as coal, natural gas, **petroleum/pəˈtrəʊlɪəm**/) to show that **even if** humans suddenly stopped burning **fossil fuels** from now on, Earth will continue to warm/**heat up** about two more degrees Celsius by 2100. It also concluded that if GHG emissions continue for 15 more years, which is more likely than a sudden stop, Earth's global temperature could rise as much as 3 degrees Celsium. "**Even if/though** we would stop burning **fossil fuels (e.g. coal, natural ga, petroleum/ pəˈtrəʊlɪəm/)** today, the Earth would continue to **warm/heat up** slowly," said the author of the second study. "It is this committed warming that we estimate."

Taken together, the similar results present a **grim** reality. "These studies are part of the emerging scientific understanding that we're in even hotter water than we'd thought," said an **environmentalist** [in,vaiərən'mentəlist] not affiliated with either study. "We're in a long way down the path to **disastrous** global warming, and the policy response -- especially in the United States -- has been **pathetically**可怜地；感伤地；悲哀地 overwhelming."

Because both studies were completed before the [**United States left the Paris Agreemen**t under President Trump](http://www.cnn.com/2017/06/01/politics/us-paris-agreement-trump/index.html) earlier this year, that has not been accounted for in either study. "Clearly the US leaving the Paris Agreement would make the 2 C or 1.5 C targets even harder to achieve than they currently are," said Raftery.

Why two degrees?

The 2 degree mark -- that's a rise of 3.6 degrees **Fahrenheit** ['færən'haɪt] in global temperature -- was set by the 2016 **Paris Agreement.** It was first proposed as a threshold by Yale economist William Nordhaus in 1977. The climate has been warming since the burning of **fossil fuels (e.g. coal, natural gas, petroleum/ pəˈtrəʊlɪəm/)** began in the late 1800s during the **Industrial Revolution**, researchers say.

If we surpass that mark/threshold, it has been estimated by scientists that life on our planet will change as we know it. Rising sea levels, mass extinctions of **endangered animals**, super droughts干旱, increased wildfires, intense hurricanes, decreased crops and fresh water, and the melting of the Arctic are expected.

**The impact on human health that climate change has:**

The impact on human health would be profound. Rising temperatures and shifts in weather would **lead to** reduced air quality, food and water contamination, more infections carried by mosquitoes and ticks and stress on **mental health**, according to a recent report from the [Medical Society **Consortium** [kən'sɔːtɪəm] [kənˈsɔrʃiəm] on Climate and Health](https://medsocietiesforclimatehealth.org/reports/medical-alert/).

Currently, the [World Health Organization (WHO) estimates](http://www.who.int/mediacentre/news/releases/2016/deaths-attributable-to-unhealthy-environments/en/) that 12.6 million people die globally due to pollution, extreme weather and climate-related disease. Climate change between 2030 and 2050 is expected to cause 250,000 additional global deaths, according to the [WHO](http://www.who.int/mediacentre/news/releases/2016/deaths-attributable-to-unhealthy-environments/en/).

**Our potential future:**

The first study used population, **carbon footprint**  **(primary carbon footprint and secondary carbon footprint)** and **gross domestic product (GDP)** data from 152 countries (accounting for 98.7% of the world's population as of 2015) over the past 50 years to develop a new **statistical model**, said a professor of statistics and sociology at the University of Washington.

Many studies come from the Intergovernmental Panel on Climate change and use climate model scenarios -- not forecasts -- to use as examples of what might happen, based on specific **assumptions** about economics, population and **carbon footprint (primary carbon footprint and secondary carbon footprint)** in the future.

What Raftery and his colleagues discovered is that population is not a factor. "This is due to the fact that much of the expected future population growth will be in Africa, in countries whose carbon emissions/footprints are currently very low,"Raftery said. The study confirms conclusions of many other studies.

"This interesting paper confirms the conclusion about where the world is headed unless there is a major increase in the ambition of climate and energy policies," Hare said. The other finding of the study suggests that achieving a goal of less than 1.5 degree Celsius warming would require carbon intensity to decline faster than it has in the past. "The whole purpose of climate and energy policy is to accelerate **decarbonization[di:,kɑ:bənai'zeiʃən, -ni'z-] 脱碳（作用）** and this will necessarily be faster than what we have seen globally," Hare said.

Mauritsen, author of the second study and climate researcher at Max Planck Institute for **Meteorology**, also shared thoughts on Raftery's findings. "It seems interesting in that it uses an economic statistical model that accounts for an increasing energy efficiency as societies develop," Mauritsen said. "It shows that the 1.5 to 2 degrees targets will not be met without additional **mitigation**/**alleviation**, and suggests that a focus on energy efficiency is the best way forward."

The impact of our past:

By combining observations of past global warming and how much heat and carbon is being captured and taken in by the ocean, Mauritsen and his co-author, Robert Pincus, found that even though CO2 has an incredibly long **lifetime** in the **atmosphere**, the ocean's absorption capacity may reduce estimates of global warming by 0.2 degrees Celsius.

"It shows, in effect, that unless we start reducing emissions quickly **--** soon there is a risk that we will overshoot temperature limits like 1.5 or 2 degrees C," Hare said. "It is just another confirmation of how dangerous the present situation is unless CO2 emissions, which have flatlined in the last few years, really start dropping. "This addresses a somewhat different question, namely how much warming should we expect if **fossil fuel** emissions were to suddenly cease," Raftery said. "**In contrast,** our study tries to assess how much warming we should expect given realistic future **trajectories** of emissions. Thus the other study provides a lower bound on expected emissions and warming, and this is indeed lower than the likely range we find, as we would expect."

What can be done? Researchers know that if there is any hope of preventing the outcomes they include in their findings, changing public policy is key.

[5 things you can do about climate change](http://edition.cnn.com/2017/06/02/us/5-things-you-can-do-about-climate-change/index.html):

"The next few years are going to be key in the fight against global warming," said Dargan, co-author of the first study. "Are we going to get to work installing clean energy, or stick to old polluting sources? If we don't act quickly, we better get to work preparing for many severe consequences of a much hotter world." "There are only two realistic paths toward avoiding long-run disaster: increased financial incentives to avoid greenhouse gas emissions and greatly increased funding for research that will lead to at least partial technological fixes," said Dick Startz, economist and co-author of the second study. "Neither is free. Both are better than the catastrophe at the end of the current path."

Join the conversation

**Silver linings一线希望（或慰藉）** and hope are hard to find in climate change studies, but they also don't account for every factor. "The only bright point is that, as the study authors say, they haven't factored in the **plummeting/plunging/nosediving** cost of solar power, one of the most **sought-after** **renewable energies** 最吃香的可再生资源." McKibben said. "That's the one way out we still might take -- but only if our governments **take full advantage of (充分)利用** the breakthroughs our engineers have produced."

## China is crushing the U.S. in renewable energy

http://money.cnn.com/2017/07/18/technology/china-us-clean-energy-solar-farm/index.html

This solar farm floats atop a flooded coal mine. China may be the planet's biggest polluter but it's also powering ahead of other countries on **renewable energy.** As the Trump administration **yanks猛的一拉 the U.S. out of** the Paris climate change agreement, claiming it will hurt the American economy, Beijing isinvesting hundreds of billions of dollars and creating millions of jobs in clean power.

China has built vast solar and wind farms, helping fuel the growth of major industries that sell their products around the world. "Even in China where coal is -- or was -- king, the government still recognizes that the economic opportunities of the future are going to be in clean energy," said Alvin Lin, Beijing-based climate and energy policy director with the Natural Resources Defense Council.

