



# International & Environmental Webinar

Oct. 3, 2012

Noon – 1:30 p.m. ET

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## Reflection for Today's Program

Lord, make me an instrument of your peace.  
Where there is hatred, let me sow love;  
where there is injury, pardon;  
where there is doubt, faith;  
where there is despair, hope;  
where there is darkness, light;  
and where there is sadness, joy.  
Lord, make me an instrument of your peace.

Amen.

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## Your Presenters for Today's Program

### **Camille Grippon**

Director, Ecology and Global Ministries  
Bon Secours Health System, Inc.  
Marriottsville, Md.

### **Josh Karliner**

Global Projects Director, Health Care Without Harm  
Convener of the Global Green and Healthy Hospitals Network

### **Sr. Mary Ellen Leciejewski, OP**

CHW Ecology Program Coordinator  
Dominican Hospital  
Santa Cruz, Calif.

### **Seema Wadhwa**

Director, Healthier Hospitals Initiative  
Director of Sustainability, Inova Health System

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Acting Together For Environmental Health

# Global Green and Healthy Hospitals

Part One— Healthy Planet, Healthy People

**Joshua Karliner**

International Team Coordinator

Health Care Without Harm



The Campaign for Environmentally  
Responsible Health Care



- ✓ Making the link between the environment and health
- ✓ Evolving the Hippocratic Oath
- ✓ Leveraging the purchasing power of health care
- ✓ Promoting policy and regulatory frameworks for sustainability and equity
- ✓ Activating health messengers for broader societal transformation
- ✓ Implementing a disease prevention agenda

Can you have healthy people on a sick planet?



