CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT

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THE BIG EIGHT WORST WORLD DISASTERS

- FLOODS
- SEVERE WINDSTORMS
- EARTHQUAKES
- DROUGHTS
- VOLCANIC ERUPTIONS
- LANDSLIDES
- WILDFIRES
- TSUNAMIS

OTHER ENVIRONMENTAL DISASTERS

- MUDFLOW, LANDSLIDES, AND FLASH FLOODS DUE TO CONCRETE
- VOLCANOES
- OIL SPILLS, PIPELINE RUPTURES
- LAND USE, URBANIZATION, MEGACITIES
- WATER POLLUTION
- SOIL POLLUTION
- DEFORESTATION
- ICE STORMS

MORE DISASTERS

- AIR POLLUTION
- FOREST FIRES
- HIV/AIDS (NIGERIA 600,000 DIE/YEAR)
- TERRORISM
- REFUGEES
- DESERTIFICATION
- SHORTAGE OF WATER
- PESTS – LOCUSTS, BIRDS
- DAMS

THE ECONOMIC FACTOR

- DISASTERS ARE COSTING THE US ABOUT $50 BILLION A YEAR, YEAR IN AND YEAR OUT.
- THE REST OF THE WORLD SUFFERS ABOUT $50 BILLION IN DAMAGES A YEAR AS WELL.
- A HUGE DRAG ON THE WORLD ECONOMY
- OVER 40% OF BUSINESSES HIT, NEVER REOPEN – JOBS LOST

Climate Change May Be Accelerating

- In the last generation we've seen the highest global temperatures in the meteorological record
- There has been an accelerated shrinking of glaciers, ice sheets, and of Arctic sea ice
- Risks seem to be rising both for severe hurricanes and for increased rainfall from even moderate hurricanes
- There are worrisome signs that we may be on the verge of abrupt shifts in climate

Current Impasse

- Although the Kyoto Protocol has come into force, the emissions from new coal fired plants alone in China, India and U.S. may be 5 times total reductions from Kyoto
- U.S. produces about a quarter of global emissions
- U.S. inaction on emissions allows major developing countries to refuse to join in negotiations on post-2012 emissions reductions

The Challenge

The technological and economic aspects of the problem are, thus, not quite as challenging as many imagine. The real difficulty is political.

Climate change is one of the hardest policy problems the world has ever faced. Because it is global, it is in every country's interests to get every other country to bear the burden of tackling it. Because it is long term, it is in every generation's interests to shrink the responsibility and shift it onto the next one. (Economist, Sep 2006)

WHAT CAN WE DO?

- RESEARCH: WE NEED TO KNOW THE FACTS
- COMMUNITY AND FAMILY PREPAREDNESS
- EMERGENCY PLANNING
- RISK ASSESSMENT
- HAZARD IDENTIFICATION/MITIGATION
- TRAINING/EDUCATION
- EXERCISES
- PARTNERSHIP AND OUTREACH
- STANDARDS
- EMERGING TECHNOLOGY

