



International Network of  
Health  
Promoting  
Hospitals & Health Services



Bureau of Health Promotion,  
Department of Health, Taiwan



## An Introduction of Task Force on HPH and Environment

健康促進醫院  
與環境友善  
工作委員會-簡介



International Network of  
Health  
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## I. The 10 Facts on Climate Change and Health

Although the effects of climate change on the environment are widely known, it is just recently that the impacts of climate change on human health, such as the change in infectious disease patterns, fluctuations in food seasonal productions and increase in frequency of severe weather events, have began to garner worldwide recognition. In 2009, the Department of Public Health and Environment WHO published the "10 Facts on Climate Change and Health," describing the negative impacts to human health brought about by the changing climate, and also calling for the climate change and public health sectors to identify potential risks to human society, and collaborate to adapt and mitigate the effects of climate change.

*The 10 facts on climate change and health are :*

**1** Over the last 50 years, human activities – particularly the burning of fossil fuels – have released sufficient quantities of carbon dioxide and other greenhouse gases to affect the global climate. The atmospheric concentration of carbon dioxide has increased by more than 30% since pre-industrial times, trapping more heat in the lower atmosphere. The resulting changes in the global climate bring a range of risks to health, from deaths in extreme high temperatures to changing patterns of infectious diseases.

**2** From the tropics to the arctic, climate and weather have powerful direct and indirect impacts on human life. Weather extremes – such as heavy rains, floods, and disasters like Hurricane Katrina that devastated New Orleans, USA in August 2005 – endanger health as well as destroy property and livelihoods. Approximately 600,000 deaths occurred worldwide as a result of weather-related natural disasters in the 1990s, some 95% of which took place in developing countries.

**3** Intense short-term fluctuations in temperature can also seriously affect health – causing heat stress (hyperthermia) or extreme cold (hypothermia) – and lead to increased death rates from heart and respiratory diseases. Recent studies suggest that the record high temperatures in western Europe in the summer of 2003 were associated with a spike of an estimated 70 000 more deaths than the equivalent periods in previous years.

**4** Pollen and other aeroallergen levels are also higher in extreme heat. These can trigger asthma, which affects around 300 million people. Ongoing temperature increases are expected to increase this burden.

**5** Rising sea levels – another outcome of global warming – increase the risk of coastal flooding, and could cause population displacement. More than half of the world's population now lives within 60 kilometers of shorelines. Floods can directly cause injury and death, and increase risks of infection from water and vector-borne diseases. Population displacement could increase tensions and potentially the risks of conflict.

**6** More variable rainfall patterns are likely to compromise the supply of fresh water. Globally, water scarcity already affects four out of every 10 people. A lack of water and poor water quality can compromise hygiene and health. This increases the risk of diarrhea, which kills approximately 2.2 million people every year, as well as trachoma (an eye infection that can lead to blindness) and other illnesses.

**7** Water scarcity encourages people to transport water long distances and store supplies in their homes. This can increase the risk of household water contamination, causing illnesses.

**8** Climatic conditions affect diseases transmitted through water, and via vectors such as mosquitoes. Climate-sensitive diseases are among the largest global killers. Diarrhea, malaria and protein-energy malnutrition alone caused more than 3 million deaths globally in 2004, with over one third of these deaths occurring in Africa.

**9** Malnutrition causes millions of deaths each year, from both a lack of sufficient nutrients to sustain life and a resulting vulnerability to infectious diseases such as malaria, diarrhea, and respiratory illnesses. Increasing temperatures on the planet and more variable rainfalls are expected to reduce crop yields in many tropical developing regions, where food security is already a problem.

**10** Steps to reduce greenhouse gas emissions or lessen the health impacts of climate change could have positive health effects. For example, promoting the safe use of public transportation and active movement - such as biking or walking as alternatives to using private vehicles - could reduce carbon dioxide emissions and improve public health. They can not only cut traffic injuries, but also air pollution and associated respiratory and cardiovascular diseases. Increased levels of physical activity can lower overall mortality rates.

