

Go back to [Nakagoshi & Xuan Lab homepage](#).

## REPORT ON CREATIVE THINKING AND HARD WORK IN JAPAN



Landscape Ecology Laboratory  
International Development and Cooperation  
Hiroshima University

To improve scientific skills not only through in-campus lectures but also through hands on experience is a very important aim in science learning institutions. In order to meet this objective, Prof. Nakagoshi facilitated a tour of the Hiroshima Central Science Park among his students. The park is open to the public only once a year in October. For students from developing countries, it is very important to take advantage of this rare opportunity because it will be another avenue for learning.

The visit was made possible through the assistance of Mrs. Naomi Nakagoshi. The students were divided into 2 groups- one for the 10:00 a.m. to 12:00 a.m. tour and the other for the 2:00 p.m. to 4:00 p.m. tour. The first group consisted of Mrs. Nakagoshi, Mrs. Xuan, and myself. The scientific institutions that I visited were the Energia Economic and Technical Research Institute and the National Institute of Advanced Industrial Science and Technology (AIST).



The exhibit organizers required guests to register before viewing. They gave a warm welcome and a profound message to always provide the beauty and maintain the earth. The displays available in the Energia Economic and Technical Research Institute were:

1. *Mitsubishi stand, which offered eco-friendly electric cars.* The “i MiEV car” was featured in this exhibit. It is an electric vehicle based on the gasoline-driven 660cc “i” mini car. This zero-emission vehicle car uses electric energy through a charged battery. Even when taking into account CO<sub>2</sub> emissions at the power plants that generate the power needed for charging the car, it emits only approximately 30% of the CO<sub>2</sub> of a gasoline mini car (<http://www.mitsubishi-motors.com/special/ev/whatis/index.html>). To charge this car, approximately 30 minutes of charging time is needed. One charged, it could cover a distance of up to 160 km. This car uses high technology and addresses climate change issues such as exhaust gases of motor vehicle fuels.
2. *Stand on environmentally friendly homes.* This home offered a model of architectural beauty, healthy living, and care for plants. With a simple touch technology on irrigation systems and architectural roofs, one can plant vines that will make green roofs. This plant functions as the beauty of the house and absorbs CO<sub>2</sub>. Such a model is very suitable in densely populated cities with limited space and high levels of gas emissions. I became very interested in this system would like to apply it on my personal home. The model of the system may also be applied in the tropics.
3. *Stand on the research on renewable energy.* The featured plant in this area is very common in Indonesia and has been cultivated for a long time. It can produce oil that can be used as environment friendly fuels.



4. *Stand trial for elementary school physics.* This display was very interesting and provided effective learning. It showed a simple working principle of electricity that came from the style of motion, gravity, coils, geothermal, etc. From this stand, I took lessons applicable to schools in Indonesia. Schools should be able to provide simple means to demonstrate the laws of physics which students can easily understand.



5. *Stand on electrical safety.* This displayed the main electrical network protection system particularly used in the mountains. With this system, the power plan will continue to be able to supply power to various places.

6. *Stand electrical energy from geothermal and wave.* What was interesting here was also of creative product merchandising of ash from geothermal. Everything was useful.



The next visit was to the National Institute of Advanced Industrial Science and Technology (AIST). It coincided with the visit of elementary school students. It seems that on that day, the whole school visited the Hiroshima Central Science Park. Learning methods were very effective. In this place one can see how the Japanese industry was done with creativity and technology. Every part must pass through stages of research and testing before shipping. The exhibit showed a simple way of making the basic working principle of goods. I had the opportunity to make a stamp (inkan) by myself. I began to select the model, make and describe it through automatic printing machine. The results were very satisfying and enjoyable. Next, my group was invited to get to know the working principles of image or glass

mosaic. Its working principle was very easy and can be done alone for a simple result. It was truly interesting!

Through this visit, I had a very worthwhile experience and a deeper knowledge about the work ethics, the principles in the work and achievement of goals. Some of the things I learned were:

1. Science institutions in Japan are always open to the public to learn about advances in technology, research.
2. Japan researchers always use creative thinking to make a product for the people. They utilize their knowledge effectively.
3. Researchers do high quality work to create useful research results.
4. Learning can be fun, interesting and effective through organized trips such as this.



[Go back to Nakagoshi & Xuan Lab homepage.](#)