More than 2.5 million people work in the solar power sector alone in China, [compared with 260,000 people](http://money.cnn.com/2017/05/24/news/economy/solar-jobs-us-coal/index.html?iid=EL) in the U.S., according to the most recent annual report from the International Renewable Energy Agency.

While President Trump promises to put American coal miners back to work, China is moving in the opposite direction. Coal still makes up the largest part of China's energy consumption, but Beijing has been shutting coal minesand set out plans last year to cut [roughly 1.3 million jobs](http://money.cnn.com/2016/02/29/news/economy/china-steel-coal-jobs/index.html?iid=EL) in the industry. The Chinese government has also moved to restrict the construction of new coal power plants.

For the first time ever, China's National Energy Administration in January established a mandatory target to reduce coal energy consumption. It also set a goal for clean energy to meet 20% of China's energy needs by 2030.

Analysts expect China to easily meet that target. Greenpeace noted in a [report](http://www.greenpeace.org/eastasia/press/releases/climate-energy/2017/By-2030-Chinas-wind-and-solar-industry-could-replace-fossil-energy-sources-to-the-tune-of-300-million-tonnes-of-standard-coal-per-year/) earlier this year that the country's clean energy consumption rose to 12% at the end of 2015. **Renewable energy** sources account for about [10% of total U.S. energy consumption](https://www.eia.gov/tools/faqs/faq.php?id=92&t=4), according to official statistics.

To help reach the 2030 goal, China is betting big on **renewable energy**. It pledged in Januaryto invest 2.5 trillion yuan ($367 billion) in renewable power generation -- solar, wind, **hydropower水利发电** and **biomass**, nuclear -- by 2020.

The investment will create about 10 million jobs in the sector, the National Energy Administration projects. China currently boasts 3.5 million jobs in clean energy, by far the most in the world, according to the International Renewable Energy Agency.

The country has already become a major manufacturer and exporter of renewable energy technology, supplying some two-thirds of the world's solar panels. China also **has a strong grip**支配 **on** wind power. It produces nearly half of the world's wind turbines -- at a rate of about two every hour.

China's hottest new project is a giant floating solar energy farm located in the eastern province of Anhui. Covering about 100 square miles, it is the largest floating panel facility in the world. It has the capacity to produce enough energy to power 15,000 homes, according to Sungrow Power Supply, the company behind the farm. Fittingly, the solar farm floats atop a flooded area once home to a coal mining factory.

The idea to float solar panels is fast catching on in an industry that faces one persistent problem -- space. Initially it is more expensive to build solar farms on water than on the land.But experts say floating solar panels can run more efficiently in the long run, because they are cooled by the water underneath.

"The whole world, including China, is recognizing that we need to fight climate change," said Yao. "I'm pretty sure this is going to be a trend." China's growing **dominance** in the sector has had a huge effect on the global market.

Manufacturers dramatically **ramped u**p production of solar panels, driven by an estimated $42 billion in government **subsidized** loans between 2010 and 2012, according to the GW Solar Institute at George Washington University. The flood of Chinese panels was one of the main reasons why [world prices crashed by 80%](http://www.irena.org/rethinking/Rethinking_FullReport_web.pdf) between 2008 and 2013.

The U.S. accused China of flooding the market and the Commerce Department started **imposing steep tariffs on** Chinese-made solar panels in 2012 in a bid to protect American producers.

Just last month, the U.S. informed the World Trade Organization that it may **impose tariffs on** imports of solar panels from other countries as well, alleging that Chinese companies have opened production facilities in third countries to get around import restrictions.

## ( Recorded in mp3) Recycling the cardboard: This foldable bike helmet is made from **cardboard box**

<http://money.cnn.com/2016/09/08/technology/ecohelmet-bike-helmet-foldable/index.html>

28-year-old industrial designer Shiffer **was getting fed with/tired of/weary of** lugging around her own helmet, so she took matters into her own hands. Called the EcoHelmet, Shiffer created a unique foldable helmet designed to be purchased from **a vending machine自动售货机** at a bikeshare station. "You could buy a helmet for $5 or less, and when you're done with the ride, you'd put it back in a **recycling bin** located at each station” The **environmentally friendly** bike helmet is made by **reusing** **cardboard** and folds to the size of a banana.

The EcoHelmet features a radial **honeycomb蜂巢状之物** pattern that absorbs a hard blow and spreads impact evenly **平均的**around the head. The paper is coated with a corn-based **biodegradable wax** **(生物降解的)** that makes it **waterproof** -- the same kind that coats **throwaway/disposable 一次性的** coffee cups. The helmet can also potentially be made from plastic. (**Plastic isn't biodegradable生物降解, but it does decompose分解 and it takes about 20 years for such a plastic cup to decompose.**).

**From the outset**从一开始, she sought **to create a helmet that's cheap, recyclable a**nd available to anybody. I want my helmet to keep cyclists safe, and **make cities safer, greener**, and more **environmentally friendly** at the same time".

## ( Recorded in mp3) Recycling the **throwaway/disposable一次性的** Starbucks coffee cup

<http://money.cnn.com/2016/07/21/news/starbucks-recyclable-cups/index.html>

Then you may have a **dilemma**. An estimated 60 billion paper cups in the U.S. end up in city **landfills**垃圾填埋地 every year because they can't be recycled easily. But Starbucks, the market leader, may have found a solution. The entrepreneur said people are often shocked to learn that existing paper cups are only used once and rarely get recycled, just **a throwaway/disposable product 一次性产品/用完就扔.**

Traditionally, the **throwaway/disposable一次性的** coffee cup is an environmental nightmare. Most are made from **cardboard** with a thin layer of plastic tightly attached to the cup. This keeps the drink warm and prevents the **cardboard** from becoming **soggy['sɑgi]浸水的透湿的**. But it also makes the cup non-recyclable. **Plastic isn't biodegradable生物降解, but it does decompose分解 and it takes about 20 years for such a plastic cup to decompose.**

Campaigners have long been pushing for retailers to start using more **sustainable** cups, or at least come clean about the impact their cups have on the environment. Several major chains in the U.K., including Starbucks, McDonald's, pledge to step up efforts to boost **recycling rates.** On Wednesday, Starbucks agreed to take the issue further and test a new fully **recyclable** kind of coffee cup in the U.K.

The cups are made from **recycled** paper by British **packaging company包装公司**, which pitched the idea to Starbucks. A plastic liner is only lightly bonded onto the paper after the cup's shape is formed. The design allows the plastic lining to be easily separated in a recycling plant -- the liner gets stuck in the filters, while the **cardboard** goes through and **can be recycled and reused**, up to seven times, mostly to print newspapers.

## ( Recorded in mp3) From recycled houses to solar-powered fridges: 5 tech startups changing the world

<http://money.cnn.com/2016/07/15/technology/social-entrepreneurs-the-venture-winners/index.html>

In neighborhoods across Colombia, there's a great need to build more shelters and schools. **In response**, local startup Conceptos developed a **plan to build those structures cheaply and sustainably by turning recycled plastic and rubber waste into bricks**.

… Each judge assessed the companies based on their ability to create **sustainable** change through an **environmentally viable/feasible** business model and potential to scale. "It feels wonderful that people recognize what we are doing," Oscar, an architect told CNN. "We want to take waste out of **landfills** 垃圾填埋地 and use it to make houses for people in need and improve their **livelihood 生计**."

## ( Recorded in mp3) How IBM is making plastic less toxic

Plastic products are **ubiquitous** (existing everywhere) -- from your sunglasses, toys and water bottles to your smartphones, tablets and even circuit boards. What happens when these products are discarded? The ideal scenario would be that it's all recycled. The reality after you throw away plastic and let it sit forever in **landfills**垃圾填埋地, it takes roughly 20 years to **decompose**分解 **and degrade**降解.