## II. Healthcare System and Climate Change

To enhance the responses of the healthcare system to the threat of human health by the changing climate, the WHO has passed resolution 61.19 during the 61st World Health Assembly (WHA), and set forth to develop a series of action plans in 2009 based on the resolution of Climate Change and Human Health :

- **Advocate and raise awareness:** raise the prominence of health issues on the climate agenda and educate the public on the potential threats and risks of climate change to the fundamental needs of human health.
- **Strengthen partnership:** as the specialized UN agency for health, WHO actively engages in coordination and collaboration with other related agencies within the United Nations, ensuring that health issues are properly represented in the Climate Change agenda.
- **Enhance scientific evidence:** working with leading experts worldwide to improve the understanding of scientific evidences between the linkages of health and climate, and actively developing global agenda on climate and human health.
- **Strengthen health systems:** supports member states to evaluate the strengths and weaknesses of the health system's responses to effects of climate change, and build capacity to reduce the weaknesses.

Policies and personal choices have the potential to reduce green house gas emissions, and create health co-benefits, such as riding public transportation, walk or bike to reduce car usage and CO2 emission. WHO supports its member states to strengthen health systems to improve population health, increase climate resilience of communities and the health system to identify, monitor, respond, and prepare for alterations in health and disease burdens related to climate change.

### 1. The International Network on Health Promoting Hospitals and Health Services

In 1986, the Ottawa Charter for Health Promotion brought up 5 key health promotion action means: Build Healthy Public Policy, Create Supportive Environments, Strengthen Community Actions, Develop Personal Skills, and Reorient Health Services. Among these, "reorient health services" became the fundamental guidance to the development health promoting hospitals. The International Network of Health Promoting Hospitals and Health Services (HPH) was established in 1990, integrating the concepts of health promotion, values, and guidelines into organizational culture and routine hospital works, while also enable employees, patients and their families, and the community to engage in health promotion, improving their mind and body health. Today, the International HPH Network consists of 39 national/regional networks, and up to February of 2012, over 800 member hospitals in the global network.

Dr. Shu-Ti Chiou, the current Director General of the Bureau of Health Promotion, Department of Health (Taiwan), applied and won approval from the International HPH Network to establish the Taiwan HPH Network, the 1st network of its kind in Asia, during her tenure at the National Yang Ming University in Taiwan. The Taiwan Network has since grown rapidly, and contains 76 hospital members as of March 2012.

### 2. Introduction to the Task Force on HPH and Environment

In 2009, the International HPH Network Secretariat passed the resolution to hand over the WHO appointed task of promoting "HPH, Climate and Environment" over to Taiwan. On April 14th of 2012, the Taiwan HPH Network submitted the proposal to establish the Task Force on HPH and Environment, and subsequently won the approval by the HPH General Assembly. Dr. Shu-Ti Chiou, Director-General of the Bureau of Health Promotion, was appointed the leader of the Task Force. In the span of its

4-year term, the Task Force will combine the efforts of the WHO, international NGOs (HCWH), the International HPH Network and Taiwan, cooperating to promote sustainable and environment-friendly medical institutions, turning healthcare sector from resource consumers to protectors of environment.

#### *Advisory Group members*

- Prof. Hanne Tonnesen, WHO-CC, Bispebjerg University Hospital, Denmark
- Professor Jurgen Pelikan, WHO-CC, Ludwig Boltzmann Institute, Austria
- Dr. Shu-Ti Chiou, Director-General, Bureau of Health Promotion, Department of Health, Taiwan (HPH Member)
- Susan Wilburn, Technical officer, Occupational & Environmental Health, Department of Public Health and Environment, WHO
- Dr. Gary Cohen, Co-Executive Director, Health Care Without Harm
- Dr. Pendo Maro, Senior Climate and Energy advisor, Health Care Without Harm
- Dr. Michael Wong, Director, Health for Life Center, Khoo Teck Puat Hospital, Alexandra Health Cluster (HPH Member)
- Dr. Chun-Lon Lin, CEO, Tzuchi Medical Mission, Tzuchi Compassionate Foundation, Taiwan (HPH Member)

### 3. Terms of References

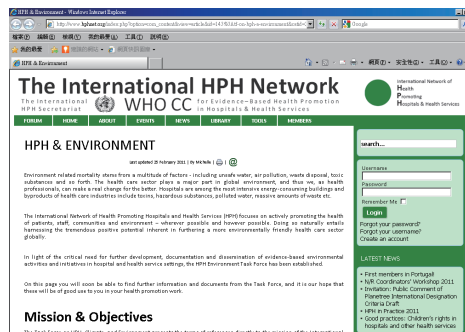
- (1) Visualizing environment-related health promotion issues in existing HPH Models and Tools.
- (2) Giving examples on best evidence practice related to HPH Models and Tools.

