Perspectives on Environmental Management Paradigms

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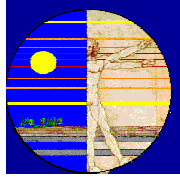
EEH 2005
International Conference on Environmental Exposure and Health
October 2005
Atlanta, GA USA



Evolution of Environmental Management Paradigms

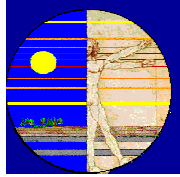
Frontier Economics

Resource Management or ***Resource Allocation***

Radical Environmentalism

Selective Environmentalism

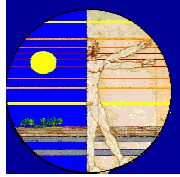
Sustainable Environmental Management



Premise:

All human interventions to natural environments, our demand for built environments and natural or forced disasters sooner or later will be associated with health issues.

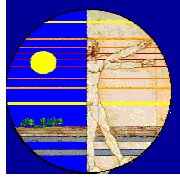
M. M. Aral
NATO ASI, 1995



Evolution of Environmental Management Paradigms

Sustainable Environmental Management

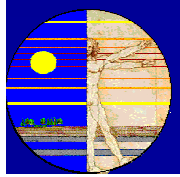
Environmental Management for Sustainable Populations



Environmental Management for Sustainable Populations

Specialization fields that are involved:

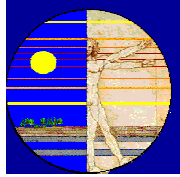
- Social sciences;
- Public policy;
- Health sciences;
- Basic sciences; and,
- Engineering.



Environmental Management for Sustainable Populations

To establish this working environment:

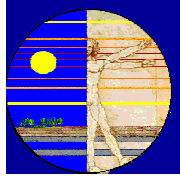
- More barriers need to be broken;
- New rules need to be established; and,
- A common language is needed.



Environmental Management for Sustainable Populations

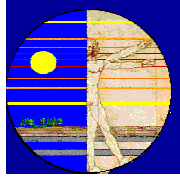
- In this approach economic incentives and environmental constraints have to be considered harmoniously, with the main emphasis placed on protection and preservation of….

  Human health and
  Sustainability of populations.



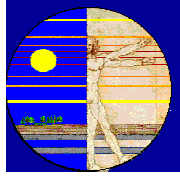
How far we have come?

- **Antiquity:** Survival of human species
- **Middle-Ages:** Survival of communities
- **Modern:** Survival of individuals



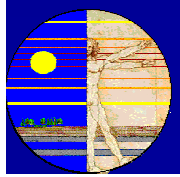
Problem Areas:

- Our present information database is not adequate to fully incorporate environmental health concepts into environmental practices;
- The relation between hazardous environmental exposures and their effect on various physiologies are not well understood;
- In most cases historical environmental data on hazardous materials and data on hazardous waste management practices are not well known or documented appropriately; and,
- Health effect consequences of environmental management decisions have not been fully characterized and evaluated.



Under natural conditions… Pandemics

- Bubonic plague
- Influenza
- AIDS
- SARS?
- Bird flu?
- E. Bola?



Current Issues and Concerns

- Rather than discussing our success stories (which was my primary intention) it may be more beneficial if we focus on current issues.
- But our premise is still the same…..

Premise:
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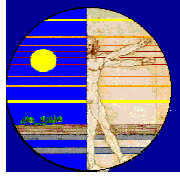
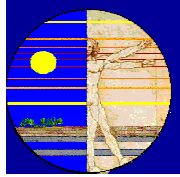


Health Challenges

- Access to affordable health care;
- Health as a world policy;
- Hazard control policy;
- Vision for integrated policy; and,
- And back to survival of communities
  - viral mutations, bacterial resistance, megacities, population explosion, infrastructure, natural or forced disasters.



Under Natural Disasters: How safe is our infrastructure?

Hindsight is 20/20

Hurricane Katrina

What good is it to have a hospital if the infrastructure does not support it

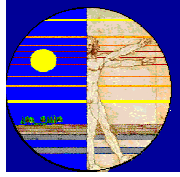
- Hurricane Katrina

A young patient of Charity Hospital is carried to a bus after being Evacuated by airboat (AP)

Question?

- Should standard engineering infrastructure systems such as:
  - Levies;
  - Dams;
  - Superdomes;
  - Water distribution systems;
  - Transportation systems;
  - High density centers;
  - Energy grids;
  - Ports, airports;
  - Pipeline transportation systems;
  - Communication systems;
  - ……

be designed and constructed considering public health concerns or are they just structures build for life enrichment and sustainability.



A simple levee problem

(AP)

(AP)

(AP)

Premise:

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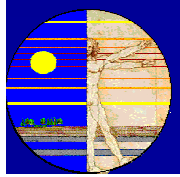
(AP)

A megastructure's mega failure:

- Superdome:

Suspected disease outbreak causes shelter evacuation

On the sixth day of disaster and despair, an urgent new problem erupted: Disease. A suspected outbreak of dysentery compelled authorities in Biloxi, Miss., to hurriedly evacuate hundreds of people from a shelter. Medical experts have warned of epidemics sweeping through crowded, unsanitary shelters. (AP)



A failure of systems management and not the structure.

