

UNIT 14: Ecology

Carbon Emissions' New Defiance



New Vocabulary

to hazard
peat bog
biofuel
emission target
ecosystem
signatory
fossil fuel
swamped
incentive

Word Family

to sign
signature
signatory

polluter
pollution
pollutant
to pollute

Prefixed Words

ecosystem
deforesting
oversupply
output
unfair



Preparing to read: What alternative sources of energy can you think of which could provide for our insatiable appetite for more fuels?

Care to hazard a guess which country is the third largest emitter of greenhouse gases after the US and China? Chances are you didn't think of Indonesia. It is in the big league of global polluters partly because it is destroying its rainforests, but more importantly because it is draining its **peat bogs**. Newly drained bogs on the island of Sumatra are releasing more carbon dioxide than western cities of a comparable size. Often the bogs are drained to grow palm oil for use as **biofuels** in Europe. Here's the tragedy: draining a hectare of bog emits 30 times as much carbon dioxide as it is saved by burning the biofuels produced from it in place of fossil fuels. [...]

Clearly this is madness, but we should have seen it coming. It stems from the fact that the Kyoto protocol addresses some of our interventions in the planet's carbon cycle yet ignores others. For example, Europe is covered by **emission targets**, whereas Indonesia and other developing nations are not. Likewise, the protocol is tough on emissions from burning fossil fuels but takes little account of those from natural ecosystems.

Many scientists argued that this made no sense a decade ago when the protocol was being negotiated. Every source of carbon and every sink should be accounted for, they said, precisely to avoid the kind of situation that has arisen in Indonesia. They were ignored because measuring the movement of the greenhouse gases between the atmosphere and natural **ecosystems** is far harder than counting the tones of fossil fuels we burn. But since then the science has improved, and it's now clear that carbon sources such as bogs must be accounted for if we're to have any chance of keeping global emissions in check.

Next week there will be a chance to put things right, when **signatories** to the Kyoto protocol meet on another Indonesian island, Bali, to begin negotiations on the protocol's successor. [...] Rich nations face penalties if they don't make their targets: they must buy carbon credits to make up any difference. Indonesia's proposal is all carrot and no stick: developing countries that carry on deforesting and draining, or fail to keep **fossil fuel** emissions in check, will face no penalties. One likely consequence is that the market in carbon credits will be **swamped** with an oversupply of credits and too few purchasers. Prices would crash and there would be few **incentives** to avoid emissions of any sort. There is a way out: make each country responsible for all its carbon emissions, so that targets would be based on a country's total carbon output, industrial as well as natural. Developing countries with large natural carbon sources will say this is unfair, and they have a point. When you account for Indonesia's peat bogs, its per capita carbon emissions are not much below those of European countries, yet most Indonesians are responsible for far less emissions than the average European. Some allowance must be made to ensure that any targets system does not discriminate against poorer countries' development.

Editorial-"Beyond Fossil Fuels" in *New Scientist*, 1 December 2007, Vol. 196, No. 2632, p. 5.

Section I Building Vocabulary



I. GUESSING MEANING: Match the following words/ phrases with the definitions: *pollutant, to drain, peat bog, ecosystem, penalty, carrot and stick, output, per capita, to make allowance.*
(See G: C.1)

- 1.....the work done or the amount produced by a person, machine, production line over a given period
- 2.....punishment fixed by law for a crime or breach of contract
- 3.....to draw water from gradually so as to dry or empty
- 4.....pleasant inducements or promised rewards coupled with threats
- 5.....a harmful chemical waste material discharged into water or atmosphere
- 6.....for each person
- 7.....a system made up of a community of animals, plants and bacteria interrelated together with its physical and chemical environment
- 8.....to forgive or excuse because of mitigating factors
- 9.....wet, spongy ground characterized by decaying mosses that form peat-an absorbing plant matter.

II. WORD BUILDING: Use the word in capital letters to complete the sentences. Add the necessary prefix/suffix and put the word in the correct form. (See G: A, B)

1. Indonesia is one of the world's largest global.....because it is destroying its rainforests and is draining its peat bogs. POLLUTE
2. It is likely that shortly the market in carbon credits will be swamped with a(n).....of credits and too few purchasers. SUPPLY
3. The drained bogs in Sumatra are releasing more carbon dioxide than western cities of a.....size. COMPARE
4. It's ato drain peat bogs because thus they emit 30 times as much carbon dioxide as it is saved by burning the biofuels produced from it. MAD
5. Many.....argued that the Kyoto protocol is outdated. SCIENCE
6. Theof greenhouse gases between the atmosphere and the forest is considered by the scientists hard to measure. MOVE
7. Theof the Kyoto protocol focused on Europe's emission targets. SIGN

III. SYNONYMS: Find synonyms in the text to the following words:

1. *to attempt, to venture* are similar in meaning to.....
2. *objective, goal* are similar in meaning to.....
3. *to set free, to let go* are similar in meaning to.....
4. *issuance* is similar in meaning to.....
5. *to overcome, to overwhelm* are similar in meaning to.....
6. *stimulus, encouragement* are similar in meaning to.....
7. *to continue* is similar in meaning to.....