- (3) Developing tools for monitoring the effect of environment friendly intervention programs.
- (4) Disseminating the best practice examples and HPH Models and Tools through the network and increasing the health professional's literacy about climate change and health impacts.
- (5) Establishing a database for environmental friendly hospitals and health services programs.

#### 4. Task Force Website and Achievements

The Task Force has its own subsection under the website of the International HPH Network. (<http://www.hphnet.org>); alternatively, the link is also accessible from BHP's English website (<http://www.bhp.doh.gov.tw/BHPnet/English/index.aspx>). The website contains information about the Task Force, such as Mission & objective, Task Force meetings, Conference presentations, Conference information, Task force members, References, Publications, Relevant links. Important achievements and activities of the Task Force can be found on the website:

Task Force international website



The Task Force holds symposiums and meetings during annual International HPH conferences. The conference also incorporated health and environment issues into its plenary sessions; at the same time, hospital case examples and related submissions are increasing each year. A list of the TF's past activities is as follow:

Date		Program
2010	04.16	18th International Conference on HPH - HPH and Environment Symposium (United Kingdom)
	10.22-23	2010 International Conference on Healthy Hospitals & Healthy Environment (Taiwan)
2011	06.03	19th International Conference on HPH - HPH and Environment Symposium (Finland)
	09~10	Environment Friendly Hospital Work Shops (Taiwan)
	12.04-08	UNFCCC COP17, Durban, South Africa - 1st Climate and Health Summit
	(12.06)	Durban Declaration International Press Event
	(12.08)	COP17Side Event: Climate Change and Public Health: Healthy Climate, Healthy People, Healthy Economy
2012	04.11	20th International Conference on HPH (Taiwan) - Joint-organizing Pre-Conference on HPH and Environment – Global Green and Healthy Hospitals Agenda with Health Care Without Harm
	04.12	20th International Conference on HPH (Taiwan) - HPH and Environment symposium

## 5. Task Force linkage between United Nations and World Health Organization

During the United Nations Framework Convention on Climate (UNFCCC) 17th Conference of Parties (COP17) at Durban, South Africa in December of 2011, the Task Force collaborated with HCWH to host and partake in a series of climate and health related activities. In her capacity as the Vice Chair of the International Network of HPH and the leader of the Task Force, Director General Shu-Ti Chiou was invited to speak during the events, spreading the philosophies and achievements of the Task Force to the international community. The events included the 1st Climate and Health Summit, and the Climate Change and Public Health: Healthy Climate, Healthy People, Healthy Economy COP 17 Side Event. Moreover, Director-General Chiou also participated in the press event on the Durban Declaration on Climate and Health, and spoke together with the officials from the WHO's Department of Public Health and Environment. The side event was also covered by international electronic and print media, such as the Earth Negotiations Bulletin of International Institute for Sustainable Development and the Mainichi Shimbun from Japan.

The events in South Africa demonstrated the growing recognition and support from the World Health Organization on the impacts of human health from the climate change: officials from the WHO's Department of Public Health and Environment participated in the events and also hosted a series of other related activities during the Conference. These events are also extensively covered by the WHO's website, which proved that the efforts of the Task Force in promoting the environment-friendly healthcare agenda is gradually gaining momentum and visibility around the world.



During the events, Director-General Chiou not only discussed the impacts of climate change with experts and dignitaries from health related sectors (WHO officials, public healthcare systems, hospital representatives and advocacy organizations), but also shared with the world the experience of Taiwan's hospitals in promoting and implementing environment-friendly measures. Director-General Chiou, together with other experts, called out to the negotiators for immediate, binding actions against the impacts of climate change, which also won the support and approval from the WHO. Related reposts by WHO can be found at: [http://www.who.int/globalchange/mediacentre/events/2011/durban\\_conference\\_update/en/index.html](http://www.who.int/globalchange/mediacentre/events/2011/durban_conference_update/en/index.html)

#### 6. Task Force Membership

The Task Force welcomes all who identifies with the Task Force's mission statements and willing to take actions to mitigate effects of climate change. Joining the Task Force is easy: simply fill and return the application form attached at the end of this pamphlet, or download from the Task Force website (link from the BHP's English website: <http://www.bhp.doh.gov.tw/BHPnet/English/index.aspx>). Joining the Task Force is free of charge, and members will receive periodic updates on information and activities of the Task Force. As of March 2012, there are 164 hospitals joining the Task Force.