## How sick is the planet? Diagnosis

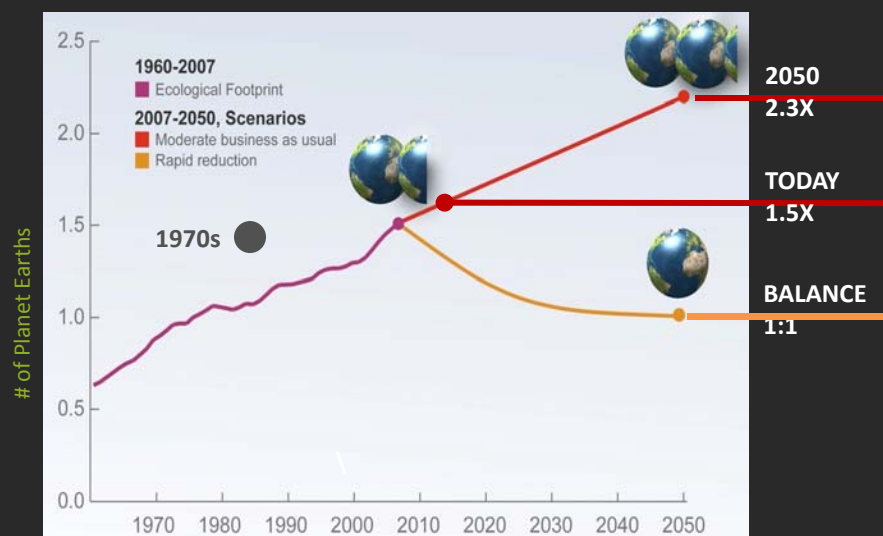


## CHEMICAL DEPENDENCY

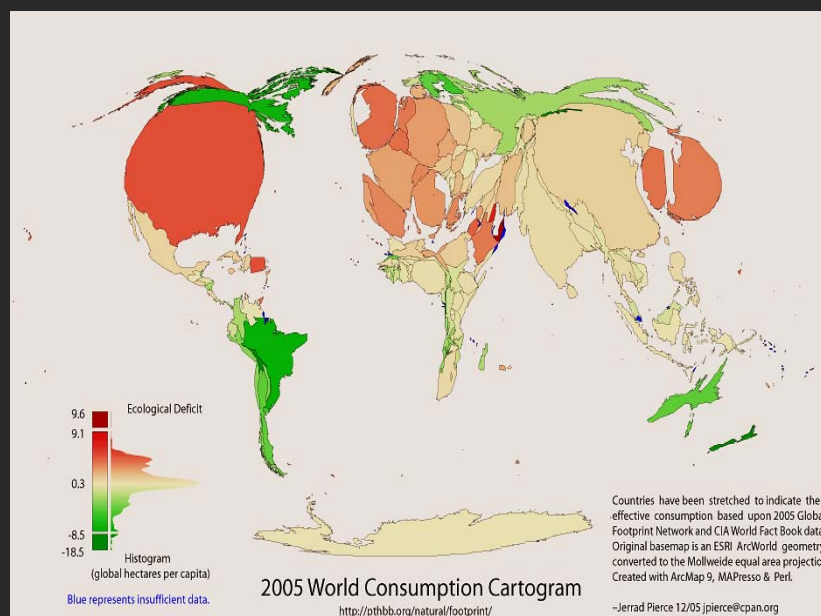


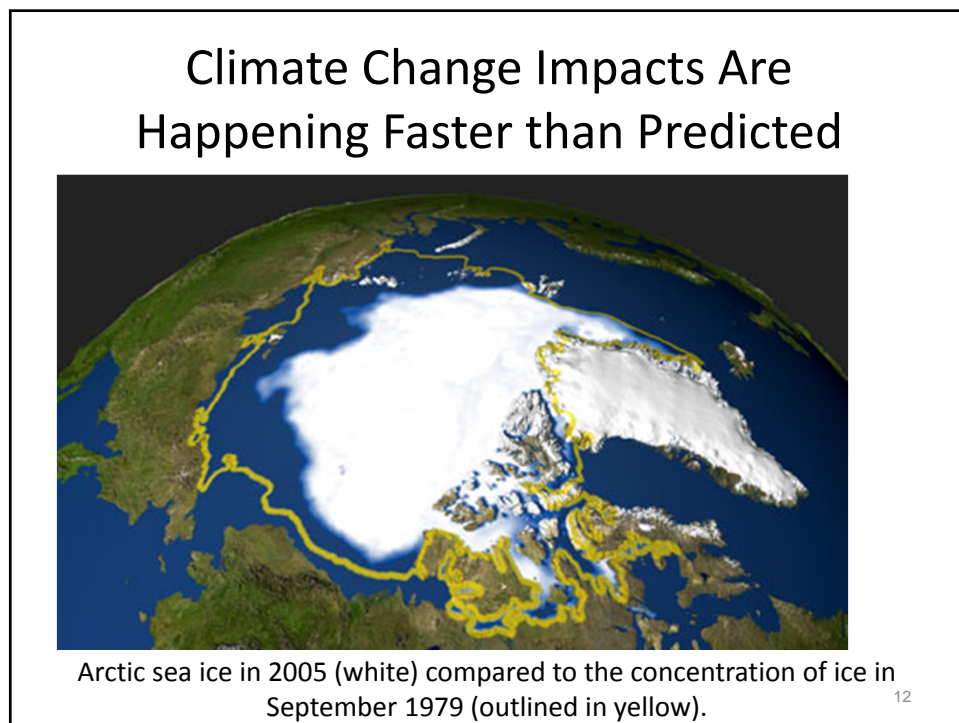
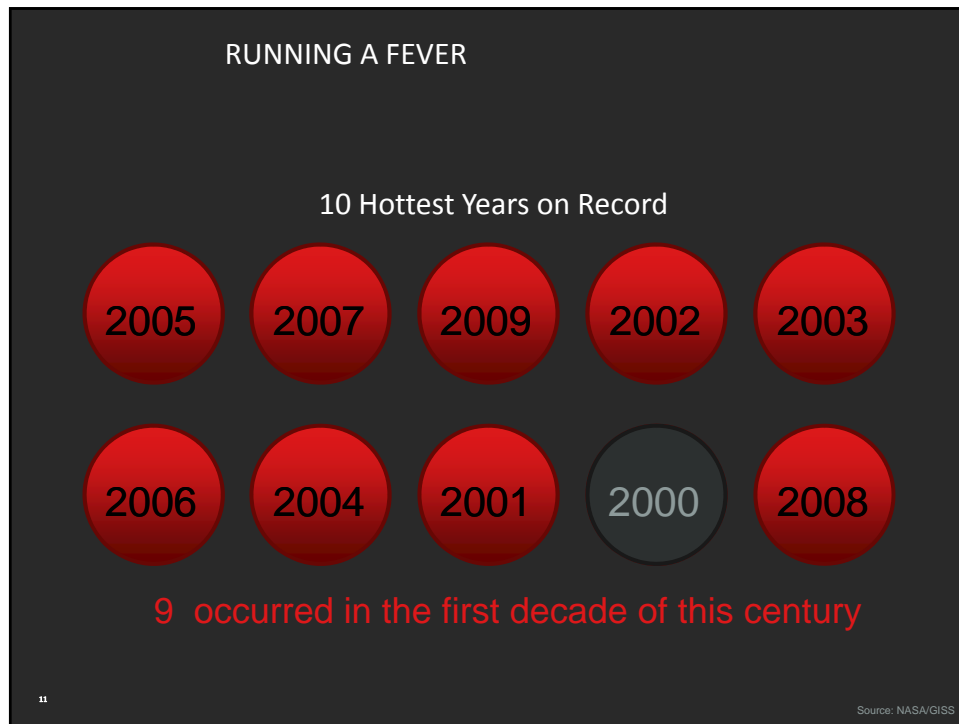


## HIGH LEVEL OF STRESS AND OVERCONSUMPTION



## OBESITY PROBLEM





## 2010 – a harbinger of things to come?

Pakistan floods ~ 20 m affected

Chinese floods ~ 12m displaced

Russian drought and fires –wheat harvest down ~ 30%

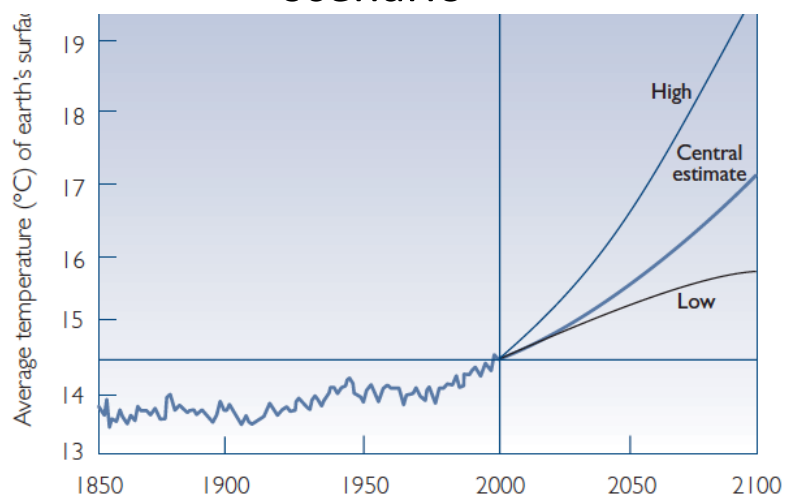
56,000 extra deaths in Moscow and Western Russia

(Munich Re estimate)

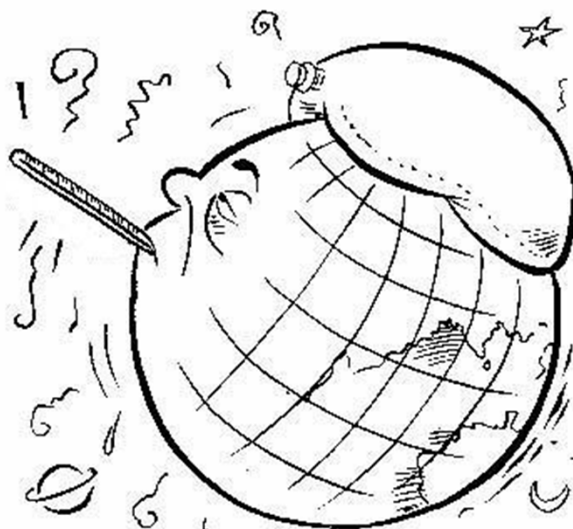


Record temperatures in 17 countries.

Behavior is not changing: We are moving beyond a 2 degree warming scenario



Can you have healthy people on a sick planet?