Plastic isn't **biodegradable**生物降解, but it does **decompose**分解 and it takes about 20 years for such a plastic to **decompose**. As it breaks down, the polycarbonates used to make plastic products release BPA, an industrial chemical that can eventually leach into the environment.

Scientists at IBM have figured out a way to repurpose this plastic so that it doesn't release BPA. The process is fairly simply, and that's where the **breakthrough** has occurred. "We took apart the **polymer**  [高分子] 聚合物, introduced new elements into it and recycled it into a new type of plastic

Moreover, Garcia said the recycling process could eventually keep more used plastic products out of **landfills. "It's an environmental win on many fronts," she** said. The **repurposed** plastic could be safe enough to use in water purification systems, fiber optics and even medical equipment.

Garcia and Jones are now looking for commercial partners to take their innovation to the next level. "This is a **brand new** process, so we are a few years away from widespread adoption. But we do want to eventually **scale this up**."

## ( Recorded in mp3) Global warming - the primary culprit is greenhouse gases (GHGs)

[http://edition.cnn.com/2006/TRAVEL/10/27/earth.trading.carb( Recorded in mp3) on/index.html](http://edition.cnn.com/2006/TRAVEL/10/27/earth.trading.carbon/index.html)

**Greenhouse gases (GHG)** are being bought and sold on the open market by countries concerned about climate change. The **Kyoto Protocol**, an international treaty to **curb/prevent** global warming, created the market **in greenhouse gases to** reduce emissions of **methane**, **carbon dioxide**, carbon monoxide and other **detrimental** **gasses** (e.g. **nitrous** ['naɪtrəs] **oxide**) that heat up the planet and reduce remission of CFC that’s **depleting (**耗尽run out of**) the ozone layer**. As we know, Earth's **ozone laye**r, which protects both humans and plant life from **ultraviolet (UV)** 紫外光 radiation from the sun, appears to be recovering // **CFC is the most culprit for depleting (run out of) the ozone layer.**

Greenhouse gases (**GHG**)-- prime **culprits** in global warming -- trap heat in the Earth's atmosphere. The **Kyoto Protocol**, with more than 140 nations on board, aims to use market forces to **rein in (control缰绳；驾驭)** GHG emissions by creating a market in greenhouse gasses. Under the **draconian** rules, participating countries may emit a specific limited quantity of the gasses, which cannot exceed designated threshold.

The World Bank estimates that funds offering **mitigation** investments are worth about $1.5 billion. Investors are funding projects that reduce greenhouse gas emissions, like **hydroelectric dams (hydropower**水力发电**) and renewable energy plants**.

The United States proposed the market plan for the **Kyoto Protocol** when it first signed the treaty in 1998. It withdrew in 2001 arguing that the treaty failed to appreciably slow global warming or include developing nations. Despite initial resistance, it has been **embraced** 欣然接受by Europe and Japan as an **economically viable/feasible**经济可行的 way to slow climate change.

The world currently emits about 28 billion tons of carbon dioxide or its equivalent in other greenhouse gases (e.g. **methane, carbon monoxide, nitrous oxide, and CFC**) each year. Under the **Kyoto Protocol**, industrialized countries must cut emissions by 5.2 percent between 2008 and 2012. "What is really happening is …. operating **unilaterally**…."

Advocates of the **Kyoto Protocol** argue that market-based approaches are required to **tamp down** (press down tightly) the rising **greenhouse gas emissions** because every sector of the economy, from agriculture to aerospace, contributes to the problem. “Economic incentives -- backed up by government rules -- are **indispensable**责无旁贷的.”

The United States withdrew from the treaty in 2001, citing concerns over domestic economic growth and **exemptions** for rapidly developing countries like China and India. The United States has one of the highest **per capita** rates of emissions of **greenhouse gas (GHGs)**.

## ( Recorded in mp3) Ozone layer – protect from UV (ultraviolet)

<http://edition.cnn.com/2005/TECH/science/09/02/ozonerecovery/index.html>

**Earth's ozone layer, which protects both humans and plant life from ultraviolet (UV) 紫外光 radiation from the sun, appears to be recovering**. A study shows declining ozone levels have **leveled out (being stable)** from 1996 to 2002, and in some areas there even are small increases. But scientists are cautious about the apparent recovery of **the ozone layer**, which they say has been thinning for many years because of the widespread use of several industrial chemicals.

In the mid-1970s scientists discovered that chlorine and bromine compounds, used widely for refrigeration and in aerosol products, was **depleting (耗尽run out of) the ozone layer** in the stratosphere, from about 6 to 30 miles above Earth. **When more UV (ultraviolet ) rays reach Earth, people would absorb more detrimental UV radiation, are more subject to skin cancer, cataracts and other diseases**. There also may be consequences for **plant life**, including lower **crop yields产量** and an upset in the ocean's **food chain.**

The global effort to deal with the ozone problem gained **momentum**  势头; 动力冲力 in the mid-1980s, when satellite evidence showed huge **"ozone holes**" over both the Arctic and Antarctic regions. The 1987 Montreal Protocol, **ratified/approved** by more than 180 nations, triggered changes in the manufacturing and design of products and processes that used chlorofluorocarbons, known as CFCs this is **the main culprit depleting (耗尽run out of) the ozone layer.**

But even with indications of the beginning of an ozone recovery, Weatherhead said people still need to be conscious of the dangers of **ultraviolet** (UV) radiation. People should continue to use **sunscreens/sunblocker防晒霜** and UV-blocking sunglasses to protect skin and eyes from the UV radiation that does make it to Earth's surface.

But the response to climate change issues already has been much different from reaction to the ozone problem. "Changing from one style of refrigerator to another is a smaller and easier change than changing the way we all **use fossil fuels (like gas, oil, coal, all non-renewable resources) that are the main culprits for carbon footprint”** "Everybody involved with the Montreal Protocol, the scientists, industry, government regulators, were all science oriented, and tended to believe science. That makes a difference. Most of the world call for action **on global warming** is more **attuned to (使协调；使合拍；为…调音)** the science than the U.S. is," he said.

## **(keep recording)** Holes in ozone layer

<http://edition.cnn.com/2016/07/21/world/ozone-hole-conversation/index.html>

The hole in the ozone layer was first [discovered in 1985](http://www.nature.com/nature/journal/v315/n6016/abs/315207a0.html) by scientists from the British Antarctic Survey, who described how ozone levels above the Antarctic were steadily dropping compared to the previous decade. This was quickly recognised as a severe environmental problem -- and the **culprit** was identified as the unchecked use **of chlorofluorocarbons, or CFCs**. **CFC is the most culprit for depleting (run out of) the ozone layer.**

Soon after**, the Montreal Protocol** banning the use of **CFCs** was signed and **came into effect** in 1989. Now, 27 years later, we have published evidence that shows the ozone hole is [beginning to close](http://science.sciencemag.org/content/early/2016/06/29/science.aae0061). The chlorine atom is the component of CFCs that is responsible for ozone destruction. Very little chlorine exists naturally in the upper atmosphere as it generally emerges near Earth's surface -- for example from salt (sodium chloride, or NaCl) in sea spray -- in **water-soluble** forms that are "washed out" of the atmosphere by snow and rain. CFCs **on the other hand** are not **water soluble**水溶性, so are extremely efficient at carrying chlorine high into the **stratosphere** at the level of the ozone layer. Once in the **stratosphere** ['strætəsfɪr] 同温层, **ultraviolet (uv) radiation** breaks free the chlorine atom to destroy ozone and react with other substances.

