

Earth Environment and Global Citizen: Seeking for
Cooperation between Japan and Thailand in the Near
Future

The Report of Taniguchi Office of Konan University, regarding the
Practice of Environmental Education

0. Introduction

- ▶ This student meeting is aiming that we explore what the earth environment and global citizen should be, and what we should be toward the solution of earth environmental problems by discussing between Thai students and Japanese ones.
- ▶ Nowadays, earth environmental problems are diverse and wide, and the education of environmental morals and practice of environmental education is necessary. In our Taniguchi Office, we classify environmental concepts in terms of the Natural Environment, the Social Environment and the Mind Environment because we can thus recognize the indigenous environment more easily. We are spreading our activities beyond our office.
- ▶ We are reporting on the activities in the approaches of the Natural Environment, Social Environment and the Mind Environment in our office. We will then present the contents that we are wrestling with the actual solutions of environmental problems, that is to say, the practice of environmental education from the local viewpoint and the creation of networks from the global viewpoint.

1. Recognition of Environmental Problems : Environmental Destruction and Pollution

(1) Destruction and Pollution of the Natural Environment : Deformed Monkeys

- ▶ The problems of the ecosystem and the Natural Environment based in it require immediate attention. Acid rain, depletion of the ozone layer, extinction of wild animals, the problems of Environmental Estrogens Endocrine disrupter, and others, are the most important problems concerning the Natural Environment.
- ▶ We aimed at deformed monkeys as the approach in the viewpoint of the Natural Environment. The occurrence of deformed monkeys in some parts in Japan, is thought to be due to the influence of agricultural chemicals. We have regularly been to the Awaji Island Monkey Center to conduct research since the 1980s.
- ▶ Since the 1970s, tied to the high economic growth rate in Japan, human-fed groups of the Japanese Monkeys (*Macaca fuscata*) have seen many kinds of disabilities on Shodoshima Island (1986), Gagyuzan in Okayama Prefecture (1991), Miyajima in Hiroshima Prefecture (1991), and so forth.



▶ The Awaji Island Monkey Center in Hyogo Prefecture, 1992



▶ The Awaji Monkey Center in Hyogo Prefecture, 1990

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- ▶ The disabilities show mainly on their feet, there are the following kinds of deformities: added-fingers, clenched-fingers, bent-fingers, short-fingers, missing-fingers, a hand with one finger, branched-fingers, and so on. Further, the numbers of monkeys which have serious pollen allergy is also increasing in recent years.
 - ▶ Humans also eat the same kinds of food which the monkeys eat : mainly wheat, soybeans, peanuts, apples, oranges, and so forth. And we realize the seriousness of the contamination of food by agricultural chemicals.



▶The x-ray picture of the monkey's feet with disabilities.

▶ It is reported that in the bodies of the deformed monkeys and in the bodies of their mothers there has been from several times to several tens of times more poisonous chemicals (chlorinated organic compounds, such as Dieldrin, Malathon, and so on), than in healthy monkeys. Therefore, the occurrence of this was thought to be due much more to environmental factors than to genetic factors.

▶ Moreover, agricultural chemicals that are banned in Japan today, have been exported and agricultural products using these chemicals have been imported back to Japan again. It is called the " boomerang phenomenon of agricultural chemicals" . From the ecological point of view, solutions to the earth environmental problems require not only local action, but also action from the global perspective.

