Symbiotic Civilization

Before 1970s, we think resources and energy are unlimited. We believe sustainability is certain. The advanced western countries use the resources to develop their life style. We call it industrialization and urbanization. By means of international trade, the wave of comparative advantage, every country produces their special products and promotes them to the whole world. It makes the whole world has the same urbanized civilization. Because of the successful experience of the advanced western countries, let all the less-developed countries envied the way of western life they have been going. Under this kind of marketing, the less-developed countries import the goods from the advanced western countries. It influences their value and culture, also makes the whole world in the same model. However, the western model can't match the local climate and environment. We can't release from the deep influences under the international trade and the principle culture. It leads the constructions of the whole world to the same. The construction can not only be incompatible to the local environment, but also causes a waste of resources.

In the same session, we had a clear picture of the phenomenon through three papers. The first was by Professor Kazuo Iwamura from Japan, his topic was " Movements of the Environmentally Symbiotic Housing - Theory and practices in Japan", the second was by Professor William Lim from Singapore, his topic was "Sustainable Environment for Whom - with special reference to cities in East Asia region", and the third was by Professor Wan-Ki Chow from Hong Kong, his topic was " Architectural Features for the Environmental Friendly Century". The construction of western model can't be compatible to the subtropical region. It is the same in my country, Taiwan. We believe that pursuing the different regional civilization is not correct. We shall understand our characteristics and local environment. The constructions and equipments should response to the local climate. If a country can be sustainable or not will focus on whether the resources can be recycling or not.

We realize we should catch the natural law about the biological sense and try to build a symbiotic high efficient recycling system. We call it “Symbiosis”. It is based on the biological sense. We have a vertical planting system beside the construction’s wall. Through the dry toilet, our output will be the nutrition of the plants, and the output of plants will be our food. We hope through this high-efficient recycling system, it might help to release the burden of the environment. Also, by the evaporation of plants, it might help cool down the high temperature. Besides, as to the construction, learning the wisdom that both of subtropical aboriginals and ancient Romans control the temperature and humidity, we build a chamber to prove its possibility and test its performances. All the results could be adopted by a new community. We believe that Symbiosis will make our living free from the burden of environment. We reach a conclusion that composing the Green Building and “ Symbiosis” will be the formula for pursuing Sustainable Building: GB + Symbiosis = SB. At that time, I proposed three key points as follows:

1. Localization: Buildings should have the ability to respond to its local environment and climate, while also providing for the comfort and health of its inhabitants.
2. Team Work: Sustainability is a complex issue. It needs to be discussed on many different levels and aspects in order to come up with a comprehensive solution. Moreover, real dialogue with our environment will require continued experimentation, refinement, implementation and feedback.
3. Symbiosis: “Symbiosis” is a micro-scale symbiotic approach with mimicry of nature. It requires that people establish an intimate symbiotic relationship with the biological world, and particularly with the vegetables and fruits. It is in order to minimize their impact on nature and ensure environmental sustainability.

At the SB05 Tokyo International Conference, I would like to share our experience we have accumulated over the past 3 years. I hope it can provide you a new way of thinking for developing sustainable buildings in your own country. Now,

I will present you four practical tools. According to the symbiotic conditions supporting the local environment with reference to the GB in advanced countries, it can help you accomplish SB in your own country.

In order to help you understand the formula “GB + Symbiosis =SB” more easily, let’s take a look at our experience in Taiwan for the past 3 years. In other words, it is an approach to imitate the nature and to live with the nature in peace. The key point of thought about the Symbiosis just matchs the oldest oriental philosophy of Taoism. If we want to make an analogy to Taoism, symbiotic building will be the physical part and symbiotic life will be the virtual part. Both share the idea of perfect match of physical and virtual in response to environmental conditions. In terms of GB, it should adopt the most efficient structure and build the vertical planting system around the structure to form a green wall. By applying the symbiotic theory to the daylight working model, we can promote the recycling of daily necessities in order to create a self-sufficient lifestyle. In other words, the use of the Solar Energy creates a self-sufficient lifestyle. We call it Symbiotic life, and use the digital instrument to create spiritual product and promote to the whole world to achieve the spiritual life. Finally, we feel happy and healthy.