Shelter in Biloxi closed after 20 fall ill

BILOXI, Mississippi (AP) -- -- Officials closed a shelter Saturday because more than 20 people there fell ill, and doctors believe the patients may have contracted dysentery from tainted water.

Without proper management outcome is a disaster.

Engineering systems analysis and training may have helped…

Premise:
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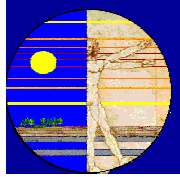
The numbers are huge:

360,000 people in the region fed by the American Red Cross;
an estimated 150,000 to 200,000 evacuees in the Houston area alone;
at least 60,000 people rescued in the disaster area,
with many more still out there.

(AP)

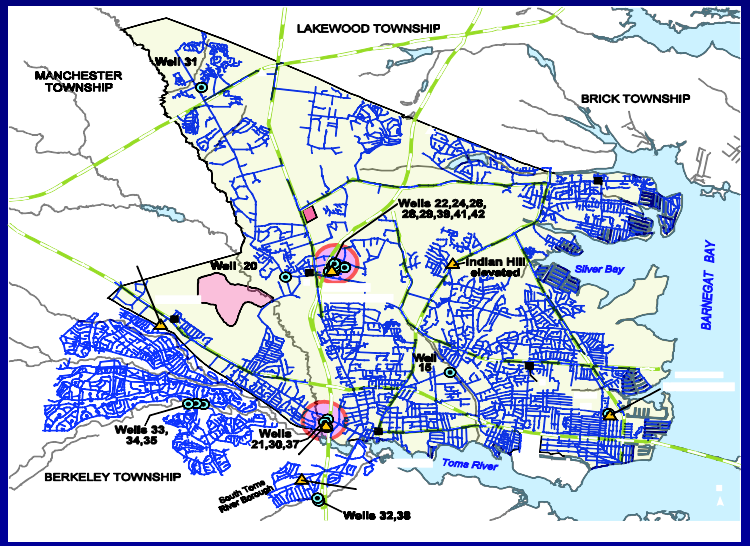
What's next?

- "There's more to come if we are not careful."
- Almost everybody wants rebuilt, clean-up, start over again...



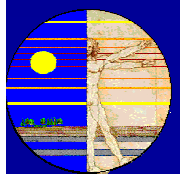
What is the knowledge base on basics of infrastructure

- For example what is the basic understanding and expectation of a non-engineer on WDS.



As engineers we know that…

- They are designed to work under pressurized conditions.
- 6-8 months of non-pressurized conditions while literally sitting drowned in contaminated water "bathtub conditions" will end contaminated water to seep into these systems.
- Health effects and long term chronic diseases are the expected outcome.



~~Clean~~ one side and Drain Destroy the other

Toxic trouble in New Orleans water

BATON ROUGE, Louisiana (Reuters) -- The toxic brew of chemicals and human waste in the New Orleans floodwaters will have to be pumped into the Mississippi River or Lake Pontchartrain, raising the specter of an environmental disaster on the heels of Hurricane Katrina, experts say.

Dilution… or Delusion?

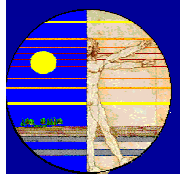
(AP)

Leadership Professions

- Medicine,
- Public health,
- Engineering,
- Anthropology,
- Communications,
- Risk analysis,
- Economics,
- Political science,
- Philosophy,
- And yes, National Guard.
  - But we should not shoot at them.

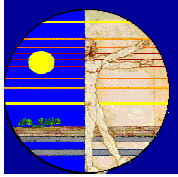
Collaboration is necessary!

- Medicine and Engineering (hazard reduction, medical equipment, infrastructure)
- Medicine and public health
- Public health and anthropology (quality of life, role of cultures)
- Public health, public policy and communications (health education, risk awareness, risk communication)
- Public Health and Engineering (risk reduction, management, infrastructure management, systems analysis)



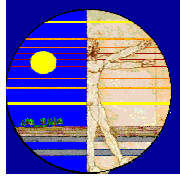
Most important problem:

- How do we integrate?



Venues:

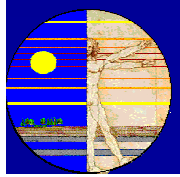
- Education and training;
- Collaborative research; and,
- Knowledge dissemination



Or should we wait some more?

Maybe we will?

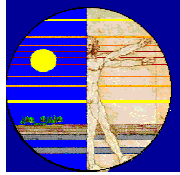
- Until something that we understand very well hits us…..



Katrina's growing economic impact

- Gas prices only tip of the iceberg, as deadly storm will affect real estate, trade, heating costs.

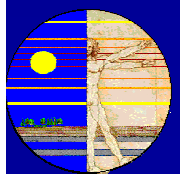
- The human toll of Hurricane Katrina is already far too evident to anyone watching news reports this week, and the economic impact is evident to anyone who's pulled up to a gasoline pump.



As the saying goes…

- We either pay now,
- Or pay later,
- But we will pay anyway.

Sooner we look at the big picture, the better it will be.



For additional information or questions, you may contact:

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