#### 7. Task Force Collaborating Partners

##### *International partners:*

International Network of Health Promoting Hospitals and Health Services  
Health Care without Harm

##### *Taiwan partners:*

Environment Protection Agency, Executive of Yuan; Bureau of Energy, Ministry of Economic Affairs; Taiwan Green Productivity Foundation; Environment Quality Protection Foundation, and various other hospital associations in Taiwan.

### III. Environment-Friendly Healthcare Advocacy – Efforts by Taiwan and HCWH

#### 1. Hospital Pioneers to Reduce CO2 Emission and Save Earth

According to the statistics of the 2011 Energy Audit Annual Report for Non-Manufacturing Industries (issued by the Bureau of Energy, Ministry of Economic Affairs), in terms of building type, there are 142 hospitals in Taiwan that are heavy energy consumers (above 801kW), occupying 15% of the major energy consumers in the non-manufacturing industry and also ranks the 2nd highest in all non-manufacturing category (MOEABOE, 2012). Look over these figures, it can be seen that hospitals are well suited to incite and inspire raise the general public's environment-friendly awareness by taking the lead in reducing their own energy use and carbon emission.

To call for the support of the hospitals in Taiwan to promote and adapt environment-friendly health care practices, the BHP held the 2010 International Conference on Healthy Hospitals & Health Services in Taipei on October of 2010. The conference also featured the "Hospital Pioneers to Reduce CO2 Emission and Save Earth" pledge ceremony, where representatives from 128 hospitals from all around Taiwan (accounting for over 64% of hospital beds in Taiwan) congregate and pledge to reduce CO2 emission and conserve energy, demonstrating the medical sector's determination to take the lead in pushing environment-friendly measures. The total committed volume of CO2 reduction accumulated by the 128 hospital will reach 164,648 metric tons by the year 2020, a 13% reduction from the base year of 2007. To put into perspective, this is equivalent to the total CO2 absorbing capacity of 445 Taiwan's Da-An Parks, or 34 Central Parks of the New York City.

#### 2. Global Green and Healthy Hospitals Agenda, Health Care Without Harm

Published in October, 2011 by the Health Care Without Harm, the Global Green and Healthy Hospitals Agenda sets out to support existing efforts around the world to promote greater sustainability and environmental



health in the health sector, and thereby strengthening health systems globally. The agenda is consisted of ten interconnected goals, based on 7 major dimensions of environment-friendly healthcare – energy efficiency, alternative energy, green building, transportation, food, wastes and water -, which was first described in the “Healthy Hospitals, Healthy People, Healthy Planet” report, first published by HCWH and WHO in 2009.

Upon further examination and refining, HCWH incorporated “Leadership” and “Purchasing” in to the Agenda, which are crucial components during the process of promoting and implementing environment-friendly measures. In addition, chemical materials and pharmaceuticals, the two key elements that affect environmental health in hospitals, are given more emphasis as well. The newly updated Agenda now contains these 4 new dimensions: Leadership, Purchasing, Chemicals and Pharmaceuticals, while energy efficiency and alternative energy are combined into a single dimension.

The core of the Agenda is a document that provides a comprehensive framework for hospitals and health systems in the world to achieve greater sustainability and to contribute to improved environmental public health. Each goal contains a series of Action Items, tools and resources available to hospitals and healthcare systems to support implementation. The agenda recommends that most hospitals can start with a focus on 2 or 3 goals, and chart a course of specific steps to achieve these goals, and also devise the plan for subsequent move onto the next targets. The website of the Global Green and Healthy Hospital Agenda: <http://www.greenhospitals.net>

## IV. Case Examples of Environment-Friendly Hospitals in Taiwan

BHP published the “Green Hospital, Green Life, Green Planet – Experiences Sharing on Green Hospitals in 2010 (and updated in 2012), showcasing the environment-friendly efforts of 12 hospitals in Taiwan and the Khoo Teck Puat Hospital of Singapore. This booklet collected examples of environment-friendly measures in the 7 major categories – energy efficiency, green building, alternative energy, transportation, food, waste, water resources and education – and is free for download from the Task Force website (the link can be found at <http://www.bhp.doh.gov.tw/BHPnet/English/index.aspx>).