Our health, well-being and sustainable future depend on this intricate, delicate web of ecosystems and life  
*Ban Ki-Moon, UN Secretary General*



## The Environment is a Major Social Determinant of Human Health



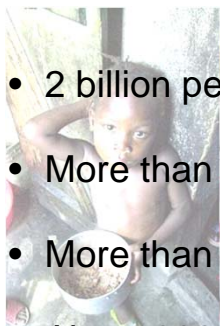
Environmental Factors =  
¼ of global burden of disease ---WHO





## ... ongoing development crisis

- 2 billion people without access to clean cooking fuels
- More than 1.5 billion people without electricity
- More than 1 billion have poor access to fresh water
- About 800 million people chronically undernourished
- 2 million children die per year from diarrhea
- 30,000 deaths each day from preventable diseases



Nearly one-tenth of all preventable deaths in 2004 were caused by toxic substances -- WHO





## 21st Century Chronic Diseases

**The lifetime risk of cancer is 1 in 2 for men and 1 in 3 for women.** 1 in 12 and 1 in 11 respectively will develop invasive cancer before the age of 60. (ACS 2005)

**The risk of breast cancer has tripled from more than 1 in 20 to 1 in 7 in the last forty years.** (ACS 2003)

**Non-Hodgkin's Lymphoma has nearly doubled since the 1970s.** (RPCI 2005)

**Endometriosis, linked to dioxin exposure, now affects 10-15% of the US female population.** (Holloway 1994, Suchy & Stepan 2004)



**“Climate change is the biggest global health threat of the 21<sup>st</sup> century... The impacts will be felt all around the world – and not just in some distant future but in our lifetimes and those of our children.”**

**The Lancet**



## Climate change amplifies existing health risks

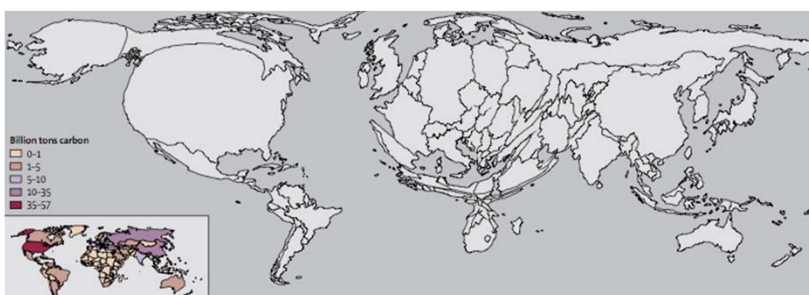


Source: babbar, Wikimedia Commons

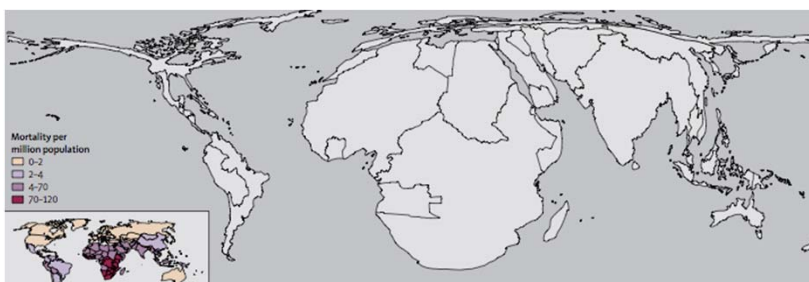
- Heat-related illnesses and death
- Extreme weather-related injuries and mortality
- Aggravated chronic illnesses
- Infectious diseases: vector -, zoonotic-, water- and food- borne diseases
- Asthma, respiratory allergies, and chronic respiratory disorders
- Malnutrition and child development complications
- Stress-related and mental health disorders
- Population displacement and migration
- Instability and conflict

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“Countries that have contributed least to greenhouse-gas emissions will the first and hardest hit by climate change.” - Dr. Margaret Chan, Director General WHO



“Health impacts will be disproportionately greater in vulnerable populations, including the poor, the very young, the elderly and the medically infirm.” - WHO



What is the role and the responsibility of the health sector in addressing the most profound crisis of our time?



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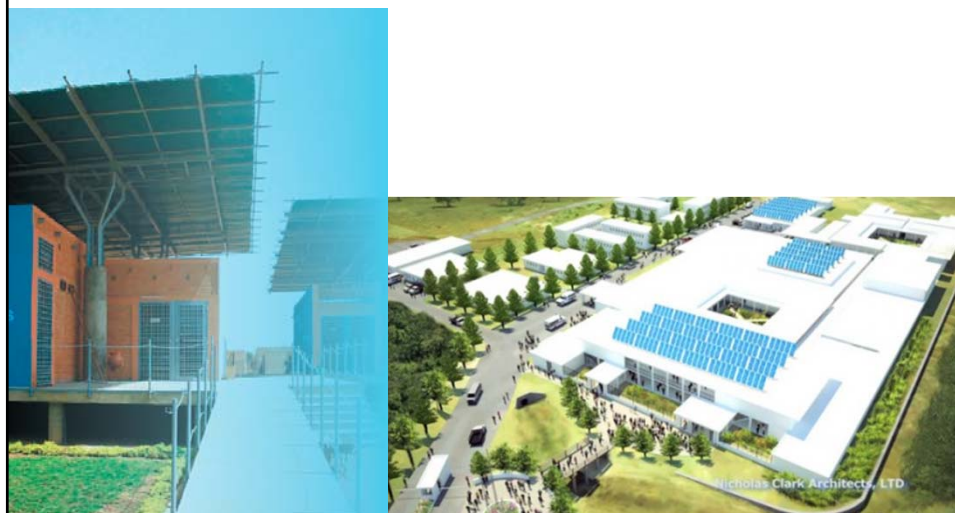
“The health sector must add its voice – loud and clear...we must fight to place health issues at the center of the climate agenda. We have compelling reasons for doing so. Climate change will affect, in profoundly adverse ways, some of the most fundamental determinants of health: food, air, water.”

- Dr. Margaret Chan, Director General of the World Health Organization, December 2007



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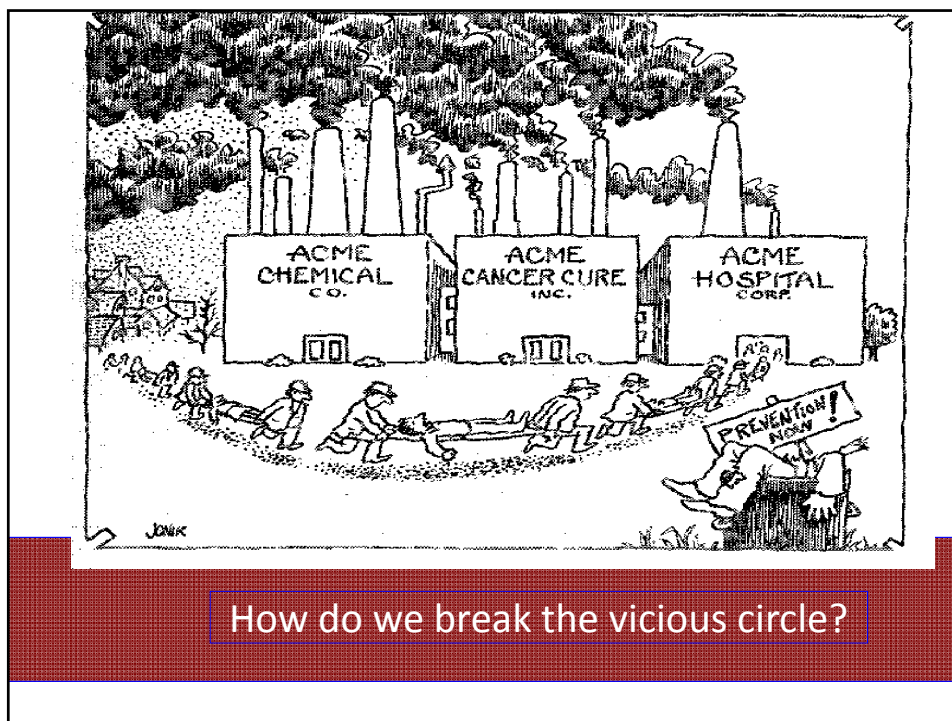
## Hospitals--- from part of the problem to part of the solution