The reason there is an ozone hole in the Antarctic is that it is the coldest place on Earth -- it is so cold that clouds form in the Antarctic **stratosphere**['strætəsfɪr] 同温层. Those clouds provide surfaces on which the man-made chlorine from **the CFC may go on to destroy ozone much more efficiently**. Together with sunlight, this special chemistry is what makes springtime **ozone depletion**消耗 worse in the Antarctic.

Our study, led by Professor Susan of the Massachusetts Institute of Technology, shows that the rapid worldwide agreement to sign and implement the **Montreal Protocol** **has paid off**. Signed by all the countries in the world, it was the first universally **ratified/approved** treaty in United Nations history. We show that the average size of the **ozone hole** above Antarctica each September has shrunk from about 20m square kilometres to 16m square kilometres since 2000.

There are other **metrics** that indicate the ozone layer is on the **mend 修补；改善**-- such as observations that the **ozone hole** is opening about 10 days later than in 2000. These observations became even more meaningful through our study's computer model simulations which meant we were able to attribute more than half of the hole's shrinking to the reduction in CFCs.

Regardless of the annual ups and downs of the size of the ozone hole, it's now clear that banning CFCs through the Montreal Protocol almost 30 years ago was the right decision. Because of swift international action, that decision is now **bearing fruit** and the Antarctic ozone hole is starting to **heal/recover** -- perhaps to close completely by as early as the 2050s.

But even while we are on the way to resolving one environmental issue, the next is already upon us: man-made climate change. The **daunting** task ahead of us is full of **formidable challenges**艰巨的挑战, **nonetheless** 尽管如此['nʌnðə'lɛs], tackling the ozone hole problem shows what can be achieved if we **collectively** set our minds to solving a problem.

## Env protection: plastic pollution

<https://edition.cnn.com/2018/06/07/world/plastic-in-schools-world-oceans-day/index.html>

Background: In 2014, the United States produced 33.25 million tonnes of plastic, only 9% of which was recycled -- 75% of plastics ended up in **landfill** sites, [according to the Environment Protection Agency](https://www.epa.gov/sites/production/files/2016-11/documents/2014_smmfactsheet_508.pdf).

If children anywhere should care about plastic in our oceans, it's those in the Maldives['mɔld**aɪ**vz;-d**ɪ**vz], a country that is 99% water and 1% land. From the tourism that [generates 37% of all jobs](https://www.wttc.org/-/media/files/reports/economic-impact-research/countries-2018/maldives2018.pdf) on this idyllic[aɪ'dɪlɪk] chain of **coral**/ˈkɒrəl/**islands** to the quality of the tuna eaten there for three meals a day, their future **hinges on(depends upon)** clean seas.

But there's a problem. Until this year, most Maldivian children had not seen a **coral reef,** could not swim, and often held a deep-rooted fear of the big blue. Ghost nets **entangling** turtles, plastic bags **defiling/polluting** corals, and **straws** in **the guts of fish** existed in a different world. **//entangle:to make something become twisted and caught in a rope, net etc〔用绳、网等〕缠住，套住**

In 2018, that is changing. A government is pushing schools to eliminate/get rid of **throw-away/disposable一次性的/single-use** plastics. "We're an importing economy and everything comes wrapped in plastic. So it's a big battle, but **we're starting where we think** we'll make the most difference: with schools. Showing kids what it is we want them to protect."

For World Oceans Day, all 212 schools in the Maldives has asked students to strip **single-use/throw-away/disposable一次性的** plastics from their lunch. But how unique is the Maldives' student **awareness of** plastic pollution? We visited schools from Venezuela to Tokyo to find out.At High School West, the lunch options are healthy -- perhaps **surprisingly** so for a nation [**plagued by obesity**](https://edition.cnn.com/2017/10/13/health/adult-obesity-increase-study/index.html). There's a salad bar, and a wide variety of fresh fruit and vegetables. But for the environment it's not so healthy. Salads are still served in plastic containers, while breakfast and lunch come on **single-use/throw-away/disposable一次性的** **biodegradable** trays. The cafeteria uses plastic **cutlery**.

Some steps have been taken, however, for the better. "We use self-serve **dispensers** for **condiments** and **salad dressings** instead of individual packets. We do not serve foods that come packed in (sheet) plastic. The district also installed water bottle refilling stations. We **are a lot more aware now of** our plastic use than we have been in the past.Classrooms have recycling bins and teachers encourage us to recycle our water bottles."