(2) Destruction and Pollution of the Social Environment : Minamata Disease

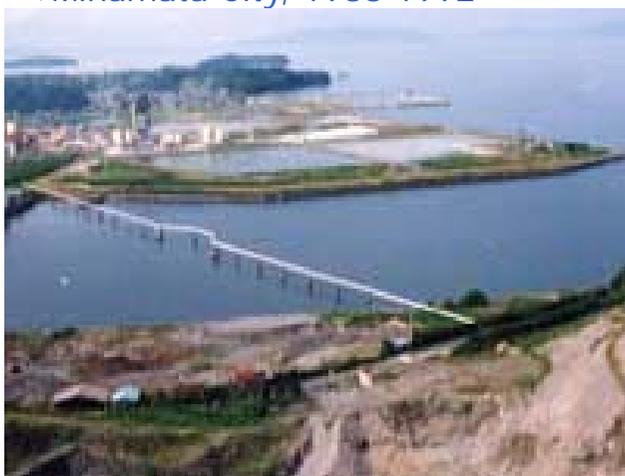
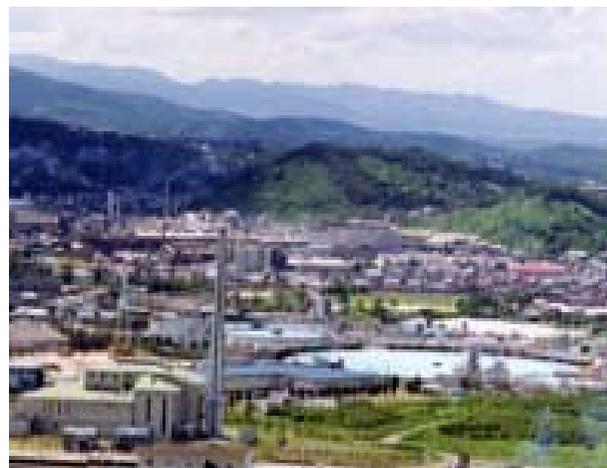
- ▶ We aimed at one of the problems of environmental pollution, Minamata disease as the approach from the viewpoint of the Social environment.
- ▶ The high economic growth rate in Japan started from the 1960s and some areas in Japan have suffered environmental pollution, for instance, the Itaiitai disease (1955), the Minamata disease (1959), the Nigata Minamata disease (1965), the Yokkaichi asthma, and so on.
- ▶ The cause of Minamata disease is that people had taken in organic mercury compounds by eating fish and shellfish caught around Minamata Bay in Kumamoto Pre. The main symptom is nervous system invasion, particularly disabilities of sense and motor nerves in the limbs, functional disorders of vision and audition, and speech defects. In the course of time, the victims could not walk, became panicked, and then physically weakened. Furthermore, in the case of Embryonic Minamata disease, unborn babies were poisoned with the organic mercury compound in the mother's womb, after birth, the babies had disabilities of intelligence and symptoms of nerve damage

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- ▶ We visited Minamata City in August in 1988 and 1992. We have communicated with patients suffering from Minamata disease in Meisuien, with Mr. Masazumi Harada, who has studied the early stages of Minamata disease from stand point of medicine, and the late Mr. Akira Sunada who had put on plays about Minamata disease, and we have visited Soushisha, which is the center of Minamata disease, and so forth.
 - ▶ We visited there in 1988. Land reclaimed from sludge containing the mercury compound was restored as a park in 1992. Because of the bad image of the disease, the people of Minamata want to forget the incidence of Minamata disease. However, nowadays, there have been occurrences of Minamata disease in Canada and China. We are required to recognize not only the anthropocentric perspective, but also the ecological and global perspective.

●The Contrast



▶Minamata City, 1988 1992



▶Hachiman Pool in Minamata, 1988 1992





▶Edge of Minamata Bay, 1988 1992



(3) Destruction and Pollution of the Mind Environment : Mental Therapy = Sandplay World

- ▶ We are starting from the point of view that the destruction of the external environment, the Natural and Social Environment, is caused by the destruction of the internal environment, the Mind Environment, such as found in the egoism of human activities. In considering the Mind Environment we are focusing on the Sandplay World.
- ▶ Sandplay is a play therapy using a box of sand 57 centimeters in length, 72 centimeters in width and 7 centimeters in depth, and painted blue on the inside, and using toys and sand, as devised by D. M. Kalff. It involves the performance of the body, and the inside world of the mind. It is used for the most part in counseling.
- ▶ But we recognize it not only as a mental therapy, but also as a microcosm of the Mind Environment reflecting the macrocosm of the Natural and Social Environment. And we use it aiming at the enhancement of the Self releasing it from the ego disease.
- ▶ Please experience the Sandplay World workshop tomorrow, presented by Prof. Taniguchi.



- ▶ The Sandplay World workshop in Japan Academy for Health Behavioral Science in June in 2000.

- ▶ The Sandplay World workshop in Thailand in 1997.

2. The Practice of Environmental Education from the Local Viewpoint and the Creation of Networks from the Global Viewpoint

(1) Organic Agriculture

- ▶ Organic gardening has been one of the most important and popular activities carried out at the Hirono Ground. The vegetable garden was the result of the students' hard physical work. Gardening gives us hands-on experience of the earth, the cycle of the seasons and the process of growth, which is vital in environmental education, particularly for urban dwellers. The stables at Hirono Ground provide a ready supply of horse manure and so all the vegetables have been grown using only this source of organic fertilizer. No man-made chemicals, such as pesticides or fertilizers, have been used in the garden. Last years' summer vegetables were cucumber, spring onions, eggplant, miniature tomatoes, green peppers, green chilies, bitter gourd and sponge gourd which are dried to make loofahs), as well as a herb strip of orange and pineapple mint, chamomile, fennel, rosemary, sage, parsley, lavender, basil, thyme, lemon balm and oregano. We also planted chrysanthemum, sweet potatoes and radishes as our winter vegetables. These winter vegetables were used for eco-cooking. Organic farming gives us direct knowledge that our food comes from the earth, not the supermarket.