### **The Paradox: Hospitals Create Environmental Health Problems**

- NHS in England, is responsible for 26% of total public sector GHG emissions. Eight percent of US emissions are from healthcare. Ten percent of Brazil's energy consumption comes from hospitals.
- The U.S. healthcare sector is the largest consumer of carcinogenic chemicals.
- China spends \$10 billion a year on health care construction.
- Half the world's population is exposed to the negative health impacts of medical waste.

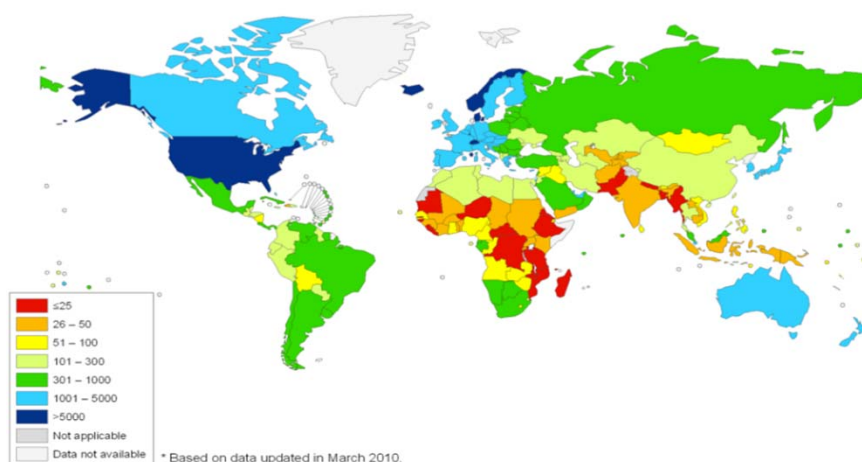




## A Look at the Economics

In 2007, world health expenditures reached \$5.3 trillion USD, which was \$639 per person per year or 8-10% of global GDP.

Total expenditure on health per capita, 2007 \*  
(in US\$)



## Hospitals Can Lead by Example and Promote Public Health by Reducing their Environmental Footprint



## Hospitals Around the World Are Already Going Green





Introducing  
Healthier Hospitals Initiative

[www.HealthierHospitals.org](http://www.HealthierHospitals.org)



Healthier  
Hospitals  
INITIATIVE

[www.healthierhospitals.org](http://www.healthierhospitals.org)

 PRACTICE  
Greenhealth

 Health Care  
Without Harm

 THE CENTER FOR  
HEALTH DESIGN™



## Why HHI?



- **Acceleration strategy** at the intersection of sustainability, patient and worker safety
- Using **proven strategies** to demonstrate Success!
- **Moving the \$135 billion** market a unique and explicit goal
- **Over 500** founding sponsor hospitals – 9% of hospital sector
- Modeled after **IHI 100,000 Lives Campaign** in enrollment strategy
- Linking sustainability with the “quality” movement in healthcare
- **No barrier to entry** – no enrollment fee
- **Leveraging \$20 billion** spent in purchasing materials

## Media Coverage





## Up for the Challenge....



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### Baseline

Sign and submit an executive commitment statement.

The HHI Engaged Leadership Challenge is measured through qualitative measures, as outlined below. Levels 1, 2 and 3 are identified by the number of qualitative activities achieved.

Organizations committed to effective sustainability leadership shall adopt ten or

more of the following Engaged Leadership strategies over time. To maximize effectiveness, the Healthier Hospitals Initiative recommends selecting at least one indicator from each of the four Engaged Leadership clusters and integrating additional sustainability features as the program develops.

**Level 1** Implement **three** of the leadership activities from the reference list.

**Level 2** Implement **six** of the leadership activities from the reference list.

**Level 3** Implement **10** of the leadership activities from the reference list.

## Healthier Foods



### Baseline

Facility (or system) has signed the Healthy Food in Health Care Pledge OR has formally adopted a sustainable food policy.

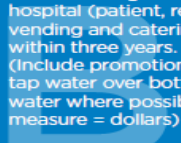
#### Balanced Menus

**Challenge:** Decrease amount of meat purchased by 20 percent within three years from baseline. (Meat = beef, pork, poultry and lunch meat; measure = lbs.)



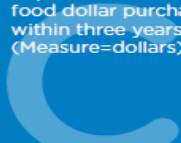
#### Healthy Beverages

**Challenge:** Increase the percentage of healthy beverage purchases by 20 percent of total beverage purchases annually over baseline year OR achieve healthy beverage purchases of 80 percent of total beverage purchases for use throughout the hospital (patient, retail, vending and catering) within three years. (Include promotion of tap water over bottled water where possible; measure = dollars)



#### Local/Sustainable Food Challenge:

Increase the percentage of local and/or sustainable food purchases by 20 percent annually over baseline year OR achieve local and/or sustainable food purchases of 15 percent of total food dollar purchases, within three years (Measure=dollars)



## Leaner Energy



### Baseline

Input energy data to ENERGY STAR® Portfolio Manager to establish baseline and track subsequent energy use and greenhouse gas emissions from metered energy use.



#### Level

# 1

Reduce greenhouse gases by decreasing weather-adjusted energy intensity from metered energy use by three percent from baseline.

#### Level

# 2

Reduce greenhouse gases by decreasing weather-adjusted energy intensity from metered energy use by five percent from baseline.

#### Level

# 3

Reduce greenhouse gases by decreasing weather-adjusted energy intensity from metered energy use by ten percent from baseline; OR, if facility is already an ENERGY STAR rated facility (> 75), maintain ES status.

## Less Waste



### Baseline

Report a waste baseline for: Solid waste, regulated medical waste, recycling and hazardous waste. Continue tracking for a three-year minimum.