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| --- |
| //disposable=throw-away=single-use (adj)  disposable: intended to be used once or for a short time and then thrown away一次性的，用完即丢弃的  •disposable underware/chopsticks/cups 一次性  // intended to be used once or for a short time and then thrown away  一次性的，用完即丢弃的  •disposable nappies 一次性 |
| /ˈlændˌfɪl/ landfill  1.[N-UNCOUNT](javascript:;)Landfill is a method of getting rid of very large amounts of rubbish by burying it in a large deep hole. 垃圾填埋法•  ...the environmental costs of landfill.   …垃圾填埋法对环境的损害。  2.[N-COUNT](javascript:;)A landfill is a large deep hole in which very large amounts of rubbish are buried. 垃圾填埋场  •  The rubbish in modern landfills does not rot.   现代垃圾填埋场里的垃圾不会腐烂。 |
| /ɪˈdɪlɪk/ idyllic    [ADJ](javascript:;)If you describe something as idyllic, you mean that it is extremely pleasant, simple, and peaceful without any difficulties or dangers. 闲适恬静的(田园的)  •  ...an idyllic setting for a summer romance.   …一个适合夏季恋曲的闲适环境。  an idyllic place or time is very beautiful, happy, and peaceful, with no problems or dangers  美丽宁静的；快乐祥和的  idyllic setting/surroundings/scene etc  •If you want old-world tradition in an idyllic setting, this is the hotel for you. 如果你想找一处恬静宜人而又古色古香的环境，那么就是这家酒店了。  DERIVATIVE 派生词  idyllically adv /-kḷɪ ; -kli /  •idyllically happy 悠然欢畅 |
| /ˈkɒrəl/ coral  1.[N-VAR](javascript:;)Coral is a hard substance formed from the bones of very small sea animals. It is often used to make jewellery. 珊瑚  •  The women have elaborate necklaces of turquoise and pink coral. 粉色珊瑚制成  珊瑚礁 coral reef  [N-COUNT](javascript:;)A coral reef is a long narrow mass of coral and other substances, the top of which is usually just above or just below the surface of the sea. 珊瑚礁  •  An unspoiled coral reef encloses the bay.  未经破坏的珊瑚礁围绕着该海湾。  2.[N-COUNT](javascript:;)Corals are very small sea animals. 珊瑚虫  •  The seas around Bermuda are full of colourful corals and fantastic fish.   百慕大周围的海域中到处都是五彩的珊瑚虫和奇异的鱼类。  3.[COLOR](javascript:;)Something that is coral is dark orangey-pink in colour. 珊瑚色的  •  ...coral lipstick.  …珊瑚色的口红。 |
| phr v: [hɪndʒ] hinge on/upon sth  if a result hinges on something, it depends on it completely 取决于  •His political future **hinges on** the outcome of this election. 他的政治前途取决于这次选举的结果。  •The case against him **hinged on** Lewis’ evidence. 对他的指控是否成立，最终取决于刘易斯的证词 |
| /ɪnˈtæŋɡəl/ entangle to make something become twisted and caught in a rope, net etc 〔用绳、网等〕缠住，套住If one thing entangles itself with another, the two things become caught together very tightly. 紧紧缠住  •  The blade of the oar had entangled itself with the strap of her bag.   桨叶和她包的带子紧紧缠在了一起  [+ in/with]  •Small animals can get entangled in the net. 小动物会被网套住。  2.to involve someone in an argument, a relationship, or a situation that is difficult to escape from 使卷入；使陷入If something entangles you in problems or difficulties, it causes you to become involved in problems or difficulties from which it is hard to escape. 使陷入; 使卷入  •  Bureaucracy can entangle applications for months.   官僚主义会使申请耽搁数月之久  [OPP](javascript:;) DISENTANGLE  entangle sb in/with sth  •fears that the US could get entangled in another war 对美国可能卷入另一场战争的恐惧  be entangled with sb  •I didn’t want to become entangled with my best friend’s wife. 我不想和我最好的朋友的妻子有瓜葛。      V.S.  To implicate someone means to show or claim that they were involved in something wrong or criminal. 表明 (某人) 与 (罪行) 有牵连  •  He was obliged to resign when one of his own aides was implicated in a financial scandal.   他因一名助手涉入一起金融丑闻案而被迫辞职。  2.  [N-UNCOUNT](javascript:;)牵连  •  Implication in a murder finally brought him to the gallows.   与一桩谋杀案的牵连最终把他送上了绞刑架。 |
| /dɪ'faɪl, / defile sth  1.[V-T](javascript:;)To defile something that people think is important or holy means to do something to it or say something about it which is offensive. 亵渎to make something less pure and good, especially by showing no respect 污损，污染，亵渎  •  He had defiled the sacred name of the Holy Prophet.  他已经亵渎了神圣先知的圣名 • Hallam’s tomb had been defiled and looted. 哈勒姆的坟墓遭到了亵渎和洗劫。  2.[V](javascript:;)defile sth = pollute sth; to make foul or dirty; pollute 玷污; 弄脏  3.[N-COUNT](javascript:;)A defile is a very narrow valley or passage, usually through mountains. 山中狭径（山间）小径 |
| /strɔː/ straw  1.  [N-UNCOUNT](javascript:;)Straw consists of the dried, yellowish stalks from crops such as wheat or barley. 麦杆; 稻草  •  The barn was full of bales of straw.  这个谷仓堆满了成捆的麦杆。  •  I stumbled through mud to a garden strewn with straw.   我跌跌撞撞地走过泥泞来到一个散满稻草的院子。  2.[N-COUNT](javascript:;)A straw is a thin tube of paper or plastic, which you use to suck a drink into your mouth. 吸管  •  ...a bottle of lemonade with a straw in it.   …一瓶插着吸管的柠檬汽水。  3.[ADJ](javascript:;)having little value or substance 无价值的; 无实质的  4.[PHRASE](javascript:;)If you are clutching at straws or grasping at straws, you are trying unusual or extreme ideas or methods because other ideas or methods have failed. 抓救命稻草  •  ...a badly thought-out plan from an administration clutching at straws.   …一个管理部门抓救命稻草而制定的一个考虑不周的计划。  5.[PHRASE](javascript:;)If an event is **the last straw** or the straw that broke the camel's back, it is the latest in a series of unpleasant or undesirable events, and makes you feel that you cannot tolerate a situation any longer. 使人一忍再忍的一系列事件的最后一件  •  For him the Church's decision to allow the ordination of women had been the last straw.   对他来说，教堂允许妇女被授予圣职的决定使他再也不能容忍下去了。  6.[PHRASE](javascript:;)If you **draw the short straw**, you are chosen from a number of people to perform a job or duty that you will not enjoy. 下下签  •  ...if a few of your guests have drawn the short straw and agreed to drive others home after your summer barbecue.   …如果你的几位客人抽到了下下签，并同意在你的夏日烧烤聚会后开车送其他人回家。 |
| biodegradable /ˌbaɪəʊdɪˈɡreɪdəbəl/  [ADJ](javascript:;)Something that is biodegradable breaks down or decays naturally without any special scientific treatment, and can therefore be thrown away without causing pollution. 能进行生物降解的  •  ...a natural and totally **biodegradable plastic**.  …一种天然的完全能进行生物降解的塑料。 |
| /ˈkʌtlərɪ/ cutlery  1.[N-UNCOUNT](javascript:;)Cutlery consists of the knives, forks, and spoons that you eat your food with. 餐具  •  There was a serving spoon missing when Nina put the cutlery back in its box.  2.[N-UNCOUNT](javascript:;)You can refer to knives and tools used for cutting as cutlery. 刀具 •  The first catalogue featured speciality shavers, accessories, and cutlery.  第一份目录主要介绍专业剃须刀、配件和刀具。  V.S.  /ˈsɪlvəˌwɛə/ silverware  [N-UNCOUNT](javascript:;)You can use silverware to refer to all the things in a house that are made of silver, especially the cutlery and dishes. 银器; 银餐具 |
| /dɪˈspɛnsə/  dispenser 药剂师；施与者/分配者；自动售货机 dispenser=vending machine    [N-COUNT](javascript:;)A dispenser is a machine or container designed so that you can get an item or quantity of something from it in an easy and convenient way. 自动售货机; 自动分发器  •  ...cash dispensers.  …自动取款机  vending machine /ˈvɛndɪŋməʃiːn/  [N-COUNT](javascript:;)A vending machine is a machine from which you can get things such as cigarettes, chocolate, or coffee by putting in money and pressing a button. 投币式自动售货机 |
| /ˈkɒndɪmənt/ condiment  [N-COUNT](javascript:;)A condiment is a substance such as salt, pepper, or mustard that you add to food when you eat it in order to improve the flavour. 调料  a powder or liquid, such as salt or ketchup , that you use to give a special taste to food 〔盐或番茄酱等〕调味品，佐料  V.S.  spice /spaɪs/  1.[N-MASS](javascript:;)A spice is a part of a plant, or a powder made from that part, which you put in food to give it flavour. Cinnamon, ginger, and paprika are spices. 香料  •  ...herbs and spices.  …各种香草和香料。  2.[V-T](javascript:;)If you spice something that you say or do, you add excitement or interest to it. 给…增加趣味  •  They spiced their conversations and discussions with intrigue.   他们通过设谜为他们的谈话和讨论增加乐趣。  3.[PHRASAL VERB](javascript:;)Spice up means the same as . 给…增加趣味 (同)(spice)  •  Her publisher wants her to spice up her stories with sex.   她的出版商想要她用色情给她的故事增添趣味。 |

## Env protection2: plastic pollution

<http://money.cnn.com/2018/06/07/news/ikea-bans-single-use-plastic/index.html>

No more plastic with those Swedish meatballs.Ikea said Thursday it will **phase out** all **single-use/disposable/throw-away** plastic products from its shops and restaurants by 2020.The Swedish furniture giant said it will stop selling **single-use plastic products** like straws, plates, cups, freezer bags, garbage bags, and plastic-coated paper plates and cups. Its restaurants will also stop giving out plastic straws and plastic containers for freshly prepared food.

The company announced **the blanket** ban as part of a broader sustainability,**environmentally friendly/green** strategy, in which it committed to become "people and planet positive by 2030." Ikea said it is aiming at purchasing 100% **renewable energy** by 2020,and use only **renewable and recycled materials** in its products. It has already invested €1.7 billion into **renewable energy projects**. It is planning to build 416 wind **turbines** and has already installed around 750,000 **solar panels** on IKEA buildings. "Through our size and reach we have the opportunity to **inspire** and enable more than one billion people to live better lives "

Plastic, with its low cost and wide range of possible uses, has become one of the world's most popular “litter/trash”. Its use increased **20-fold** in the past 50 years and is expected to double again in the next 20 years. But the environmental costs are **monumental**. Research shows there will be more plastic than fish by weight in the world's oceans by 2050. On a global basis, only 14% of plastic is collected for recycling. The **reuse rate** is terrible compared to other materials -- 58% of paper and up to 90% of iron and steel gets recycled.