i) Rice Planting: Leaning through activities

a. Introduction

- ▶ We are planting rice at Konan University's Hirono field. Japanese has a history as rice for about 2300 years. So rice is special food for Japanese. But, at the present, most of Japanese doesn't know rice-planting process. Rice planting is very hard and difficult for us. We owe our experience to local farmer's help. Rice harvest is once of the year. We are half way. We show this year and last year circumstance of rice planting.
- ▶ We are planting "mochi gome" which is one of the rice variety. This variety produces very sticky kind of rice that is used to make "mochi", a kind of sticky rice cake that is traditionally eaten at the New Year in Japan.

b. Process of Rice Planting

b-1: "momi maki"

- ▶ We can see here the "momi maki", rice seed spreading process. First of all the rice seeds are spread out in "inadoko", rice trays. A net is covered over the trays to keep birds off. The seeds are watered and grass is placed over the net to retain the moisture. The rice plants take about a month to grow before they are planted in the rice field mid-May.



b-2: Preparing a seeding rice field

- ▶ We prepare rice field till seed germinate.
- ▶ We dig up and roll the field.
- We pour water on the rice field.
- We roll the field again.



b-3: Rice planting

- ▶ At first, we planted two or three rice seedlings together. And we planted in the rice field. Usually Japanese farmers rice plant by rice-planting-machine, but we did it by traditional style of hand-planting. It is important to have an experience in all things. We planted with wood flames in order to keep uniform interval between each seedling. At this time, not only seminar students, but also the environment education students took part in rice planting, and everyone muddy. We seldom do such farming activities in ordinary life style. But once we entered and when we walk inside mud, we feel comfortable against our expectation. On planting, students looked so earnest.



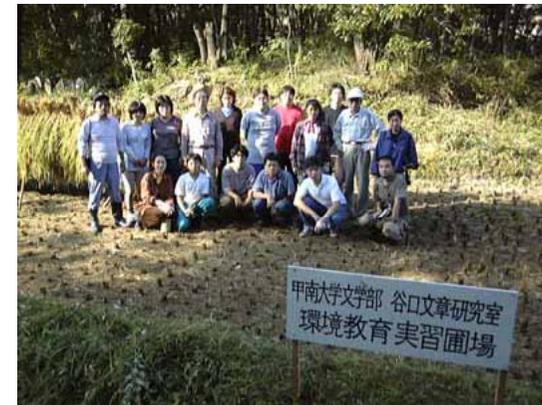
b-4: Removing the water in the field

- ▶ In the middle of July, we remove the water from the rice field once. In the water, rice roots can extend only side ways. Without removing the water, rice seedlings are knock down when they bear rice, or when a typhoon hit. After removing the water roots can extend downward and be stronger enough to support themselves.



b-5: Harvest

- ▶ We harvest with a sickle. Recently, the harvester can harvest and thresh at the sometime by rice harvesting and threshing machine, but we tried traditional style which is by hand.



b-6: Thresh

- ▶ We remove chaff by threshing tool.



b-7: Harvest festival

- ▶ We celebrate the harvest with "mochi tsuki taikai". This is a very popular Japanese tradition in which the rice is pound with a large wooden pestle, "kine", in a stone mortar, "usu". After much hard pounding, with everyone taking their turn, the sticky mochi is produced. Finally the rice cakes are formed by hand.



c. Epilogue

- ▶ Thus, rice planting process is very long. Usually, we seldom have a chance farming. So that, we learn a lot of things through farming experience. We not only have harvest but also wide view point.
- ▶ Anyhow, we are looking forward to days of an ear of a rice plant color became gold.