**Regulated Medical Waste Reduction:**  
Reduce reduce RMW to either less than 10 percent of total waste or less than three lbs. per adjusted patient day.

**Recycling:** Achieve a 15 percent recycling rate compared to total waste.

**Construction and Demolition Diversion:** Implement a construction and demolition debris recycling program for major renovations and new construction to achieve at least 80 percent recycle and diversion rate.

## Safer Chemical



### Baseline

Achieve mercury-free status or develop and implement mercury elimination plan.

**Green Cleaning:**  
Purchase 90 percent Green Seal or EcoLogo certified cleaning products in these four categories: carpet, window, all purpose, and bathroom.

**DEHP/PVC Reduction:**  
Eliminate DEHP/PVC from at least one product line\*.

**Healthy Interiors:**  
Ensure that 25 percent of the annual volume of freestanding furniture and medical furnishings\*, purchases based on cost, eliminate the intentional use of halogenated flame retardants, formaldehyde, perfluorinated compounds and PVC (also known as vinyl).

\*1. Breast Pumps, 2. Enteral Nutrition Products, 3. Parenteral Infusion Devices and Sets, 4. General Urological (Irrigation/urology sets and solutions, urinary catheters), 5. Exam Gloves, 6. Umbilical Vessel Catheters, and 7. Vascular Catheters.

## Smarter Purchasing



### Baseline

Pledge to support Group Purchasing Organization (GPO) in contracting for, and to start purchasing applicable products based on, the environmentally preferred attributes in the Standardized Environmental Questions for Medical Products.

**Surgical kit review:** Review at least 30 custom surgical O.R. kits or 80 percent of O.R. kit types, whichever is greater in efforts to eliminate unneeded materials.

**Single use device reprocessing:** Increase expenditure of reprocessed FDA-eligible single use devices by 50 percent.

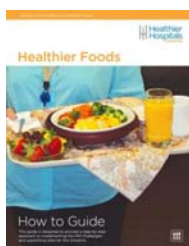
**Electronic Products Environmental Assessment Tool (EPEAT):** Specify and report expenditures on EPEAT registered devices.

A

B

C

## Tools and Resources



## Tools and Resources



- Mentor Hospital Program
- Forums
- Mentor Calls
- Sharing Successful Strategies
- Case Studies

**Seema Wadhwa**  
 Director  
[swadhwa@healthierhospitals.org](mailto:swadhwa@healthierhospitals.org)

**Janet Brown**  
 Director of Content and Outreach  
[jbrown@healthierhospitals.org](mailto:jbrown@healthierhospitals.org)

[www.healthierhospitals.org](http://www.healthierhospitals.org)







GLOBAL  
GREEN and  
HEALTHY  
HOSPITALS



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## Global Green and Healthy Hospitals


Part 2– What is GGHH?

**Joshua Karliner**


International Team Coordinator  
Health Care Without Harm

## Hospitals Around the World Are Already Going Green






GLOBAL  
GREEN and  
HEALTHY  
HOSPITALS



Acting Together For Environmental Health

## A Global Umbrella Network of Sustainability in Health Care





GLOBAL  
GREEN and  
HEALTHY  
HOSPITALS



AGENDA GLOBAL  
HOSPITAIS  
VERDES e  
SAUDÁVEIS



A Comprehensive Environmental Health  
Agenda for Hospitals and Health  
Systems Around the World



Uma agenda abrangente de saúde  
ambiental para hospitais e sistemas  
de saúde em todo o mundo



Health-Care  
Without Harm

[www.noharm.org](http://www.noharm.org)  
[www.greenhospitals.net](http://www.greenhospitals.net)



[www.saudesem danos.org](http://www.saudesem danos.org)  
[www.greenhospitals.net](http://www.greenhospitals.net)

## The Ten Goals



1. **LEADERSHIP**: Prioritize Environmental Health
2. **CHEMICALS**: Substitute Harmful Chemicals with Safer Alternatives
3. **WASTE**: Reduce, Treat and Safely Dispose of Healthcare Waste
4. **ENERGY**: Implement Energy Efficiency and Clean Renewable Energy Generation
5. **WATER**: Reduce Hospital Water Consumption and Supply Potable Water
6. **TRANSPORTATION**: Improve Transportation Strategies for Patients and Staff
7. **FOOD**: Purchase and Serve Sustainably Grown, Healthy Food
8. **PHARMACEUTICALS**: Safely Manage and Dispose of Pharmaceuticals
9. **BUILDINGS**: Support Green and Healthy Hospital Design and Construction
10. **PURCHASING**: Buy Safer and More Sustainable Products and Materials



Acting Together For Environmental Health

Hospitals, health systems and health organizations representing the interests of more than 4,000 hospitals from five continents have come together to form the network.





- Join the Network – commit to 2 goals
- Annual reporting on progress
- Tools and Resources for implementation
- Post case studies
- Online forum

[WWW.GREENHOSPITALS.NET](http://WWW.GREENHOSPITALS.NET)




Acting Together For Environmental Health

## Founding Members

### *Health Organizations and Systems*

- Australian Hospitals and Health Care Association (Australia)
- Chinese Hospital Association (Construction Branch)
- Department of Health, Thailand (GREEN and CLEAN Hospitals Program)
- FHI360 (Global)
- Healthier Hospital Initiative (US)
- Health Promoting Hospitals Network, Environment Task Force (Global)
- Health Secretariat, Mexico City (Mexico)
- Indonesia Hospitals Association (Indonesia)
- National Health Service, Sustainable Development Unit (UK)







GLOBAL GREEN and HEALTHY HOSPITALS

Acting Together For Environmental Health

## Individual Hospital Members

More than 100 Individual Hospitals already signed up or in process.

Argentina, Brazil, Canada, Colombia, Costa Rica, England, India, Nepal...