Below is three case examples of environment-friendly hospitals in Taiwan:

### Taipei Medical University Hospital

- Administration support in the form of development and management center; monitor, integrate and implement all related regulations and guidelines; annual managerial consensus camp; monthly managerial and medical meetings to promulgate major policies (including environment-friendly policies)
- An auditing team was setup by the Secretariat to ensure effective implementation of hospital environment-friendly measures; cross-collaboration of auditing teams between the university and the hospital to provide improvement suggestions for both sectors. Periodically promote environment-friendly information within hospitals; award incentives for employees actively promoting green concepts; energy using guidelines for meeting rooms. Mandate employees and contract service personnel to adhere strictly to standard cleaning procedures to achieve environment-friendly maintenance.
- Reduced lightning to public areas when not in use; replace high power-consuming lighting equipment with T5 grade energy efficient lightings or LED lights; install variable-frequency drives in the escalators. Air-conditioning for tomotherapy rooms are replaced with environment-friendly hydrogen-carbon refrigerant; purchase air-

conditioners with high EER (energy-efficiency rating); replace coolants in small AC units with HC refrigerant; centralized and timed control of AC units.

- Raise the boiler temperature to 55°C~60°C (estimated 1% fuel is saved per 10 degree raise in temperature) to reduce production of waste heat.
- Since August of 2009, waste runoffs from dialysis and boiler room RO systems were connected to the rain water recovery pool for use in toilet flushing; about 730 tons of water are recycled each month.
- Collaborate with telecommunication industries to develop the Taiwan Mobile Healthcare Services, based upon the WiMAX/Wi-Fi wireless network infrastructure; promote RFID patient identification and electronic medical record systems; develop long distance care services to reduce unnecessary waiting time and referrals.

#### **Taipei Hospital, Department of Health, Executive Yuan**

- Daily tallying of recyclable and biohazardous wastes from each departments; promote paperless operations; periodic auditing and follow-ups on waste categorization and disposal; invite experts from government and academic sectors to hold hospital-wide education and training sessions.
- Install window and split-type AC units in hospital residences; independent kilowatt hour meters to remind users to save energy; annual power saving: 410,000 NTD, with a saving rate of 44%.
- Emergency exit lights are replaced with LED units (328 in total); the new units have rated power of 3~6 watt, about 50% reduction from the original 10watt units; gradual replacement of hospital lights with LED fire warning lights and T5 energy saving lightings.
- Evaluate and adjusting hospital wide/residence faucet and shower head output volumes, resulting in energy saving rates of 25-50% and 30-44%, respectively; annual water saving can reach as high as 16,000

tons; future replacement of smart faucets and bathroom equipment that save water; rainwater storage and reusable systems to conserve water resources.

- Energy saving related construction projects: monitoring systems for water, power and AC, automatic lights in conjunction with natural sunlight, independent kilowatt-hour meters, replacement of outdated installations (such as variable-frequency and volume cold water chillers/water pumps/cooling towers), and install heat pumps and hot water systems.

#### **Mennonite Christian Hospital**

- Environment-friendly education and training for hospital employees and contract cleaning personnel; promote water, power, fuel, paper saving and recycling concepts; monthly information through emails.
- Preferably purchase products with Green Marks; strive for 70% purchasing of green products; select green office products such as recycled paper, stationeries, power and water saving products, IT products, appliances and building materials.
- Recycle expired pharmaceutical products (5 tons annually) and provide drug safety education; community pharmaceutical products recycling points; reduce environment hazards from waste drug disposals.
- Promote vegetarian diets; monthly vegetarian meals and weekly low-carbon meal services (only meats in entrees); soybean products to replace meat proteins; increase vegetable consumption to balance nutrition; reduce meat supplies.
- Improve waste categorization; increase recycling efforts; reduce wastes slated for landfill disposal; estimated 8% increase in recycled resources, 2% reduction in general wastes, and 22% reduction in biohazardous wastes in 2011 (compared to previous year).

