

## **Learning by Ear – Environment**

### **06 – Renewable Energy**

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#### **Intro**

Hello and welcome to Learning By Ear's special series that takes a look at the environment. In today's programme we'll be focusing on the world's growing energy demands and the planet's insatiable demand for oil, coal and gas. But they won't last forever, so what next. Where will our power come from? In today's Radionovela we'll talk about renewable energies like wind, solar and geothermal? Not only are their supplies infinite, they're also clean. Unlike Fossil fuels! ....

We'll hear on how the Earth is struggling to cope with the pollution generated by burning fossil fuels. Global temperatures are rising at levels never previously recorded and science points the finger of blame at man. If we don't act quickly we risk destroying the planet. Stay with us...

#### **Music – 0:30**

#### **Radionovela – 5:00**

## SFX: Small Generator

1. Monica:                    You know, the electricity supply these days is really bad!

[Hum of agreement]

2. Gladys:                    You're right Monica! Nowadays we seem to have power-cuts every other day.

3. Moses:                    Gladys, that's because in this part of the country we're entirely dependent on a single coal powered power-station that was built 30 years ago.

4. Gladys:                    It's alright for you Monica. Your family can afford a generator. We have to burn Kerosene lamps.

5. Moses:                    Hah! Or candles! [Sarcastically] And they say we are a developing country!

6. Monica:                    Well Moses, perhaps we are. I heard last week that the local council plans to install a new diesel generator that will provide electricity for the entire city...and the surrounding area. Now that to me sounds like progress!

7. Gladys: I'm not so sure. Yes, we may have electricity day and night...
8. Monica: Well isn't that what you want?!
9. Gladys: But these days we have to think about the environment too and I'm not sure how "green" diesel is...
10. Monica: But Gladys, imagine what you can do with more power. You say that during the power-cuts you have to burn Kerosene lamps. Soon you'll be able to watch television day and night.
11. Moses: That's true, Monica.
12. Monica: And you'll be able to run a refrigerator, something you can't do when the power supply is so erratic.

**SFX\_Clicking\_Sound\_Of\_Inverter + SFX\_Long\_Beep**

**SFX\_Television\_On**

13. Monica: Ah there we go, the power's back.

**SFX\_Generator\_Off**

14. Monica: That's better. I can hear myself think now.  
I'll turn the TV off.

### **SFX\_Television\_Off**

15. Gladys: But Monica, just imagine all the pollution  
from such a large generator. That's no  
solution, just a temporary measure.

### **SFX\_Door\_Opens**

16. Monica: This is my aunt, Suzanna. She teaches  
Environmental Studies at the local  
university.

17. Suzanna: Hello, everyone.

18. Moses: Gladys was just explaining that the diesel  
generator the council is planning to install  
will cause a lot of pollution. Is she right?

19. Suzanna: Well Moses, to an extent she is right.  
Diesel is derived from oil. And oil is a fossil  
fuel.

20. Moses: What's a fossil fuel, Suzanna?

21. Suzanna: A fossil fuel is one that is made from  
broken down carbon compounds. When

you burn a fossil fuel, that carbon is released back into the environment.

22. Gladys: And that's what is causing climate change.

23. Suzanna: To an extent, Gladys, yes it is. There are other issue like deforestation. But Carbon Dioxide is what we call a greenhouse gas. Imagine the Earth is encircled by a giant glass sphere. The heat of the sun penetrates through that glass. Some of the heat is absorbed by the earth and some of it is radiated back towards space.

24. Gladys: But it gets trapped.

25. Suzanna: Right! And in reality, instead of glass, a blanket of gasses surrounds the Earth, including the greenhouse gases like carbon dioxide. Gradually man's activities are causing the greenhouse gases to build up in the atmosphere and so more heat energy is being trapped. And that is causing global warming.

26. Moses: What about gas? That is also a fossil fuel, am I right?

27. Suzanna: Yes Moses, you are.

28. Moses: So it too releases carbon dioxide. But could a gas-powered generator be a better option than a diesel one?
29. Suzanna: I'm no expert in generators. But certainly natural gas is the cleanest burning fossil fuel. Compared with oil and coal generators, natural gas generators produce lower emissions of carbon dioxide. Gas is also cheaper!
30. Gladys: So natural gas is the answer then?!
31. Suzanna: Well not necessarily, Gladys. Firstly natural gas does still release greenhouse gases. Secondly, there is a finite supply of fossil fuels. One day, oil, coal and natural gas reserves will simply run out.
32. Monica: What will we do then?
33. Suzanna: It means that we need to be finding alternative sources of energy NOW! What's more, these energies need to be clean. It's one of the most pressing global needs. But right now, there's a project at the university I want you to see...