## Greenhouse gas

<http://money.cnn.com/2012/06/21/news/economy/greenhouse-gases-cut/index.htm>

A curious thing is happening **in the air** 在空中；悬而未决in the United States. It's getting cleaner. Despite there being no real effort by Congress to address [global warming](http://money.cnn.com/2012/06/12/news/economy/iea-energy/index.htm) and America's longstanding reputation as an energy **hog**猪，象猪般的人；贪婪者, U.S. **carbon dioxide** emissions are falling.

The [lackluster economy](http://money.cnn.com/2012/06/21/news/economy/global-manufacturing-slowdown/index.htm?iid=HP_Highlight) has something to do with it. But it doesn't fully explain what's happening. Consider that even factoring in a stronger economy, forecasters see greenhouse gas emissions continuing to fall. It's possible the country may meet its pledge to reduce emissions 17% by 2020.

So what's going on? Some of the reductions **can be attributed to** executive decisions taken by the Obama administration to **curb** pollution from power plants and other sources. Investments in [energy efficiency](http://money.cnn.com/2012/05/07/news/economy/empire_state_building/index.htm) have also helped, along with state rules requiring utilities to purchase power from **renewable sources**. But the main and most surprising reason: cheap natural gas.

[Natural gas prices](http://money.cnn.com/2012/03/09/markets/natural-gas-prices/index.htm) are so low largely thanks to hydraulic fracturing. Known as fracking, the process uses sand, chemicals, water and pressure to crack shale rock and allow the gas to flow. While the practice has raised fears over ground water contamination and other issues, it's unleashed an energy boom in the United States that's taken gas prices to their lowest levels in a decade.

That's allowed utilities to replace some coal-fired power plants with ones that run on natural gas -- which emits about half as much pollution as coal. The numbers are fairly impressive. The United States has cut carbon emissions from its energy sector by about 9% since 2007, according to the U.S. Energy Information Administration.

All this has been accomplished without the cap and trade law Congress fiercely debated in 2009.Europe, **by contrast (in stark contrast to)**, has seen its energy-sector carbon emissions remain basically flat **(level out = steady).** This **despite the fact that** most of Europe operates under a market-based cap-and-trade scheme where emissions are capped at a certain level and companies get tradable credits to emit pollution. Plus, Europe has **significantly** higher taxes on energy. Some note that the Untied States consumes more energy than Europe overall, and so has had an easier time finding and reducing inefficiencies.

Natural gas is only so clean, it won't produce those kinds of cuts. Plus, emissions from the developing world haven't begun to be tackled. In order to meet the goal of cutting greenhouse gasses by 80% the world needs more solutions for today and beyond 2020 as well

## **Record-breaking/shattering** temperature in U.S.

<http://edition.cnn.com/2017/06/20/us/weather-west-heat-wave/index.html>

It's so hot in the West that **the 灼热的scorching heat** is **breaking/shattering records**, causing massive **power outages** and prompting flight cancellations. On Tuesday, [Phoenix](http://forecast.weather.gov/MapClick.php?CityName=Phoenix&state=AZ&site=PSR&textField1=33.4483&textField2=-112.073&e=0) hit a daily record reaching 119 degrees Fahrenheit, which ranked as the fourth hottest day on record for the Arizona city. [Death Valley, California,](http://forecast.weather.gov/MapClick.php?lat=36.2466&lon=-116.817) lived up to its name as it **set a daily record at** a high of 127 degrees. [Las Vegas](http://forecast.weather.gov/MapClick.php?lat=36.175&lon=-115.1372) was also **scorching** and tied an **all-time/unprecedented record high at 117 degrees Fahrenheit** on Tuesday. **It was such a scorcher!** Here's a look at some of the records beat or

Here's how the **sweltering** heat wave is affecting the West:

1. Some planes can't fly

The heat wave was already affecting travel in Phoenix, American Airlines canceled 43 flights Tuesday to and from Phoenix Sky Harbor Airport due to extreme heat, the airline said. There could be more cancellations later Tuesday, an airline spokesman said. Seven flights were canceled due **to scorching weather** on Monday, when the temperature reached 118 degrees, rounding out the total to 50 weather-related cancellations in two days.

Because hotter air is thinner, planes also need more speed to take off and, thus, require more runway. Sky Harbor's runways are long enough to **accommodate** most planes in hot weather, American Airlines said.

2. Heat **records are being shattered/broken**

The **record-breaking/shattering** continued Monday with Sacramento hitting 107 degrees, a step hotter than its 106-degree record from 1988. It could get even hotter on Wednesday, with a forecast temperature of 109 degrees. High temperatures looking to **surpass** the new record of 106 degrees on Sunday.

3. Wildfires are burning

Firefighters across California are battling several fires, including one near Big Bear spreading to 950 acres. They dealt with a grass fire in Sacramento that broke out during Monday's evening commute.

4. Power is being knocked out

**Power outages** have been reported over the last few days in California's Central Valley, the Bay Area and southern parts of the state. As temperatures increase, more people turn on air conditioners, which use a lot of electricity and can **strain the power system**.

5. Roads buckle under the heat

The heat could've been a factor as four lanes of Highway began to **buckle变弯曲** on Sunday. Drivers reported the giant **cracks/fissures [木] 裂缝；裂** forming on the road and the lanes were repaired, [reported CNN **affiliate** KGO.](http://abc7news.com/weather/hwy-50-reopened-in-sacramento-after-heat-damages-surface/2119414/)

**buckle: 扣住；变弯曲; n. 皮带扣**

What it actually feels like outside when you **take into account** the humidity and high temperature. Heat kills more people in the United States [than any other type of weather](http://www.nws.noaa.gov/om/hazstats.shtml), so take precautions.

If you can't avoid being outside and staying close to air conditioning, here are some ways to beat the heat:

-- Never leave your car locked or unattended without checking for pets and children inside.  
-- **Hydrate with与水化** water, avoiding sugary drinks and alcohol.  
-- Wear light-colored clothing, which can hold down /restrain your body temperature several degrees.  
-- Wear **sunscreen/sunblocker防晒霜** SPF 15 or higher to protect your skin from harmful/detrimental UV(ultraviolet) rays.  
-- Don't forget to check on neighbors, friends and family, especially the young and the elderly, who are at more risk of heath damage from excessive scorching heat.

## Five places to go before global warming messes them up

<http://edition.cnn.com/2009/TRAVEL/02/17/global.warming.travel/index.html>

Scientists expect some great travel spots to be altered or ruined by global climate change. Glaciers in the European **Alps [ælps] 阿尔卑斯山脉** may melt as soon as 2050, some scientists say.http://i.cdn.turner.com/cnn/.element/img/2.0/mosaic/base_skins/baseplate/corner_wire_BL.gifSome of the changes are already **taking place**. Others are expected to be seen in coming decades. There are two ways to look at this: Either stay home (which might be less depressing and won't add more airline emissions) or get a move on it and see the hot spots you just can't miss.

Here are top five choices:

[**Great Barrier Reef, Australia**](http://www.gbrmpa.gov.au/)**:** Warming temperatures can **spell**预示 (通常不好的结果) disaster for coral **reefs**暗礁, which depend on a delicate balance of ocean temperature and chemistry to bloom into colorful displays. Many of the world's **reefs**暗礁 already are experiencing "**bleaching**" in which algae living in the coral die and leave behind whitened skeletons.

The [Great Barrier Reef](http://edition.cnn.com/topics/Great_Barrier_Reef) -- which is composed of about 2,900 individual reefs and is off the northeast coast of Australia -- is seeing limited **bleaching** now, and the Great Barrier Reef Marine Park Authority expects the problemto grow in coming decades. Henson said the reefs' colorful displays are not to be missed. "It's a feast for the eyes in terms of color, texture variations -- it's just amazing to see," he said. "It's wonderful to be enveloped in the warm water and look down just a few feet below at this amazing spread of ocean life." Boats of people with snorkels typically launch into the reefs from Cairns, Queensland. If you go, tread lightly, Henson said. Visitors can damage the reefs if they get too close.

