

Environmental Protection in 6 Tzu Chi Hospitals

Organized by Wu Wan-lin, Translated by Teresa Sun and Danny Lu



Ever since the Industrial Revolution in the 18th century, industrialized nations have used tremendous natural resources to produce machinery. This has caused our environment to deteriorate quickly and has created 5 billion tons of carbon dioxide, so far. Mankind has consumed millions of years worth of natural resources that had been stored by the natural world just in the last several hundred years. Ms. Rachel Carson of United States published a book called *Silent Spring* in 1962. In her book, she points out the damage to the environment from misused chemicals. Carson's writing stirred an awakening of public environmental consciousness and eventually inspired the first Earth Day in United States in 1970. This day has been observed as an important starting point to the global environmental act.



It has been 36 years since the first Earth Day. As we enter the 21st century, interest in the natural resources and environment protection have been reborn and finally receive proper attention where every region has lent impetus to this concept fervently. While we think of environment protection, we cannot ignore medical facilities where patients' lives and health are maintained. In this special industrial domain, under the requirement of public health and safety, the formation of energy and medical waste has been treated as a matter of course. The regulations and requirements on environmental protection have been very relaxed. Based on a survey conducted in the United States, there is medical waste disposal market worth 18 billion U.S. dollars in 2003 with an growth average of 5.7% annually. It is estimated that in 2008 this market will exceed \$24 billion. We can clearly see that the increase of medical waste has given the market another kind of business opportunity.

In retrospect, Tzu Chi hospital has been conducting environmental protection ever since some 20 years ago when the first hospital was built. In the 20 years from the Hualian Tzu Chi hospital as the starting point to the newly completed the Taichung Tzu Chi hospital in January 2008, the environmental protection has been passed on from the construction of the hospital to inside of the hospital and has penetrated the entire medical system.

The simplest way is to have staff bringing their own bowls, cups, and chopsticks. This is the first step in promoting the concept of environmental protection in their hospitals. The staff of six Tzu Chi hospitals has developed the habit of conserving the environment. When one step into the staff lounge at any of these six hospitals, one will not see piled up disposable utensils, nor see cleaning crew with pushing cart coming and going frantically in an effort to clean up after their guests as in a public restaurants. As to the over spilled left over food pale, there goes another suggestion to the environmental protection.

Hualian Take the Lead for Papereless System

Yuli, Kuanshan Solar System & Wind-powered Heater

In 1999 Hualian hospital begins to operate on Picture Archives & Communications System, aka PACS. This system took more than three years of research and improvement. This system has transformed from the traditional X-ray to the electronic system today. Doctors are able to view X-rays in their consulting rooms, operating rooms, or other locations in the hospital. This system also has minimized storage space for the X-rays, the expenses for the processing solution, and the pollution. It has now been the standard equipment at all six hospitals.

In order to pursue the practice of saving electricity, hallways that are not frequently in use during daytime hours are implemented with energy saving switches. When security guards make their rounds at night, they check lights and computers to be sure that they are turned off. Solar panels are installed on top of hospital roofs. On the average, 50 kilowatt-hour worth of electricity is recycled. Rain water is also saved for the purpose of irrigating the landscape.

Hua-lian Tzu Chi hospital is also the first one to send official documents electronically. Applications of official documents, purchasing, and repairing are all processed via the electronic technology. It diminishes



the use of papers, printers, and ink. Even the invitations for the 20th anniversary of the hospitals were sent out electronically, reduced carbon, saved energy, and protected environment.

Yuli Tzu Chi hospital and Kuanshan Tzu Chi hospital are not big in scale. However, Kuanshan Tzu Chi hospital is the earliest one to use pneumatic heat pump. It uses wind force to run heat pump in order to supply hot water. Yuli, on the other hand, uses solar energy to supply hot water.

Beginning this year, Tzu Chi Foundation is encouraging its staff to carry out the slogan of “Control self desires and return to propriety.” Hualian Tzu Chi hospital also pledge to “Exert on foot together” encouraging staff avoid taking elevators and use the stairs. Staff often encourage colleagues to climb stairs together as a sport. Colleagues start a movement of riding bicycles to work. This movement not only cuts down the carbon in the air, but also achieves the goal of better health.