- Reclaim and reuse dialyzers by authorized and legitimate businesses; achieve 100% reuse rate.
- Devise and implement water, power and fuel consumption saving targets; use lights with CNS power rating; use low power consuming lightings; use heat pumps to supply hot water and reduce fuel consumption; replace horizontal steam boilers with flow-type steam boilers to improve efficiency; configure optimal working conditions for AC water chillers; use high efficiency cooling water towers and inverter pumps to control the flow of chilled water; increase recycled water collection and usage.

## V. Questions and Answers - Environmentally-Friendly Hospital

Below are excerpts from the Q&A of the 2011 Environment Friendly Hospital Workshops:

**Q1:** Where can we begin with energy-saving at hospitals?

**A1 :** It is recommended that hospitals focus on energy usage as the starting point. The most energy intensive and easy-to-manage areas of the hospitals should work on energy saving first, then gradually promote energy saving to other areas. In terms of management, the establishment of a central monitoring system, setting objectives and error management, energy-saving operations, peer comparison, exchange with education and training are the areas of concern.

**Q2 :** What are the most energy intensive equipments in the hospitals?

**A2 :** According to the Bureau of Energy, Ministry of Economic Affairs' 2010 energy audit survey, the most energy intensive equipment in the hospitals are air-conditioning and lighting. Air-conditioning accounts 48.5% of total energy consumption, lighting equipment at 21%, wall sockets (plugs) at 10.7%, and lastly ventilation, sewage and water as well as refrigeration equipment take about 5% each. Therefore air-conditioning and lighting are the focal points for energy saving in the hospitals.

**Q3 :** What kind of channels, consultation services and help are available for In the promotion of carbon emission reduction?

**A3 :** Bureau of Energy, Ministry of Economic Affairs has established the "energy-saving and carbon reducing service teams". The teams are divided into different industries, such as manufacturing, SME, energy, retail, schools and organizations, and green buildings. The 16 technical service teams and 16 service teams with a total of almost 500 professional technical service personnel provides on-site energy-saving technical services, skill training, technical and case study conferences, telephone technical support and hospital on-site guidance. For more information, please refer to the following website: [http://www.go-moea2.tw/service\\_group\\_info.asp](http://www.go-moea2.tw/service_group_info.asp)

**Q4** : What are the principles in adjusting internal lighting?

**A4** : Functionality should be the priority when designing internal lighting. The lighting design should provide the most suitable outputs according to needs of different areas, and to consider energy efficiency apart from comfort. Moreover, making use of efficient lighting design and control systems can prevent energy wastage, and regular fixture maintenance would maintain optimum comfortable environmental lighting. The internal lighting adjustment can be referenced to the CNS National lighting standard. For more information, please refer to the Bureau of Energy, Ministry of Economic website: <http://www.moeaboe.gov.tw>

**Q5** : What is the energy-saving performance of the heat pump system?

**A5** : The heat pump system is a high-efficiency system that can reuse and absorb heat from the environment or residual heat to achieve water heating. System is mainly divided into water-to-water or air-to-water system where heat is absorbed from water source or air, which is much more flexible in application and provides heated water without been affected by night and day or the weather. During the transferring of heat, the heat pump actually collects and releases 2 to 6 times more heat than electric powered water heaters. Furthermore, by replacing the traditional gas, electric, and diesel boiler system with the heat pump, more than half of the energy and operation costs can be saved, making it the most efficient system available.

**Q6** : What areas should be looked at when designing the architecture of the hospital building?

**A6** : When designing the green architecture of a hospital, one would focus on the exterior, air-conditioning system, and lighting system. For example, from the exterior, one should understand the heat insulation of the roof, exterior walls and windows. If one can effectively control the heat and heat-loss, hospital costs can be effectively saved and improve hospital operations. Regarding the air-conditioning, the hospital shouldn't only consider the electrical consumption in summer, but also the consumption of heat for winter. Therefore, when selecting equipment, one should select the air-conditioners with inverters as well as green energy certification, so as to save energy over stand-alone heating equipment. When select lighting equipment, always choose energy-saving bulbs, T5 and LED lamps.

**A7** : How do I improve the energy consumption efficiency of old buildings?

**Q7** : One can understand the various energy consuming areas regularly through retro-commissioning of old buildings. The functional performance of the building is re-evaluated including the performance of cooling air-conditioning. As the structure is built on different components and material, the re-evaluation period of components such as PVC water pipes, steel pipes, lighting, air-conditioning, and power system would not be the same. However, the re-evaluation period can be system based – for example, as electrical, air-conditioning and lighting systems.

