Case Study: The Wind-up Radio

In the early 1990s, Trevor Baylis was watching a TV documentary about AIDS in Africa. He found out that in many rural areas of Africa, there is no electricity or batteries and therefore no radios, telephones, or televisions. He learned that without these simple means of communication, people weren't finding out quickly enough about how to prevent the AIDS disease, which was spreading very rapidly in Africa.

Being an inventor, Mr. Baylis got to thinking about this problem. He remembered one of the earliest communication devices, the wind-up Victrola gramophone. This old-fashioned machine allowed people to play music without electricity. Mr. Baylis used this idea to put together a low-technology wind-up radio he called *Freeplay*.

The power source for the Freeplay radio is human energy. When a person turns the handle of the radio, this human energy is stored and then released as electricity to run the radio. Since the radio needs no electric power, it can be used in rural areas all over the world. Even in areas where there is electricity, people like the Freeplay radio because it saves electricity and can be used even when the power is out.

More recently, Mr. Baylis has been tackling another energy question: Is there a way to power small electronic appliances such as personal CD players and cell phones without electricity? To solve this problem, he is working on making special boots to capture energy from walking.

These boots may work in a couple of different ways. One way would be similar to the lighter on a gas stove, which uses sparks created by compressing crystals. In this system, the boots would have crystals that would compress when the person is walking, and so generate enough electric current to charge a battery. The other way would be similar to a dynamo bike light that runs on the turning of the bike's wheel. In this system, the boots would have a spinning dynamo in the heel of the foot that would turn when the person walks. The spinning of this mechanism would create enough electricity to charge a battery.

Questions:

What are the energy problems or issues in this story?

Can you give another example of how the energy that is available affects someone's daily life?

What could you imagine inventing or doing to change that situation?

Sources:

"The World," Public Radio International, 7/6/2000 program

www.britishcouncil.org/new/science/