(2) Biotope

i) Purpose of Biotope

- ▶ One activity for restoring the Natural Environment is the BIOTOPE. The birthplace of biotopes is Germany. Biotope originates in Greek. It is a compound of 'bios' and 'topos'. It is the space of the minimum unit that is necessary for a habitat of life. Originally, mountains, ponds or marshes that came into being naturally can also be called Biotope.
- ▶ The background, as we have seen, is "global environmental problems". It especially results from the feeling of loss of "biodiversity". The natural environment close to us is being destroyed not only in the cities but also in lonely places. The Biotope has the purpose of restoring such lost natural environments close to us.

ii) Creating a Biotope at Konan University's Hirono Field

- ▶ Now, I introduce the biotope at Konan University's Hirono Field, which we have been observing.
- ▶ At Konan University's Hirono field it is an artificial space to restore the ecosystem. It is a space to restore a habitat where plants can grow. And we learn the importance of life there.
- ▶ The biotope at Konan University's Hirono Field was made on July 31, 1999 under the direction of Mr. Akao, leader of the secretariat of School BIOTOPE and Professor Taniguchi of Konan University. It is a gourd-shaped pond. It measures 8 by 4 meters, and the depth is 50 centimeters. About 30 persons (students, professors and so on) took part in making the biotope. So far, we have investigated water and made observations several times.

(The process of making a Biotope)

A. Dig the hole.

- ▶ We used a mechanical shovel at that time, but essentially, children digging a hole with a shovel and scoop are an effective way of environment education.

B. Harden the side of the hole.

C. Spread a vinyl sheet, and a rubber sheet to prevent the overflow and leaking of the water.

D. Fix the edge of rubber sheet.

E. Put a stone on the bottom of pond (hole)

F. Put water into the pond.

G. Completion



iii) Observation of the biotope.

10 October, 1999

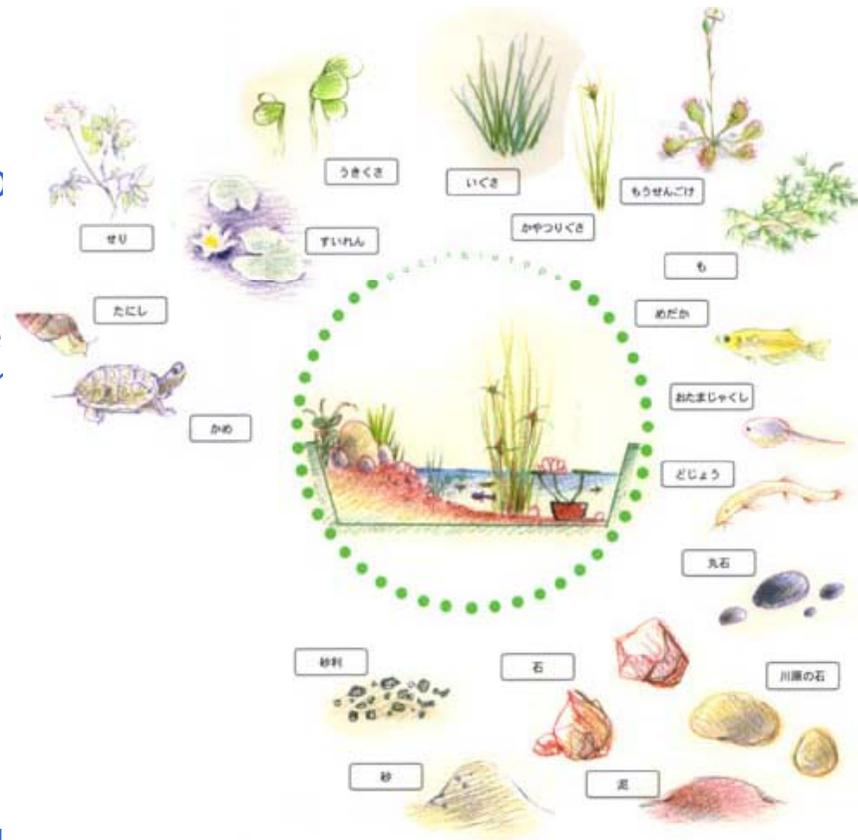
- ▶ On this day, students who belonged to the biology club at Konan Junior High School came to observe.

The water quality : more than pH.6.2 (The reagent was simplified so we couldn't measure more than this.)

- ▶ But it seemed that there was neutrality or a little alkalinity.

Living organisms

- ▶ At Hirono, the organisms hardly appeared because the water temperature was low.
- ▶ **Water boatman** (length 1 cm): It flies out of the water at night. An imago larva lives in the water all its life.
- ▶ **Water strider** (length 3 mm): It is brown. It moves fast. It swims on the surface of the water as if it is walking.
- ▶ **Water beetle**



- ▶ These insects swarmed in the early stages.

4 December, 1999

The water quality was more than pH.6.2: It is neutral or weak-alkaline.