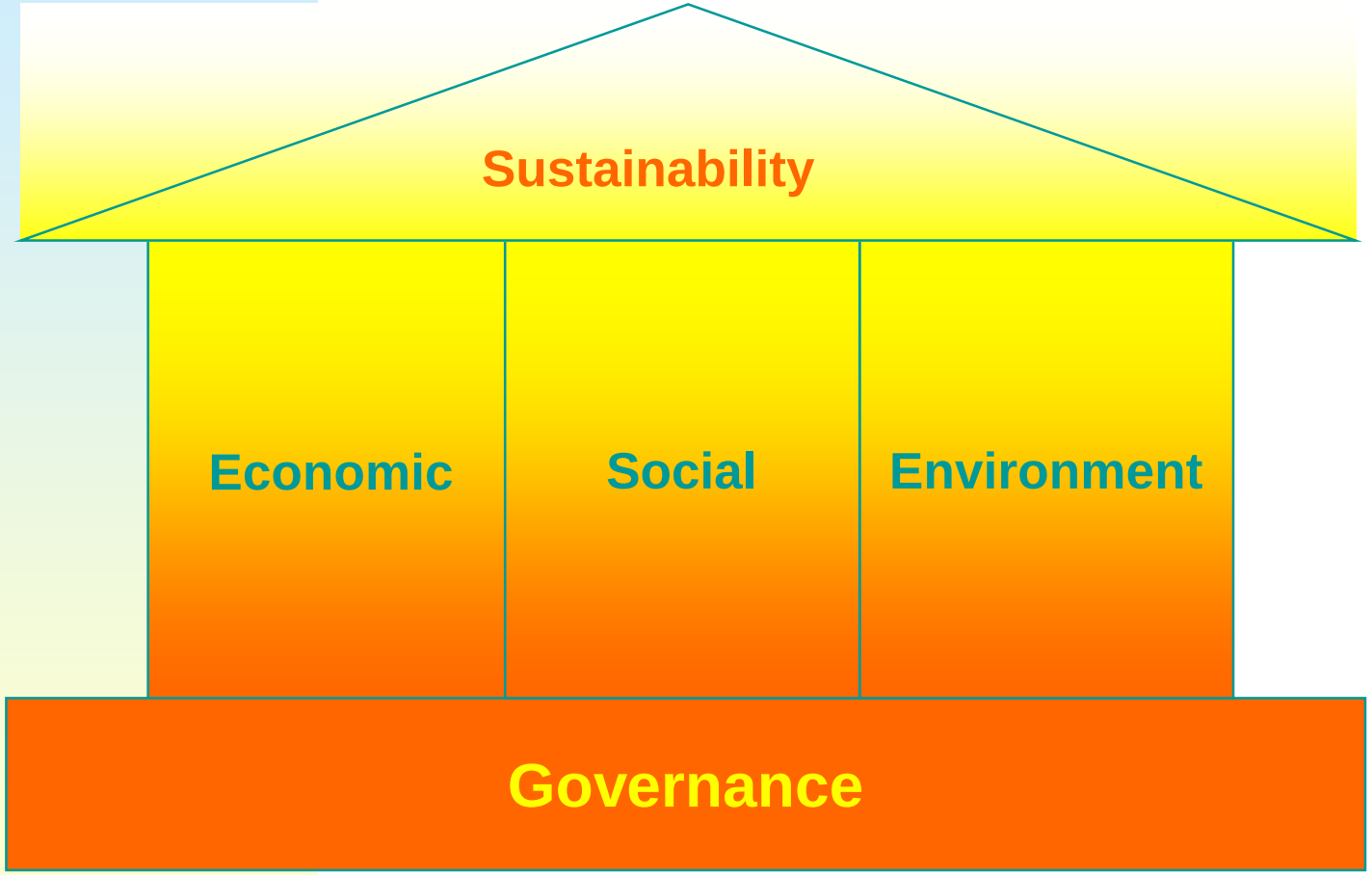
STREAMLINING

- NEED TO STREAMLINE DISASTER MANAGEMENT INTO DEVELOPMENT STRATEGIES
- WORK DISASTER RISK REDUCTION INTO PROJECT PLANNING
- UTILIZE TECHNOLOGY TO CONNECT PEOPLE WITH INFORMATION THEY NEED IN REAL TIME – LINKING GIS AND VULNERABILITY STUDIES, WITH INTEGRATED MAPS

Breaking the Current Impasse Will Require:

1. Persuading the general public that climate change is a clear and present danger and that the U.S. can lead in its solution
2. Identification of Win-Win and co-benefit opportunities (e.g., Air Quality)
3. Technological innovation and looking at the 1.5 - 2 Billion people without power as a ‘Market’
4. Building Partnerships – and Leadership by Nations, States, Community Groups, and of course individual action

The Sustainability Model



Global Sustainable Energy Islands Initiative (GSEII) - Objectives

- to help those Small Island Developing States (SIDS) seeking to become sustainable energy nations
- to establish donor support and private sector investment for sustainable energy initiatives
- to increase awareness of the potential and advantages of renewable energy utilization and energy efficiency in the SIDS and provide practical examples
- to demonstrate that SIDS can set examples for the bigger and more polluting countries by cutting their greenhouse gas emissions