## Rolling Launches Around the World





## United States Launch Healthier Hospitals Initiative



## Australia Launch

*The Sydney Morning Herald*

*"Hospitals act to cut dangerous waste"*



## China Launch



## Brazil Launch



## Europe Launch





GLOBAL GREEN and HEALTHY HOSPITALS

Acting Together For Environmental Health

# Global Green and Healthy Hospitals

## Part 3– Case Studies from Around the World

**Joshua Karliner**  
International Team Coordinator  
Health Care Without Harm



NHS Sustainable Development Unit

REGULATION FEEDBACK SHARING  
LOSS HEALTH SUSTAINABILITY  
ART LIFE RESOURCES INCLUDING PE  
TIME EVERY ENABLED WASTE  
AC SOCIETAL BEHAVIOUR MO  
BEHAVIOURS  
CARE RESOURCES SY  
SE SUSTAINABILITY  
STAINABLE FINANCES  
HEALTH  
ES DIFFERENT ION MODE CARE AV  
VENT C AND T SCOURA  
TAINABLE L ES OM TE H OGIES RE  
MECHA INCLUDING AND  
PUBLIC RESE BE ENHANCE  
TH SYSTEM

ROUTE MAP FOR SUSTAINABLE HEALTH



## England's National Health Service

**Footprint:** 18 million tons of CO<sub>2</sub> per year, 26% of public sector emissions

### Target Reduction:

10% by 2015

26% by 2020

80% by 2050



### NHS CARBON REDUCTION STRATEGY FOR ENGLAND

January 2009



Gundersen Lutheran has an aggressive plan to be carbon neutral by 2014!



#### Gundersen Lutheran Health Network

- Wisconsin, Illinois, Michigan - United States

Becoming Energy Neutral at Gundersen Lutheran



Gundersen Lutheran is undertaking a number of projects to meet 100 percent of our energy needs for our facilities by 2014. The projects will create renewable energy and improve energy efficiency. The environmental plan will evolve and change as we learn more about the technologies that are available.





## Hospital Fernandez, Argentina

- 400 bed public hospital in Buenos Aires
- Mercury-free
- Substituting dental amalgam in most cases
- Eliminated various cancer-causing chemicals– DEHP-PVC, BPA, glutaraldehyde
- Green cleaning



## CHILE

### **Clinica Davila, Largest solar project in the country**

\*264 solar thermal collectors heat more than 70,000 liters of water per day

\*Savings: US \$200,000 per year.

**Hospital Clínico de la Universidad de Chile** first public health establishment in Chile to install solar panels.

\*Savings of \$100k a year in water heating costs.

\*Reduction of 108 thousand liters of oil per year,

\*Reduction of 270 tons of CO2 emissions

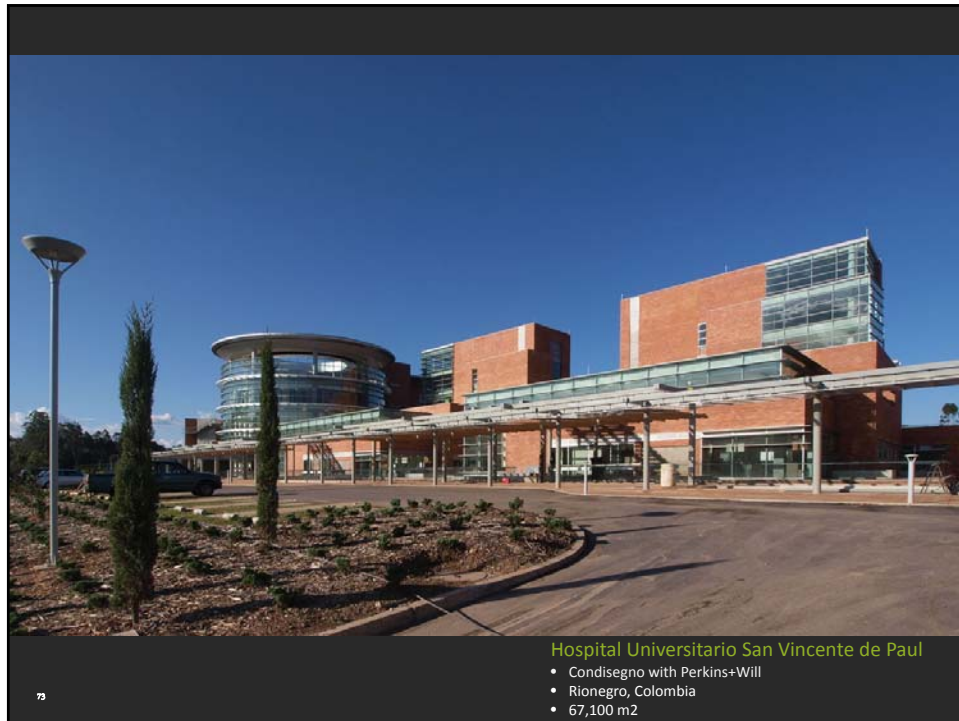
\*Beginnings of a national hospital energy initiative.



## Hospital CLVV San Ramon, Costa Rica

- Mercury free
- Green purchasing policy
- Onsite waste water treatment plant
- Worm composting for food waste
- Butterfly garden for patients and staff
- Waste segregation and autoclaving
- Paper, glass and electronics recycling
- Energy conservation
- Green garden management
- Environmental education for the community.





## Bir Hospital, Nepal – before





## Bir Hospital- afterwards



## New technologies- biodigestion



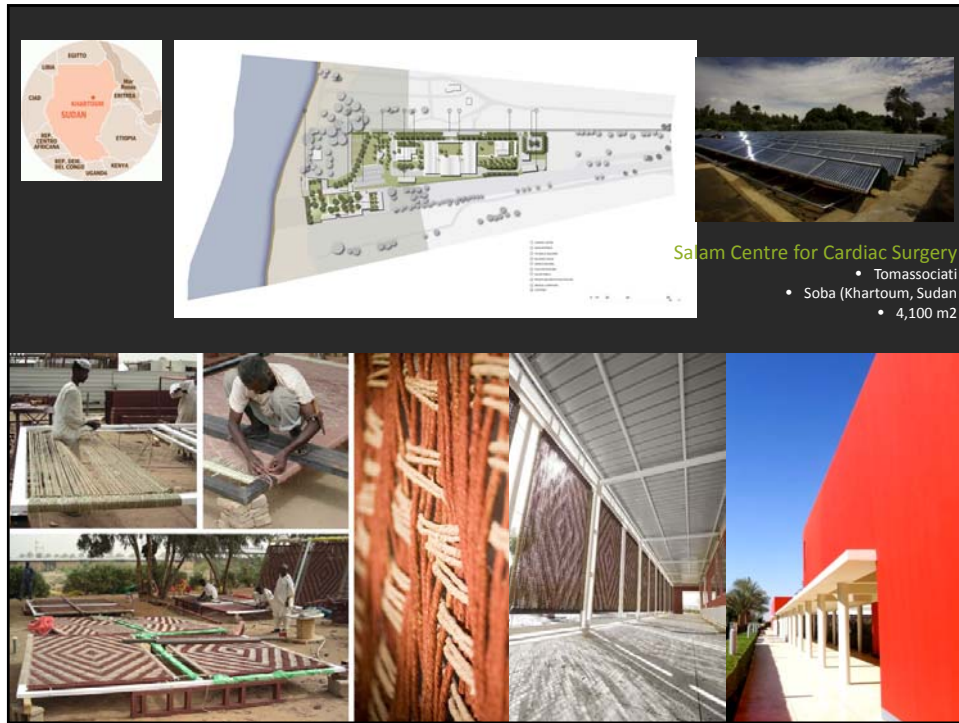


**Butaro Hospital**

- MASS Design Group
- Butwaro, Rwanda
- 6,400 m2









## AUTOCLAVE STERILIZER

... to treat infectious wastes



## purchase of vial crusher and shredder

Vial/Glass Crusher



Crushed  
vials

Shredder for Bio-degradable waste  
(reduces volume by 50 %)







## INNOVATIONS

glass mixed with cement used as construction

Non-biodegradable waste & recyclable materials











2011/06/10



## INNOVATIONS

Tetra Packs used as bags, apron, folders, etc.