## **SFX\_Wind\_Turbine**

34. Suzanna: This is what we call a wind turbine. The wind turns these blades around, which turns a turbine which generates power. We're using it here at the university to power our entire science department. And this here is my colleague, Dr Wafula.

## **SFX\_Approaching\_Footsteps**

35. Moses: Sir, you can generate electricity from the wind alone?
36. Dr. Wafula: That's correct. Just how much depends on how big you turbine is, and how many you have. Some are so small they can only power an individual home. In Germany, Denmark or in the United States they have so called wind-farms with hundreds if turbines that can light up entire cities.
37. Monica: Dr. Wafula, could we have a wind-farm in our city?
38. Dr. Wafula: Well in principle yes...
39. Suzanna: First of all, Monica, you need consistent wind.

40. Dr. Wafula: And we certainly have that along our coastline. But big is not always best. What may be more appropriate for developing countries like ours are smaller projects, village by village, town by town. That way you avoid the costs of distributing the electricity over long distances.
41. Gladys: Why do we call wind a renewable energy?
42. Dr. Wafula: Quite simply it means that wind is a resource that will never run out. Its supply is infinite. Unlike oil and coal!
43. Suzanna: There's another renewable energy that has huge potential on this continent...
44. Moses: There is?
45. Monica: What is it???
46. Suzanna: Think about it...what sustains life on Earth
47. Gladys: The sun!
48. Suzanna: Exactly, Gladys. Many African countries receive an average of 325 days a year of bright sunlight...that gives solar power the



potential to bring energy to virtually any location on the continent.

49. Dr. Wafula: And did you know that the sun releases more energy in one second than all the fossil fuels will ever release between now and the time they run out?
50. Moses: An inexhaustible supply of energy. Just imagine, each house could have it's own solar panel.
51. Monica: So what's the catch?...otherwise surely solar energy would be powering up the continent already!
52. Dr Wafula: Up to now the cost of solar power has deterred people. Compared to fossil fuels, the start-up costs are high.
53. Moses: Will that change?
54. Dr. Wafula: I hope so, Moses. You know solar technology advances everyday. Let's hope that one day it becomes affordable for this continent.

55. Monica:                   And then maybe one day we will have a clean, affordable, never-ending supply of energy.

56. Moses:                   And no more choking fumes belching out of generators!!

[collective laugh]

### **Music – 0:30**

### **Did you know? – Climate Change**

Did you know that carbon dioxide levels in the Earth's atmosphere have increased by thirty percent in the last 200 years alone? As we've just heard, carbon dioxide is one of the so-called greenhouse gases. Their concentration levels are currently the highest they've been for 800,000 years.

What does this mean? Well, the majority of scientists agree that as a result of the build up of greenhouse gases the Earth is warming up. Over the last three hundred years global temperatures have risen by over 0.7 degrees. However 0.5 degrees of this warming has occurred during the past 100 years.

You might say: 0.7 degrees doesn't sound very much. But here's what might happen over the next few decades if the current trends

continue: Global sea levels could rise by more than six meters (twenty feet), flooding low-lying coastal cities like Lagos, Dar-Es-Salam and Maputo. Extreme weather like droughts and floods will become more frequent. Deaths from global warming related events will double in just twenty five years to more than three hundred thousand people a year.

There are scientists who dispute the reality of global warming. They argue that global temperatures naturally rise and fall in cycles and that we are currently experiencing a rising trend that will, in time, reverse. But it is widely accepted that human activities are accelerating global warming. The fear is the environmental damage caused by global warming may be irreversible if action is taken to cut emissions of greenhouse gases. For example, some scientists predict that the Arctic Ocean could be ice free by 2050. Some countries are worse polluters than others, especially the US and China but we can all help cut down on greenhouse gas emissions. Here are two simple tips: use energy saving light bulbs and walk short distances instead of taking the car or bus. It's not too late to slow down global warming if we act together, now.

## **Outro**

And that's all for today's Learning By Ear special environment focus on renewable energies, written by Richard Lough. So remember, the science is real, global warming is a stark reality, and it will hit Africa hard. But there are steps we can all take to reduce greenhouse gas emissions. Don't think the difference you

can make is insignificant. It's not! Thanks for being with us. If you want to hear the programme again or tell friends about it, go to our website at [www.dw-world.de/lbe](http://www.dw-world.de/lbe). Good Bye.