



UNDERSTANDING CLIMATE CHANGE

The Solutions: Taking Action to Reduce Climate Change

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Transcript

[TEXT: Young African Leaders Initiative - Online Training Series]

[TEXT: Wanjira Mathai - Director, Partnership for Women's Entrepreneurship in Renewables, Wangari Maathai Institute]

I'm Wanjira Mathai, director for partnerships for the Women's Entrepreneurship in Renewable Energy.

In this lesson, we'll learn about technologies that allow us to power our homes, industries and agriculture using cleaner energy, and, finally, the ways each of you can get involved in this important movement.

[TEXT: The Solutions: Taking Action to Reduce Climate Change]

Climate change is a matter of life and death. This is how my mother, Nobel Peace Prize winner Wangari Maathai, described the potential devastating impacts of a changing climate on Africa. But she also had a strong sense of optimism that our generation, the first to really feel the impact of climate change, will also be the first to do something about it.

The threat of climate change — to Africa and the world — is very real. But there are ways to stem and even reverse the dangerous path we're on.

As we discussed in previous lessons, energy sources take many forms, including fossil fuels, like oil and gas and coal, and renewable sources, like solar, wind and hydropower. These primary energy sources are converted into electricity, a secondary source, which then flows through power lines to our homes and businesses.

Today, four-fifths of all electricity in southern and eastern Africa is generated from fossil fuels. And as we learned, burning these fuels produces carbon dioxide emissions which trap the sun's energy, and this makes our Earth too warm and contributes to extreme weather events.

But other types of cleaner energy, known as renewable energy sources, offer tremendous potential. With the right infrastructure, half of all electricity in southern and eastern Africa could come from clean, cost-effective renewables by 2030. We would then see a substantial reduction in carbon dioxide emissions. Now let's examine some of these renewable sources in more detail.

Solar energy. This is simply the light and heat that comes from the sun. It is the most abundant energy resource on Earth. The amount of solar striking the Earth each day is more than 10,000 times the world's total energy use!



There are two common ways to convert solar energy into electricity: photovoltaic and solar-thermal technologies.

When sunlight hits photovoltaic cells made of silicon or other materials, a chemical reaction occurs. This results in the release of electricity. These cells can then be packaged together to make solar panels. And solar-thermal technologies concentrate the sun's rays with mirrors to heat a liquid and create steam. This steam is then used to power a generator and create electricity.

The wind, like the sun, is also a clean and renewable energy source. For thousands of years, people have used windmills to grind grain and pump water. Today, modern machines called wind turbines are used to make electricity. To produce electricity on a large scale, many wind turbines can be placed together on wind farms. And this is catching on: Wind power has been the fastest-growing energy source in the world since 1990.

And finally, the energy inherent in water and steam can also produce electricity. If you've ever stood in a fast-moving stream, under a waterfall, or on the ocean shore as waves come crashing in, then you've felt the power of moving water. Now this power is captured through hydroelectric power plants, which force flowing water through wheels or rotors known as turbines, and that produces energy.

Another source of energy is the heat built up inside the Earth itself. Now if you dig a deep hole straight down into the Earth and you encounter what is known as geothermal energy. At geothermal power plants, wells are drilled 1 to 3 kilometers into the Earth to pump steam or hot water to the surface to make energy.

Now these renewable sources are not only exciting, but they offer tremendous potential for Africa. Think about it. Our continent contains bountiful solar and wind resources and some of the world's largest hydropower and geothermal resources. Much of this energy is untapped. And the World Bank estimates that only 7 to 8 percent of Africa's hydropower potential is currently utilized.

The good news is that many African countries are starting efforts to use these clean and renewable resources. Kenya was the first African nation to begin drilling for geothermal power. In other countries like South Africa, wind farms are beginning to produce energy. But we have only begun to unlock the potential of our continent's clean, renewable resources.

There is so much more to be done to ensure that our generation and future generations can benefit from this clean energy. I urge each of you to get involved and join this environmental movement, which is so important for all of us and our beloved continent, Africa.

Reach out and join some of the many community and national organizations that are working to promote clean energy sources and preserve Africa's forests. Or, gather your friends and peers and start your own!

And just as important, I encourage each of you to help educate your communities about the challenge of climate change and the solutions that we need to adopt.

Share these lessons with your peers, friends and colleagues, and encourage conversation on this very important topic. And as my mother once said, "You cannot protect the environment



unless you empower people, you inform them, and you help them understand that these resources are their own, and they must protect them.”

Now is the time to put those words into action!

[TEXT: Test your knowledge - yali.state.gov - YALI Network]

