



## Creating a Green Environment Initiative with Kaohsiung Municipal Siaogang Hospital (KMSH)

### GGHH Agenda Goals

- Energy
- Water

### Hospital Goal

- To maintain consumption of energy and water consumption, despite the growth in patient number

### Progress Achieved

- Kaohsiung Municipal Siaogang Hospital (KMSH) has continually improved hospital structure and equipment. Annual expansion and facility refurbishment were conducted. Corresponding with these developments, electricity and air conditioning temperature are closely monitored and energy efficient devices were installed. Daily electricity expense drops from NT\$ 30,209 to 29,625 during 2011-2013. Annual electricity and gas saving is 2,000,000NTD, saving 45% of total expenditure
- Old hospital apparatus were replaced using 37% of the hospital's annual budget to purchase more efficient and green equipment
- Installed solar panels were used to preheat water, saving 40 KWh/day electricity
- A decreased in annual carbon production of 297,437 kg has been attained after using green tableware and self - prepared meal box
- In 2011-2013, water consumption remains constant despite the growth in patient number. Compared to consumed water from 2009 – 2010 (11,026,646 cu.m), despite increase in number of patients, water utilized in 2011 – 2013 (125,412 cu.m) has decreased.

## The Issue

### 1. Energy and Water Resource:

Increasing number of patients and personnel, purchases of equipment and structural expansion have resulted to elevated pharmaceutical supplies, drugs, energy and water consumption. Consequently, the amount of generated wastes have also grown.

### 2. Tableware:

In 2008, we have seen the need to cultivate the habit of using green tableware among staff. We encouraged practicing energy conservation concept in daily life while communicating with our partner communities.

## Sustainability Strategy Implemented

KMSH’s approach to medical services, teaching and research is based on the principle of “CARE” which means Cooperation, Accountability, Reverence and Effectiveness. We collaborate with communities to improve health awareness, to provide holistic care service, clinical teaching and medical technology research.

In addition, we acknowledge that coordination with the community is a vital strategy to become a hospital providing thee best quality holistic care while incorporating environmental conservation and occupational safety principles.

The hospital has employed several measures to ensure environmental protection while maintaining superb delivery of quality services. Among them are development of safe working atmosphere by harmoniously co-existing with the natural environment, provision of safety equipment and a team managing efforts implemented.

## Implementation Process

### 1. Energy

Index	Strategy
Natural Gas	Replaced gas boilers with tubular boiler set and heat pump which can reduce gas and energy usage.
Indoor Carbon Dioxide	Installation of total heat Exchange detector on air - conditioners. Labor Safety Section monitors concentrations of carbon dioxide every six months.

Index	Strategy
<b>Electricity</b>	<ol style="list-style-type: none"> <li>1. Energy – saving mechanisms were installed in electricity system, lighting system, boiler and air – conditioners</li> <li>2. Purchase of modern and energy efficient elevators.</li> <li>3. Advocating carbon foot print reduction and saving energy to staff, patients and their family through (state method, ex. Leaflets, talks etc.</li> <li>4. Labels were displayed in conspicuous áreas to notify and remind tbe public of lighting control schedule</li> </ol>
<b>Water</b>	<ol style="list-style-type: none"> <li>1. Mounting water – control equipments and water – saving devices in public toilets and bathrooms in ward section</li> </ol>

## 2. Food

Index	Strategy
<b>Amount of environmental-friendly tableware utilized</b>	Trying to make staff get into the habit of using green tableware.
<b>The amount of carbon reduction using environmental-friendly tableware</b>	Increasing the usage of different green tableware and decreasing supply of disposable tablewares
<b>Bring the concept of energy saving and carbon reduction to communities’ lifestyle</b>	Bring the concept of energy saving and carbon reduction to communities and practicing the concept in daily life.

In addition to these activities, we have set aside a budget for Social Responsibility and Organizational Commitment of the Hospital for the next three years. This particular budget may be used to publish researches to enhance, and stabilize delivery of quality medical services.

### Tracking Progress

KMSH established a team called Energy Saving Committee whose primary task is to identify activities, measures and equipment which promotes energy utilization reduction and comfortable environment. It is also their role to continuously update and develop hospital’s system to increase energy efficiency and reduce utilization.

### Challenges and Lessons Learned

Increasing number of patients resulted to heightened demand for equipment, hospital space, manpower, medicine and energy consumption. As expected, volume waste

produced has also increased. In response to the situation, our superintendent Dr. Wen – Jeng Wu and Executive Administrator Mr. Wei – Chou Chang organized an Energy Saving Committee to promote energy efficiency projects, train staff of different departments and monitor results of launched projects. It is our vision to become a low – carbon hospital with the assistance of our partners – staff and the whole hospital community.

### **Next Steps**

- **Promote Recycling to Neighbor Communities:**  
We will set - up Automatic Recycle Machine (ARM) which enables automatically compresses waste to reduce its volume, significantly. The equipment makes recycling more efficient and may be more readily administered. We are the first hospital in Taiwan who will install ARM and provide a convenient and innovative way of recycling.
- **Utilization of Renewable Energy Sources – Installation of Solar Panel in Large Quantities:**  
Kaohsiung have an abundant supply of solar energy, therefore we will install solar panels to generate non-pollutive and low carbon footprint energy source
- We are aiming for KMSH to become the first hospital to receive the certificate of “Benefit Corporation” in Taiwan.

Environment protection is a responsibility of all global citizens. We expect to create a green environment initiative with the whole KMSH community.

### **Demographic information**

In 1998, Kaohsiung Medical University signed an agreement with the Kaohsiung City Government with a 10 - year operation right (1st phase) of the Siaogang Hospital. Kaohsiung City is a well – known industrial city. KMSH is located in the area surrounded by three major industrial zones in southern Kaohsiung. It is the home of many industrial factories including some large-scaled highly pollutive ones. The annual energy consumption and carbon dioxide emission of this area is top-ranked in Taiwan.

KMSH has 34,711 square meters floor area, 19 clinical branches, 953 employees, 492 beds including 334 general beds and 158 special hospital beds. There were another 40 beds for psychiatric day care. The hospital provided 24-hour emergency care and

excellent medical service for the patients in accordance with our vision of “quality, efficiency, concern, and innovation”.

**Contact Information:**

Nams :Wei-Chou Chang

Email: c

Telephone n:+8867-8036783-3423

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**Kaohsiung Municipal Siaogang Hospital (KMSH)      GMISS- Global Medical Instruments Support and Service Program**



**We were awarded for excellent quality of Indoor air by Environmental Protection Bureau Kaohsiung City Government      Department of Health awarded the "National Medical waste reduction and resource recycling superior Award"**