- ▶ Living organisms
- ▶ **Water boatman**
- ▶ **Water spider**
- ▶ **Aquatic insects**
- ▶ **Dragonfly nymph**
- ▶ Dragonfly nymphs hatched from eggs spawned by dragonflies when the biotope was completed.

3 April, 2000

- ▶ The first observation this year
- ▶ Investigation of water:
BTB test paper PH 7.2
UNIV. test paper PH 7.0
- ▶ Living organisms
- ▶ **Water strider**: about 150 water striders swarm the surface of the water.
- ▶ **Water boatman**: previously, we had found many of them. But they had decreased in number. They had grown bigger since the beginning of the observations.
- ▶ **Mayfly larva**: The shape is like that of a shrimp.



18 June, 2000

- ▶ We put algae and waterweeds, on which the living organisms breed, into the biotope to promote the restoration of an ecological system during the summer, on which the living things breed. (We got the algae and waterweeds from Kohyoh Primary School.)
- ▶ Kinds of the algae:
 - ▶ **Hydrilla verticillata** *casp*
 - ▶ "Kuromo" a kind of waterweed

8 - 9 July, 2000

- ▶ The first observation after introducing waterweeds into the biotope.
- ▶ Living organisms
 - ▶ **Leopard frog**
 - ▶ **Water beetle**
 - ▶ **Water strider**
 - ▶ **Water boatman**
 - ▶ **Killifishes:** The killifishes hatched from eggs spawned by killifishes on waterweeds got from Kohyoh Primary school.

iv) Experience through Biotope whose purpose is Creating Natural Environment

- ▶ After consideration, we learned the process of the restoration of the environment not only from books but also from observation (experience), and we could feel the environment closer to us than before. We learned that it takes much time to restore the environment for living organism. If we are to restore the lost environment perfectly, we will need much time. And we gain good experiences for our mind and body through creating Biotope, observation. So we ought to feel nature close to us and act as we can. And we think that we ought to maintain a sound mind and body to live together with nature.
- ▶ After we make the biotope and the ecosystem takes form to a certain degree, we can make a new biotope a short distance away. We can watch the movement of life (the formation of a biotope network, and we call the path between them a "corridor "). The corridor between 2 biotopes is linear but as we create several biotopes the complex network of corridors is expanded outwardly forming a eco-system.

(3) The Environment Experience through the Field Investigation

i) Nature Observation

- ▶ Field Investigation is necessary to predict the earth environment of the 21st century. In our local activities, we have been observing nature around Konan University's Hirono Ground. So far, we have find animals such as kites and tree frogs, insects such as splendor beetles, long horned beetles and hairstreak butterflies and flowers such as irises and rhododendrons.
- ▶ In the future, we want to observe the changes of the animals and plants during the seasons.

ii) Eco-Tours

- ▶ The members of Taniguchi seminar have gone on several eco-tours to understand environmental problems from global viewpoints. So far, we have visited China, Thailand and Canada. These eco-tours broadened our perspective.

Record of Eco-Tours

- ▶ **1996 | China** : Beijing, Lugouqiao, Beijing No.101 Middle School, Peking University, National Environmental Protection Agency
- ▶ **1997 | China** : Peking University, Tianjin, Tianjin Education and Science Research Institute
- ▶ **1997 | Canada** : Victoria, Vancouver, University of Victoria
- ▶ **1998 | Thailand** : Bangkok, Rajabhat Institute Phranakhon, Khao Yai National Park, Ayuthaya Historical Park, Kanchanaburi
- ▶ **1999 | China** : Beijing, Peking University, Inner Mongolia, Hohhot, Baotou
- ▶ **2000 | Thailand** : Bangkok, Rajabhat Institute Phranakhon, Khao Yai National Park, Ayuthaya Historical Park

A. China

- ▶ When we went to China in the summer of 1999, we inspected an iron and steel plant and a water treatment plant where they use the latest technology. We could experience the actual state of environmental problems in China.
- ▶ In Inner Mongol, we could see the sky full of stars at night, and we could watch the beautiful morning sun rising above the horizon.



B. Canada

- ▶ In Canada we experienced "Alternative Forestry ". "Alternative Forestry" is an activity in which citizens can take part. It does not involve clear-cutting trees in the forest, but carefully selecting the trees to be cut according to eco-system. When we took part in it, we experienced the actual state of nature conservation.



C. Thailand

- ▶ In Thailand, we did bird watching and went on a night safari, and investigated a rain forest. We could feel the preciousness and vastness of nature and the brilliancy of life. And, a student conference was held in Rajabhat Institute Pranakohn.