Tetrapacks from juices were also used as bags, apron, coverfolders, car sunshield and ceiling insulators







GENOSIS SUSTAINABLE  
BUSINESS GROUP, INC.  
SOLID WASTE  
MANAGEMENT  
PROJECT

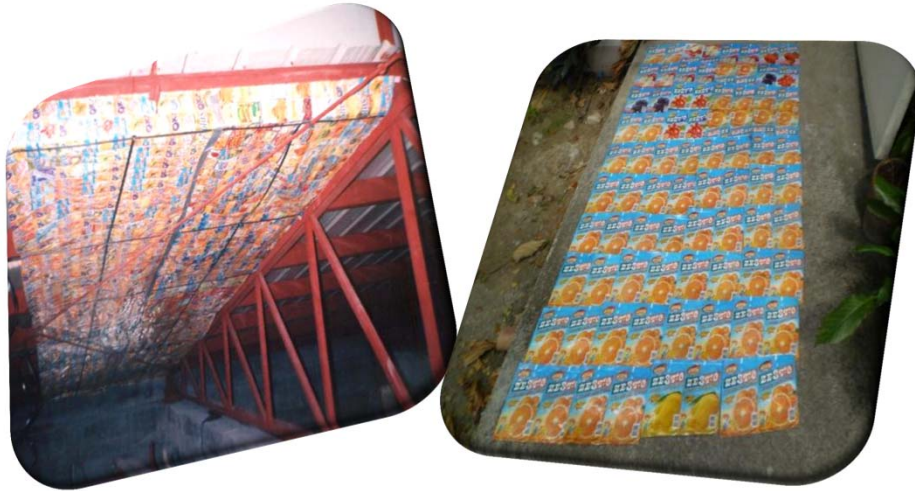


Tetrapak folders





## Tetrapaks ... as roofing/ insulator



## TRASH TO WORKS OF ARTS





## TRASH TO WORKS OF ARTS



Materials: X-ray films



Materials: Plastic straw

### OTHER INITIATIVES:

- ☐ Use of vinegar for surface cleaning and disinfection
- ☐ Kamias juice (from cucumber tree fruit) used to clean bathroom floors, etc
- ☐ Biogas technology for placenta and food waste- used to fuel the laundry drier
- ☐ Backwash water from hemodialysis Reverse Osmosis used to wash hospital linen
- ☐ Use of "low ph water" acid as surface disinfectant



## Perpetual Succour Hospital, Cebu

Roof garden- serves as an insulator;  
provides therapeutic ambience



## St. Paul Hospital, Tuguegarao



Garden:

## General Santos Doctors' Hospital



Employees made use of the fertile soil to grow vegetables ...





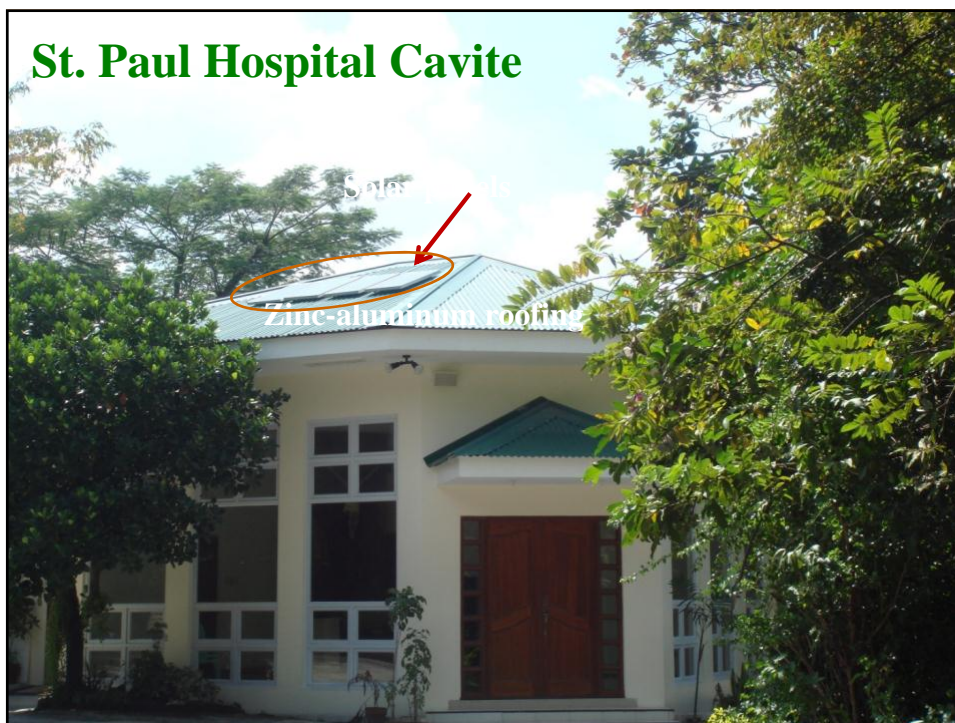
## St. Joseph Southern Bukidnon Hospital

### BANANA PLANTATION



... profit from this project will support our charity patients

## St. Paul Hospital Cavite



- Total elimination of mercurial thermometers and BP apparatus
- Require affiliating students to use non-mercurial thermometers





# Global Green and Healthy Hospitals Network – Catholic Healthcare's Opportunity

Sister Mary Ellen Leciejewski, OP  
Dignity Health  
Ecology Program Coordinator  
September 14, 2012



## Process

- Deliver items to barrels



- MedShare tags & picks up barrels & equipment



## Process

- Deliver items to the warehouse



- Track and weigh items



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## Shipments arriving at various destinations



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## Dignity Health – Who We Are

Headquartered in San Francisco

5th largest health system

10,000 physicians and 55,000 employees

40 acute care hospitals and 150 ancillary care sites

Committed to delivering compassionate, high-quality, affordable health care services with special attention to the poor and underserved.