**Q8** : What are the basic principles of low-carbon diet?

**A8** : We can follow the basic principles through the order of food production: 1. Select seasonal food material, 2. Select local produce, 3. Select simple packaging and less processed foods, 4. Use less transportation when shopping, 5. Purchase adequate amount of food, 6.

Follow the energy saving principle when cooking, 7. Reduce waste and garbage.

**Q9** : Are all waste in hospitals hazardous?

**A9** : Not all hospital waste are hazardous, some waste are generated from the daily routines of the hospital staff, which is similar in nature to the regular, household waste, and can be reduced. The WHO estimated that around only 10%-15% of the hospital waste are waste that needs to be specially managed. Hazardous hospital waste account for 26% of total wastage in Taiwan. As long as the wastes are appropriately categorized, packaged, labeled, and safely managed, we can control the potential threat and hazard by avoiding unnecessary contact and harm.

**Q10** : What other options are there if I do not wish to use products containing PVC or DEHP?

**A10** : PVC is a common plastic material in medical equipment such as IV bags, various piping, gloves, curtains, and building materials largely used in the healthcare areas. The use of PVC generates 2 health risks, namely: 1. Burning of the waste generates dioxin, 2. Under the threat of DEHP leakage, patients exposed can result in damage to reproductive organs. Health Care Without Harm (HCWH) has the substitute list for non-PVC and DEHP medical materials on its website. Please refer to: [http://www.noharm.org/all\\_regions/issues/toxins/pvc\\_phthalates](http://www.noharm.org/all_regions/issues/toxins/pvc_phthalates)

**Q11** : What are the recommended directions for water-saving in hospitals?

**A11** : The following ways of water conservation can be considered: 1. Continuous water conservation; education and promotion to enhance the concept of saving water; 2. promote the use of water-saving products with the water-saving certifications; 3. Set up water and rainwater reclamation systems for water supply. Point 3 specifically emphasizes the development of alternative water sources. The reclaimed water can

replace part of the tap water supply and use in gardening, toilets, and landscape. Rainwater reclamation is recommended as a starting point.

## VI. HPH and Environment Sessions and Activities during the 20th International HPH

Environment-Friendly and Healthcare Sessions 20th International HPH Conference				
	4/10	4/11	4/12	4/13
Morning		<b>Pre-Conference</b> on HPH and Environment- Global Green and Healthy Hospitals Agenda	<b>Oral 1.9</b> HPH and Environment Symposium South Lounge, 11:00~12:30	<b>Oral 3.8</b> Creating Environment-Friendly Hospitals and Health Services II 11:00~12:30
	Afternoon		Free Environment-Friendly Hospital Visits	<b>Oral 2.6</b> Creating Environment-Friendly Hospitals and Health Services I 14:00~15:30
<b>Plenary 3</b> Responding to Climate Change with Green and Healthy Hospitals 16:00~17:30				

### Low carbon hospital visits (afternoon of April 10th, 2012)



Buddhist Tzu Chi  
General Hospital Taipei Branch

## VII. References

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<http://www.who.int/mediacentre/factsheets/fs266/en/index.html#content>

WHO (2011) Health Issues Gain Traction at UN Climate Conference:  
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Dear Colleagues:

Thank you for joining the Task Force on HPH and Environment, where medical professionals and experts in related fields are committed to the cause of promoting environment-friendly health care and health services, and work together to lessen the impacts of climate change on human health. Your information will be placed onto the international website of the Task Force, where you will learn more about the Task Force and its missions and activities. In the future, we will also send you information on international HPH and environment friendly development, as well as related information on conferences, meetings or activities related to the Task Force.

Sincerely,

The Task Force on HPH and Environment

**Task Force on HPH and Environment  
General Member Application Form**

**Nationality :** \_\_\_\_\_

**Name of hospital :** \_\_\_\_\_

**Task Force Contact**

**Name :** \_\_\_\_\_

**Position :** \_\_\_\_\_

**E-mail :** \_\_\_\_\_

Please fill out the form and email to :  
Mr. Yen Lin Huang, wxiii013@bhp.doh.gov.tw

Remark

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