Dalin Prize Winner of Environmental Protection

Every employee of Dalin Tzu Chi hospital, from the Director down to clerks, all working hard to design ways to protect the environment. You can often hear from Vice Superintendent(VP) Shou-hsin Chien asking people if there are any shoes need to repair. One can take a number at his office and then deliver their shoes to Dr. Chien. That is Dr. Jui-teng Chien of the osteopathy, he used left over thread for the surgery to mend his shoes. This story is an exemplary example for such deeds. At the clinic, Dr. Jui-teng Chien uses camcorder to record patients' recovery progression. This action shows patient his own progress clearly and it also saves the process of developing pictures. Dr. Chien yields to nobody in the desire of benefit mankind. He uses refill ink to replace ball point pen and this action cuts down refill waste. He uses torn socks to make knee protectors, economical and a real benefit. He also drafted an Environmental Protection Pledge, which included conservation of



electricity, water, food, paper, and rational consumption. He wishes that everyone can avoid being ostentatious and return to basic needs. The stairs at the hospital becomes the path to health and everyone the person who uses stairs the most is nominated as the “king of staircase climbing.” The result of staircase climbing to August this will be cumulated to 5000 floors. This health record is incredible.

On the process to handle the medical waste disposal, there are several departments in Dalin which handled high volume of the medical waste disposal, already found some kind of methods to change it. For example, the room for the dialysis, they go by the facilities developed by the center, efficiently reduced the fluids from the kidney, lung from 0.9 kg lower to 0.8 kg. This year the 3rd generations, will even bring out more power to perform its power.

Beside this, the operation room is also consider as high volume waste area, to considerate the principle of germless and safety, the center change to use paper hate for the operation room, it saved about 1200 hates and 2400 pairs of one time used shoe cover.

To save on energy for the hospital, including unplugged everything after hours. That saved a great deal on the annual utility bills. This effort estimate roughly reduce the less CO₂ to 10,000 kg. The hospital even extended their Environmental protection into the local area. It has plan to collect all the disposed bicycles from the university of Chiayi and university of Chong Cheng, bring those bikes back to the “bicycles emergency room” to fix it, part of the bicycles will return to the student in school to use. And the other parts will remain in the center for the employees to use as daily exercise. Dalin Tzu Chi Hospital was honorably to receive the 15th ROC Enterprise Environmental Protection Award. It was the effort that every one in the

hospital worked hard on the protection plan. Dalin is the only medical clinic to receive the award, and this year even by the name of the medical department to gain the first place of the award of Environmental Protection.

Taipei Urban Green Building, Rain Water Recycling

Taipei branch combined all sources to work together; save energy, reduce the carbon waste, reduce the energy annual usage; According the energy usage from April to June 2007, the total usage compared to the same period last year, was 406400 degree lower, which means each month we saved



\$4,000. Not only the plan saved money, but also saved the resource from the earth.

According to the formula from the U.S. Natural protection association, every hundred degree of electricity that we used and the CO₂ that was discharged, we must plant a tree to be able to balance it. The energy bill that was saved by Taipei branch, will equal to eliminate 4000 trees. Taipei started from May 2005, and concentrated on building green as its main goal. To protect the soil and spaces, It was built with “multiple dimensional green effects”, allow rain water naturally penetrate to soil, then use the design by auto wet ground and water-well gathering the rain again. Combined with “skyline garden” to increase the green area, to elevate the

oxygen level and adjusting the quality of soil, reduced the noise. All these plus the facilities to apply to the environmental protection, it was certain to receive “The U.S. Best Medical Facility Award”.

TaiChung Grand-scale of Solar Power System

The biggest sun ray solar generating system in Taiwan is located in Taichung branch. The hospital requires a great deal of electricity to run the medical system for its operation. On top of the Tai-Chung hospital building, installed with 6 giant solar panels for collecting sun ray. It will generate the total voltage of 1000 V., it is the biggest solar power generating system in Taiwan. It produced more than 70,000 V. since the day that Taichung branch opened for public. And the system saved about 170,000 dollars annually, consumed more than 40,000 carbon.

Besides, the medical personnel to reduce the carbon foot prints, it doesn't matter whether it is holiday, or health care activities, you will see all the medical team members lined up in front of the hospital, no fear to the bright sun. They will ride on their bikes for several miles to each subdivision, to check on each one of them, even those doctors who never got on a bike for more than 20 year, they are willing to try and get on a bike, paddle it with their strength. This is what every one concerned in their mind “Beside saving people, save the earth”.