## high levels of **pollutants**

## <https://edition.cnn.com/2018/05/01/health/air-pollution-cities-who-study/index.html>

Almost five out of every 10 people on the planet breathe air that contains high levels of **pollutants** and kills 7 million people each year, according to a [new study](http://www.who.int/phe/health_topics/outdoorair/databases/cities/en/) from the World Health Organization.

The study is an analysis of what the WHO says is the world's most comprehensive database on ambient air pollution. The organization collected the data from more than 4,300 cities and 108

"I'm afraid what is **dramatic** is that air pollution levels still remain at dangerously high levels in many parts of the world," Dr. Maria Neira, director of the WHO's Department of Public Health, Environmental and Social Determinants of Health, said of the study published Tuesday. "No doubt that air pollution represents today not only the biggest environmental risk for health, but I will clearly say that this is a major, major challenge for public health at the moment and probably one of the biggest ones we are **contemplating**."

//  ['kɒntəmpleɪt]

MEANINGS 义项

1.

[T] to think about something that you might do in the future

打算，想，考虑

[SYN](javascript:;) CONSIDER

[THESAURUS](javascript:;)

[THINK](file:///C:\Users\IBM_ADMIN\AppData\Local\Youdao\Dict\Application\7.5.2.0\resultui\dict\?keyword=think)

•He had even contemplated suicide. 他甚至想过自杀。

contemplate doing sth

•Did you ever contemplate resigning? 你有没有考虑过辞职？

2.

[T] to accept the possibility that something is true

考虑接受；视…为可能

too dreadful/horrifying etc to contemplate

•The thought that she might be dead was too terrible to contemplate. 她可能已经死了的想法真是太可怕了，让人都不敢想下去。

3.

[I,T] to think about something seriously for a period of time

深思；细想

[SYN](javascript:;) CONSIDER

•Jack went on vacation to contemplate his future. 杰克去度假，仔细思考一下他的未来。

contemplate what/whether/how etc

•She sat down and contemplated what she had done. 她坐下来细想自己所做的事。

contemplate your navel (=think so much about your own life that you do not notice other important things – used humorously)苦思冥想；一心反思〔以至于忽略了其他重要的事情，幽默用法〕

[Particle pollution](https://www.giss.nasa.gov/research/briefs/unger_01/), a mix of solid and liquid droplets in the air, can get sucked into and embedded deep in your lungs when you breathe. That can lead to health conditions including asthma, lung cancer, [heart disease](https://academic.oup.com/eurheartj/article/36/2/83/2293343), [stroke](https://www.cnn.com/2013/02/17/health/stroke-explainer/index.html) and chronic obstructive pulmonary disorder, or COPD. These outdoor particulates -- including sulfate, nitrates and black carbon -- are largelycreated by car and truck traffic, manufacturing, power plants and farming. In total, air pollution caused about 4.2 million deaths in 2016, according to the WHO.

"Many of the world's megacities exceed WHO's guideline levels for air quality by more than five times, representing a major risk to people's health," Neira said. This is "a very dramatic problem that we are facing now."

People in Asia and Africa face the biggest problems. More than 90% of [air pollution](http://www.who.int/gho/phe/outdoor_air_pollution/en/)-related deaths happen there, but cities in the Americas, Europe and the Eastern Mediterranean also have air pollution levels that are beyond what the WHO considers healthy.

Because the data are collected from various sources, it is difficult to rank cities. However, the newWHO data show that US cities on the more polluted side of the listinclude Los Angele

The other large source of air pollution, a problem mostly in developing regions, is in [people's homes](http://www.who.int/airpollution/data/household-energy-database/en/). More than 40% of the world's population does not have access to [clean cooking technology](https://www.epa.gov/air-research/clean-cookstove-research) or lighting, the WHO says. Families use wood, dung or charcoal in cook stoves or open fires to make meals and heat their homes, creating airborne particulates indoors. Technological improvements haven't kept up with population growth, the WHO said, resulting in about 3.8 million deaths from household pollution alone in 2016. Women and children share a disproportionate part of the burden with greater exposure to this indoor pollution.

The good news is that many cities are monitoring air pollution, Neira said. And good data can inform political leaders to help them clean up the air.

There are also things you can do at a local level to reduce air pollution. Experts suggest replacing driving with walking, biking or taking public transportation. To protect yourself, stay inside when air pollution levels are high, especially if you have heart problems or are older. Installing filtration equipment inyour home's ventilation system can reduce exposure.

The new study is "generally an impressive piece of work and demonstrated clearly the huge global impact of air pollution," said Kevin McConway, an emeritus professor of applied statistics at the Open University. "While we do still need to continue to take action on air pollution in richer Western cities like London, the position is far worse in lower- and middle-income countries and in many other parts of the world."

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Dr. Anthony Frew, who specializes in allergy and respiratory medicine at Royal Sussex County Hospital, agrees but wants Westerners to be mindful that while they breathe relatively cleaner air, their lifestyle is a burden to the environment.

"This report is a timely reminder that we in the West need to remember that we are lucky to live where we do, but our prosperity is built, in part, on polluting industries elsewhere in the world, which impact on other people's health."

## CNN - Describing graphics

<http://money.cnn.com/2017/05/17/investing/stocks-trump-comey/index.html?iid=SF_LN>

[Stocks](http://money.cnn.com/data/markets/?iid=EL) fell **sharply ( plummeted/plunged/slumped/nosedived)** Wednesday following reports of a memo from former FBI Director that says Trump asked him to stop the investigation of former national security adviser Michael Flynn.

The Dow ended 373 points lower Wednesday -- about a 1.8% decline. It's the biggest drop since September. A key measure of market volatility also spiked. The common "I word" in the market lexicon -- inflation -- is now being replaced by whispers of impeachment.

"With a growing chorus of Democrats accusing Trump of obstructing justice and even calling for his impeachment, the Trump administration could come to an early season finale," wrote Lukman Otunuga, a research analyst with currency broker FXTM.

Gold prices have popped over the past week too. The yellow metal often does well when investors are nervous. It's a classic flight to safety bet. The US dollar has also sunk recently against the euro and other currencies. And virtual currency Bitcoin has soared.

Investors had been betting that Trump would cut back on regulations against Wall Street firms put into place by President Obama. Those hopes may now be fading. CNNMoney's [Fear and Greed Index](http://money.cnn.com/data/fear-and-greed/?iid=EL), which looks at seven gauges of market sentiment, slipped to Neutral mode Wednesday. It had been showing signs of Greed previously.

The [Dow](http://money.cnn.com/data/markets/dow/?iid=EL) is **still increasing/hiking/mounting slightly** about 4% so far in 2017 while the S&P 500 is up 5%. And the Nasdaq has **soared/skyrocket significantly/dramatically** by 12% -- largely due to strong earnings from five tech giants in the index that just so happen to be the most valuable companies in America -- Apple Google Microsoft Amazon and Facebook.

Still, there are some indications of investor unease about the situation in Washington. Banks were among the biggest losers Wednesday. Shares of JPMorgan Chase ([JPM](http://money.cnn.com/quote/quote.html?symb=JPM&source=story_quote_link)) fell 4%. Goldman Sachs ([GS](http://money.cnn.com/quote/quote.html?symb=GS&source=story_quote_link)) was down 5%. And Morgan Stanley ([MS](http://money.cnn.com/quote/quote.html?symb=MS&source=story_quote_link)) and Bank of America ([BAC](http://money.cnn.com/quote/quote.html?symb=BAC&source=story_quote_link)) each **slumped/nosedived** close to 6%.