Section II Language Focus



Present Tenses (See G: V.2.1)

I. MULTIPLE CHOICE-VERBAL FORMS: Underline the correct form of the verb in italics for each sentence:

1. Indonesia *is/ is being/ has been* in the big league of global polluters for some years since *it drains/ is draining* its peat bogs.
2. At this moment people in this country also *destroy/ are destroying* the rainforest.
3. Newly drained bogs in Sumatra *release/ are releasing/ have been releasing* more carbon dioxide than western cities of a comparable size.
4. Currently, some western countries *are using/ use/ have used* palm oil as biofuel.
5. For some years, there *is/ has been/ is being* a tendency to replace fossil fuels with biofuels.
6. The Kyoto protocol *addresses/ has been addressing/ is addressing* some key issues of our interventions in the planet's carbon cycle.
7. A new worrying situation *arises/ has arisen* in Indonesia.
8. The control of the carbon dioxide emissions *is improved/ has improved/ has been improving* since the signing of the Kyoto protocol.
9. Rich nations *face/ are facing/ have faced* penalties if they don't make their emission targets.
10. Each country *is/ has been/ is being* responsible for its carbon emissions, as stated in the Kyoto protocol.
11. Indonesia's per capita carbon emissions *are growing/ have been growing* rapidly in the last years.
12. Rich nations *are buying/ buy/ have bought* carbon credits to make up for their failure to meet the emission targets for some time now.

II. MULTIPLE CHOICE: Read each pair of sentences below. The sentence which follows each pair is related to one of the sentences in the pair. (It could describe the sentence). Circle the letter of the correct sentence.

1. A. Indonesia is one of the big global polluters.
B. Indonesia is being one of the big global polluters.
This is a temporary situation.
2. A. The Kyoto protocol has established low emission targets for all countries.
B. The Kyoto protocol establishes low emission targets for all countries.
This is a general characteristic of the protocol from the very beginning.
3. A. A new situation has arisen in Indonesia.
B. A new situation is arising in Indonesia.
This has happened for some time now.
4. A. The market in carbon credits has been swamped with an oversupply in credits and too few purchasers.
B. The market in carbon credits has been being swamped with an oversupply in credits and too few purchasers.
This is more likely to continue.
5. A. Indonesia's per capita carbon emissions are low.
B. Indonesia's per capita emissions have been low.
This is a permanent situation.
6. A. Palm oil is being used as a biofuel in western countries
B. Palm oil has been used as a biofuel in western countries.
This is a fashionable trend.

Section III

The Structure of the Discourse



I. TRUE/FALSE STATEMENTS: Listen to the text *Carbon Emission's New Defiance* and decide which of the following sentences are true or false.

1. China is the third largest emitter of greenhouse gases in the world.
2. The main reason that makes Indonesia a big global polluter is the fact that it is draining its peat bogs.
3. Newly drained bogs on the island of Sumatra are releasing considerably less carbon dioxide than all western cities of a comparable size put together.
4. The bogs are always drained to grow palm oil for use as biofuels in Europe.
5. The Kyoto protocol doesn't address all our interventions in the planet's carbon cycle.
6. In the Kyoto protocol Indonesia is not covered by emission targets.
7. The protocol is tough on emissions from burning trees from natural ecosystems.
8. It is easier to count the tones of fossil fuels we burn, than to measure the movement of greenhouse gases between the atmosphere and natural ecosystems.

II. DEVELOPING A PARAGRAPH: In two paragraphs of 6 lines each mention the advantages and disadvantages of using fossil fuels, respectively biofuels. (See G: C.)

Fossil fuels (coal, refined oil, gas)

The main advantages of using them are.....

.....

The main disadvantages of using them are.....

.....

Biofuels (palm oil, canola oil, colza oil)

The main advantages of using them are.....

.....

The main disadvantages of using them are.....

.....

III. WRITING AN ESSAY: In a short essay of 150-200 words give arguments for and against the following statement: "Poor and developing countries should be encouraged to replace traditional energy sources with environment-friendly sources". Use the following words/phrases: (See G: G, H)

One reason to say that.....

On the one hand.....on the other hand.....

I disagree with.....

One argument in favor is.....

It is doubtful that.....

One can still say.....