

Transcript of interview with Dr. Han Ming from Fuel Cell Application Center in Temasek Polytechnic in Singapore

Bojian: Do you know of any of the environmental problems which the Earth is currently experiencing? If yes, which ones do you know about?

Dr. Han: Yes, I am aware of many environmental problems. I think the major environmental problem is Global Warming which resulted from the release of large amount of carbon dioxide into the atmosphere.

Bojian: Why do you think that some people are not as conscious about the environment as they should be?

Dr. Han: Firstly, some people are not quite affected by environmental problems, and some are not aware of any environmental problems at all. Secondly, the government has not made enough efforts to raise awareness about environmental problems.

Bojian: Do you think that people are becoming more aware about environmental problems than they used to be?

Dr. Han: Yes, I do think so. For instance, there have been more cases of natural disasters in recent year and many people in many countries have been affected. These natural disasters are mainly due to climate changed which resulted from global warming. With these natural disasters, people all around the world have begun to realize the importance of conserving the environment.

Bojian: Do you think that it is important to promote the 3R's (reuse, reduce, recycle)? Why?

Dr. Han: Yes, I think so. 3Rs can largely reduce the need for raw material as well as reduce energy to extract from mines and ores. With less energy and raw materials required, it will lead to lesser emission of greenhouse gases.

Bojian: Do you think that the government and environmental agencies are trying their best to promote environmental awareness?

Dr. Han: Yes. For instance, Singapore government has provided a lot of funding on the development of renewable energies like solar, fuel cell and biomass technology in order to conserve a cleaner environment. NEA, National Environmental Agency, hosts environmental problems exhibition annually to raise awareness on environmental care and protection.

Bojian: How can the usage of hydrogen fuel cells help our environment?

Dr. Han: Hydrogen fuel cell is a device in that hydrogen reacts with oxygen to produce electricity and by-product of water. By using hydrogen fuel cell to replace the internal combustion engine in vehicles, the output is only pure water instead of the emission of greenhouse gases in internal combustion engine.

Bojian: Are there any negative effects which result from the usage of hydrogen fuel cells or are there any disadvantages of fuel cells at present?

Dr.Han: At present, some of the problems with fuel cell include, its durability, reliability, high cost of production as well as the lack of proper hydrogen resources.

Bojian: If in the near future hydrogen fuel cells are too expensive to be mass produced and nuclear power is not yet ready for use, are there any other sources of energy where we can draw power from? If yes, what are some of these sources?

Dr.Han: Yes, there are other sources of energy such as wind, bioenergy, geothermal energy and hydropower, etc.

Bojian: Do you think that these three reasons, industrial revolution, overpopulation, and globalization, are the main reasons responsible for environmental degradation, or are there other important yet unseen reasons?

Dr.Han: Yes, I think so, but I would like to add on wars as an important yet unseen reason. Wars involved wastage of large amount of resources as well as damages to the environment.

Bojian: On a scale of 1 to 10 (1 as the lowest and 10 as the highest), how much do you think alternative sources of power such as hydrogen fuel cells and nuclear power will help prevent further environmental degradation?

Dr.Han: I will give 10 because fuel cell and solar can be considered as sustainable energy with no environmental pollution. They can also be used together with solar cells working in the day and fuel cell at night.