Climate Change and Small Island States

- Small Island States produce only a tiny fraction of global greenhouse gas emissions
- Island States are among the most vulnerable to Climate Change
- Most island nations are dependent on high-cost fossil fuels and very expensive electricity
- A significant number of people don’t have access to electricity
- Island States are especially suited to utilize modern renewable energy and energy efficiency technologies due to their economic and geographical conditions

Tuvalu Speaks

"Our islands' peoples, irrespective of occupation - in government, the private sector, in the villages or in service providers like the utilities – are going to be the first to suffer. My country, Tuvalu, barely six feet above sea level, is already seeing the impacts of extreme weather events including foreshore erosion, unusual flooding and the increased intrusion of seawater into freshwater lenses. Our people are already discussing resettlement and refugee status.

The urgency to switch to efficient, affordable and renewable energy sources is real. Every contribution counts. Our interest in moving to a less carbon intensive world is not just self-serving. The consequences of global warming that our nations encounter first will be felt later by others. "

Ambassador Enele S. Sopoaga of Tuvalu
Vice Chairman, AOSIS

French Leadership - Guadeloupe

- Renewables supply 25% of all energy needs and costs less:
  - Geothermal – from the volcano
  - Small hydropower – the mountain foothills
  - Wind turbines – designed to resist hurricanes
  - PV Solar for rural power supply – 2000 units
  - Solar thermal for water heaters – 15000 units
  - Bagasse as a sugar industry byproduct
  - Ethanol from molasses
  - Energy from waste
- 350,000 energy efficient lamps installed in 44,000 households

Other Renewable Energy Examples

- Barbados
  - More than 30,000 Solar Hot Water Heater Systems – payback for individuals: 2.5 years
- Curacao
  - A 3 MW wind farm to reduce high fuel costs
- Galapagos
  - A wind farm on San Cristobal Island to replace 50% of diesel power and reduce the risk of disastrous oil spills
- Cape Verde
  - 20% reduction in diesel use through energy efficiency measures and wind turbines
- Jamaica
  - A 20 MW wind farm facility at Wigton, Jamaica involving World Bank carbon funding

State and Local Governments as Partners

Common Traits

- ü **Serve the public good**
- ü **Fiduciary responsibilities**
- ü **Taxpayer accountability**
- ü **Public policy, legal, institutional**
- ü **Economic tools and resources**
- ü **Support R&D and academic institutions**
- ü **Often support energy research**
- ü **Present Market as Own Entity**

WHY TARGET LOCAL/MUNICIPAL GOVERNMENTS

- Local Governments are effectively networked and both the policy concerns and technology development and deployment needs are represented through its affiliates/partners.

- Local Governments have interest in energy costs-for operating offices, schools, libraries, colleges, medical facilities, police stations, fire stations, correctional facilities, airports and other facilities such as water supply, wastewater treatment facilities, outdoor lighting for streets and other recreational facilities. These costs represent 5% to 7% of local government annual expenditures.

- Local Governments have proven that they can perform technically sophisticated roles in developing, testing, and validating advancing technologies.

SOME ENERGY INTERESTS FOR LOCAL GOVERNMENT

- **Electricity costs account for nearly 75% of the government's total annual energy expenses**
- **Fixed-site energy costs in state and local governments total about $ 30 Billion annually**
- **Improved energy efficiency can achieve conservative savings of $ 3 Billion annually**
- **Total investment required to realize those savings is between $ 13 Billion and $ 20 Billion.**

Sustainable Region Energy Vision

- Increased Use of Renewable Energy Resources
- Green Buildings Expansion through Legislation & Education
- Alternative Fuel Development/Mass Transit
- Smart Growth Principles- Limit Sprawl
- Expansion of Education Programs & Community Involvement
- Utilize Resource Mapping
- Promote EE & RE in Regional Land Use Plans
- Establish EE & RE Criteria in Building & Transportation Sectors

Conclusion

Sustainable energy and energy efficiency are not only an environmental necessity…

It makes economic and social sense

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