## Tobacco – negative impact on environment

<http://edition.cnn.com/2017/05/31/health/tobacco-environment-who-report/index.html>

Smoking kills 7 million people a year, and it scars the planet through **deforestation**, pollution and **littering/trash**垃圾. Details of the environmental cost of tobacco are revealed in a [study](http://www.who.int/tobacco/publications/environmental-impact-overview/en/) released Wednesday by the World Health Organization, adding to the well-known costs to global health, which translate to a yearly loss of $1.4 trillion in health-care expenses and lost productivity.

From crop to pack, tobacco commands an [intensive use of resources](http://www.who.int/mediacentre/factsheets/fs339/en/) and forces the release of harmful/**detrimental** chemicals in the soil and waterways, as well as significant amounts of greenhouse gases (GHS). Its leftovers **linger**. 徘徊；苟延残喘, as tobacco **litter** is the biggest component of **litter/trash 垃圾** worldwide. "Tobacco not only produces lung cancer in people, but it is a cancer to the lungs of the Earth," said Dr. Armando, who previously coordinated the WHO Tobacco Free Initiative and now works as a consultant.

Because tobacco is often a monocrop -- grown without being rotated with other crops -- the plants and the soil are weak in natural defenses and require larger amounts of chemicals for growth and protection from pests. "Tobacco also takes away a lot of **nutrients** from the soil and requires massive amounts of **fertilizer**, a process that leads to **degradation**退化；降格，降级/demotion of the land and **desertification/dɪˌzɜːtɪfɪˈkeɪʃən/ 荒漠化**, with negative consequences for **biodiversity** and wildlife.

The use of chemicals directly impacts the health of farmers, 60% to 70% of whom are women. This is especially prominent in low- and middle-income countries, where some compounds that are banned in high-income countries are still used.

300 cigarettes = one tree: Farming also uses a **surprisingly** large amount of wood, rendering tobacco a driver of **deforestation**, one of the leading causes of climate change. About 11.4 million metric tonnes of wood are utilized annually for curing: the drying of the tobacco leaf, which is achieved through various methods, including wood fires. That's the equivalent of one tree for every 300 cigarettes, or 1.5 cartons. This adds to the impact of **plantations** on forest land, which the study describes as a significant cause for concern, citing "evidence of substantial, and largely **irreversible**, losses of trees and other plant species cause by tobacco farming."

**Deadly gases:** Tobacco smoke contains about 4,000 chemicals, at least 250 of which are known to be harmful/**detrimental**. It also contains climate-warming **carbon dioxide, methane and nitrous oxides**. "The combination of greenhouse gases from **combustion**  燃烧，氧化 is equivalent to about 1.5 million vehicles driven annually". **Secondhand smoke** is particularly deadly: It contains twice as much nicotine and 147 times more ammonia than so-called **mainstream smoke**, leading to close to 1 million deaths annually, [28% of them children](http://www.who.int/mediacentre/factsheets/fs339/en/).

Some of these **pollutants** remain in the environment (and our homes) as "third-hand smoke," accumulating in dust and surfaces indoors, and in **landfills**. Some, like nicotine, even resist treatment, polluting **waterways** and potentially contaminating water used for consumption, the study notes.

Non-**biodegradable 生物降**解**litter/trash**

**Tobacco litter/trash** is the most common type of litter/trash by count worldwide. "We calculate that two-thirds of every cigarette ends up as **litter**. The litter is laced with chemicals including arsenic and **heavy metals**, which can end up in the water supply. **Cigarette butts烟头 are not biodegradable, and tossing one on the ground is still considered a socially acceptable form of littering (trash) in many countries, e.g. CHINA**

The WHO estimates that between 340 million and 680 million kilograms of tobacco waste are thrown away every year, and **cigarette butts烟头** **account for 30% to 40%** of all items collected in coastal and urban clean-ups.

Even though smoking is [declining globally](http://www.who.int/gho/tobacco/use/en/), it is increasing in some regions, such as the eastern Mediterranean and Africa. **China is a world leader both in production (44%) and consumption, with 10 times more cigarettes smoked than in any other nation**. Every stage of the production of a cigarette has negative effects on the environment and the people who are involved in manufacturing tobacco products, even before the health of smokers and non-smokers is affected.

Although governments worldwide already collect $270 billion in tobacco taxes a year, the WHO suggests that increasing tax and prices is an effective way of reducing consumption and help development priorities in each country, adding that by collecting 80 cents more per pack, the global tax revenue could be doubled.

"Tobacco threatens us all," WHO Director-General Margaret Chan said in a note. "It **exacerbates** [ɪɡ'zæsɚbet] poverty, reduces economic productivity, contributes to poor household food choices, and pollutes indoor air."

## No plastic trash in our life

Over 40 companies including Coca-Cola, Nestle ([NSRGF](http://money.cnn.com/quote/quote.html?symb=NSRGF&source=story_quote_link)), Unilever and Procter & Gamble ([PG](http://money.cnn.com/quote/quote.html?symb=PG&source=story_quote_link)) have pledged to slash the amount of plastic they use and throw away in the United Kingdom.

The group, which includes many of the world's top consumer brands, has agreed to reduce their use of plastic packaging and meet recycling targets by 2025 as part of an initiative organized by the environmental advocacy group Wrap.

The UK Plastics Pact asks business to eliminate unnecessary single use plastic packaging by 2025. It also sets the goal of boosting the share of recycled or composted plastic packages to 70% from the current average of 46%.

According to Wrap, the chains and brands that have signed up account for 80% of plastic packaging in UK supermarkets.

"Businesses like Unilever can play a vital role in making sure as much plastic as possible is reused or recycled, as well as innovating to find alternative solutions," said Sebastian Munden, Unilever's ([UL](http://money.cnn.com/quote/quote.html?symb=UL&source=story_quote_link)) general manager in Ireland and the United Kingdom.

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Coca-Cola ([KO](http://money.cnn.com/quote/quote.html?symb=KO&source=story_quote_link)) said that while the pact was unique to the United Kingdom, it has similar targets in other markets.

The environmental group said it hopes that more companies and organizations will join the pact, and that their efforts will spark similar initiatives in other global markets.

Plastic, with its low cost and wide range of possible uses, has become one of the world's most popular materials. Its use increased 20-fold in the past 50 years and is expected to double again in the next 20 years.

The consequences of plastic have come under close scrutiny in the United Kingdom following the broadcast of the BBC television series Blue Planet II, which focused on the devastating impact on marine life.

[Related: China trash ban is a global recycling wake up call](http://money.cnn.com/2018/04/20/news/china-trash-recycling-environment/index.html?iid=EL)

Research shows there will be [more plastic than fish by weight in the world's oceans](http://money.cnn.com/2016/01/19/news/economy/davos-plastic-ocean-fish/index.html?iid=EL) by 2050.

On a global basis, only 14% of plastic is collected for recycling. The reuse rate is terrible compared to other materials -- 58% of paper and up to 90% of iron and steel gets recycled.

The European Union wants many single-use plastic products, including straws, to be barred across its member states by 2030.

In the United Kingdom, the government has banned tiny plastic micro beads used in cosmetic products and introduced a tax on plastic bags. It also floated the idea of banning plastic straws and introducing a plastic bottle deposit return scheme.

Wrap is asking recycling and waste collection companies to increase investment in technology that allows recycled materials to meet higher quality standards.

Some investment is already coming following a decision by China last year to ban the imports of lower quality recyclable materials. The ban has caused headache to the global recycling industry, but is forcing it to change.