In order to create a self-sufficient lifestyle, we have four components to form a recycling life, including the vertical planting systems, the nucleic acid meal, the cleaning and the compost. The vertical planting systems can be built besides the construction’s wall to catch the sunshine more easily and their baskets can be also run to absorb the water in the bottom. The wild edible plants and other vegetables can be grown together to reduce infection and pest. It will also form a green wall after these vegetables grow prosperously. In addition to cooling down the environment by sheltering the building from direct exposure to sunlight, this can also help to reduce the workload of air-conditioning and provide a reliable vegetable source. Together with some protein, such as fish contains more nucleic acid, this will become a perfect nucleic acid meal that can provide healthy diets. Waste and wastewater produced

from everyday life will be cleaned before entering the recycling system, including the dry toilet, wastewater treatment system etc. For the reason of safety, the compost function of the dry toilet will need a 2-step compost or sterilization before mixing with the soil to produce nutrition for plants. Wastewater will also be feedback to the vertical planting system after treatment in order to form a closed symbiotic recycle.

We believe if we have these four components, it can make the symbiosis come true. Following the accumulation of civilization, these four components can accommodate more micro-scaled or multiple recycling systems to complete the most needed recycling structure under the concept of sustainable development. By doing so, it will be easier for us to spread the idea of symbiosis from a single building to the entire society and even a country and build recycling society in order to reduce the workload of environment and to make the developments of human-beings will not the burden of the environment. While human is the center of this recycling system, human and green plants together form the foundation for symbiotic recycle, because by using solar energy, air and water, green plants form the environment for human survival and provide us food. Green plants have long been existed in our environment. While they have already formed the mimicry in nature with soil, microorganisms and insects, they are resistant with one another during the course of evolution. Therefore, we need to understand the position of food chain in nature and we can use the mechanism of symbiosis. If we understand the mechanism of symbiosis, we can use artificial treatment to expand its survival quality and quantity to support further development. In doing so, we need to protect the nature and the environment as the foundation for sustainable use on the one hand, and to promote further development by selecting the required species to achieve sustainability on the other hand.

Therefore, we believe the following investigating reports given by 4 different teams will be the key to the success of symbiosis. These include the report on meteorology by Mr. Lin De-en; (He majored in and researches on atmospheric science); and the report on microorganisms by Mr. Luo Yang-ching; (He majored in

agricultural chemistry and researches on biochemistry and microorganisms); the report on insects by Mr. Tsai Kun-hsien; (He majored in biology and researches on entomology, microbiology.) the report on wild edible plants by Mr. Chung Cheng-hsin. (He majored in plant pathology and researches on bio-technology, and botany)

Now, I would like to introduce these four tools to present for all of you. The first one is Mr. Lin De-en. He will report on the meteorology.
The second one is Mr. Luo Yang-ching. He will report on the microorganisms.
The third one is Mr. Tsai Kun-hsien. He will report on insects.
The last one is Mr. Chung Cheng-hsin. He will report on wild edible plants.
Of course, these four practical tools are the most basic tools for supporting Symbiosis. It still needs the combination of other technology. Therefore, this student session is just the beginning. We hope that through international division of labor, Taiwan can make some contributions to helping different parts of the world to accumulate knowledge for constructing their own SB. We will learn from one another in seminars and conferences held in the future, and we hope this student session can inspire you a new way of thinking. In the face of energy crisis and climate change, it's time to make some revolutionary changes to achieve SB by combining GB and symbiosis. Let's do something to sustain the development of this planet and to preserve the sustainability of the Earth. This is the end of our lecture today, thank you very much.