Provided \$1.4 billion in charity care, community benefit and unreimbursed patient care (FY11)



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## Mission

- MedShare
  - Bridge the gap between our surplus and the need to improve healthcare around the world.
- Dignity Health
  - Deliver compassionate, high quality, affordable health services;
  - Serve and advocate for our sisters and brothers who are poor and disenfranchised;
  - Partner with others in the community to improve the quality of life.



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## Process

- Set up barrels
- On-site training



## Benefits

- Mission
- Support of local and global clinics & mission teams
- Sustainability
- Volunteer opportunities
- Good press
- Staff enthusiasm

## Challenges

- Cost
- Finding a champion
- Leadership support
- Finding or creating an MSRO



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## Redemtech

- Sends no waste overseas
- Reuses as much as possible before recycling
- Completely destroys data
- Ensures that employees are protected during recycling and disposal process
- Complies with federal, state and local regulations



## E-Waste Soluble Recycling

Toxic Metals		
0.0010	Mercury	LBS
6.6672	Antimony	LBS
-	Arsenic	LBS
2.1796	Barium	LBS
-	Beryllium	LBS
0.0057	Cadmium	LBS
0.0709	Chromium	LBS
0.0764	Cobalt	LBS
438.57	Copper	LBS
6.67	Lead	LBS
-	Molybdenum	LBS
0.1796	Nickel	LBS
-	Selenium	LBS
0.3012	Silver	OZ
-	Thallium	LBS
-	Vanadium	LBS
7.55	Zinc	LBS
-	Tin	LBS
-	Gold	OZ
-	Platinum	OZ
119.83	Aluminum	LBS
-	Palladium	OZ
-	Iron	
582.11	Total	

E-Waste Units	
Bulk Item	1
Desktop	349
Handheld	1
Hard Disk	423
Laptop	17
Miscellaneous	191
Monitor	209
Part	1
Printer	90
Server	6
Tower	96
	1,384

E-Waste Toxic Components and their Damage to Human Health

Toxic Materials	Birth Defects	Brain Damage	Heart, Liver, Lung & Spleen Damage	Kidney Damage	Nervous/ Reproductive System Damage	Skeletal System Damage
Barium		X	X			
Cadmium	X		X	X	X	X
Lead	X	X		X	X	
Lithium	X	X	X	X	X	
Mercury	X	X	X			
Nickel	X		X	X	X	
Palladium	X	X	X			
Rhodium			X			
Silver	X	X	X	X	X	

Without safe recycling, most of these toxic components will end up in land fill — poisoning the soil and water.

## Recycle & Reuse Diversions

Recycle		Reuse	
E-Waste Recycling	Merchandise Sale		
Units	Weight	Units	Weight
1,384	22,032	1,008	19,306

Environmental,  
Landfill Natural Resource Reductions

<b>Less CO<sub>2</sub></b>	520.84	Tons
<b>Air contamination prevented</b>	12,472	Tons
<b>Landfill diversion</b>	41,338	Pounds
<b>Virgin Materials</b>	39,566	Pounds
<b>Water pollution prevented</b>	100,008	Gallons



### Energy Savings



Electricity to power 500 houses/yr



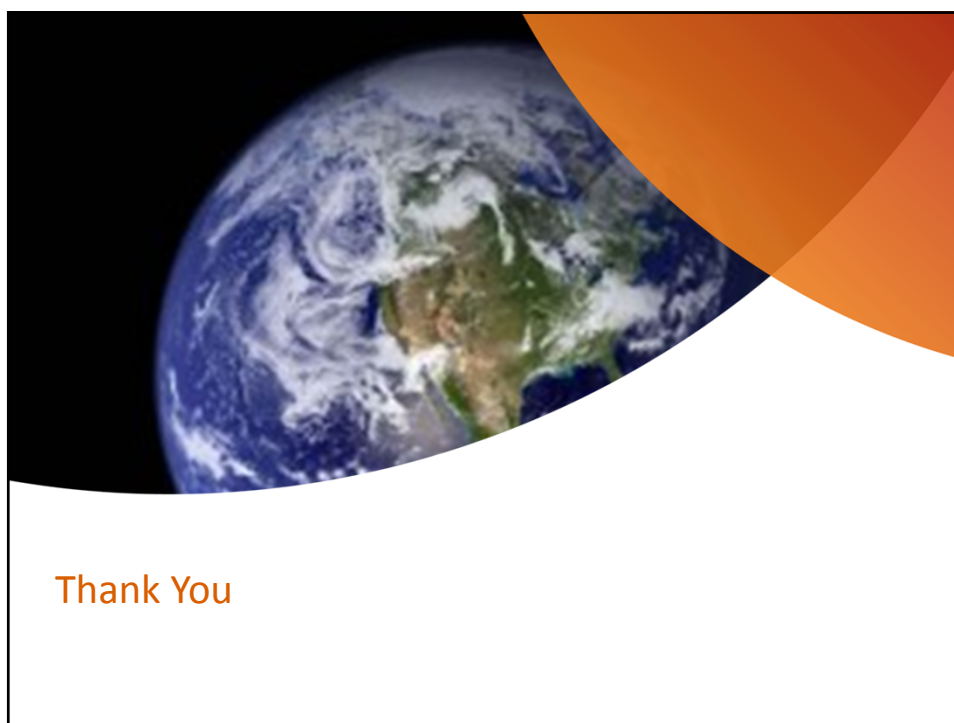
Removing 146.72 cars from road/yr

### Hazardous Waste Reduction



Weight of 286 bricks

\*Includes computers, monitors and cell phones only



## ***Global Catholic Response***



**Camille A. Grippon**  
Director, Ecology &  
Global Ministries

Good Help to Those in Need®

BON SECOURS HEALTH SYSTEM 



## A Culture of Sustainability

- Bon Secours' *Good Help* Beyond the US
- HHI and GGHHN Platform
- Interconnectedness between Health and the Environment
- New Construction

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## Madre de Cristo Construction

Before



After



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## Health and the Environment

- Poor Air Quality
- Contaminated Water Sources
- Food Insecurity
- Service Care Delivery



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## Process Recommendations

- ✓ Get to know the HHI Network & the GGHHN Agenda
- ✓ Understand the local context
- ✓ Understand your Health System area of influence internationally
- ✓ Find local allies
- ✓ Conduct Assessments & Vetting Visits



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# Gracias!

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# Q&A

