

WE'RE NOT IN KANSAS ANY MORE:

Some guides for science and technology contributions to increasing
disaster resilience in the 21st century

James K. Mitchell

Professor of Geography, Rutgers University
Piscataway, New Jersey 08854-8045

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EXPAND THINKING ABOUT DISASTERS

- Reinvent public institutions
 - Canada
 - New Zealand
 - People's Republic of China
 - European Union

CANADA

- Shift emphasis from post-disaster relief to anticipatory hazard mitigation
- Constitutional issues
- Moral issues
- Government spending
- Economic efficiency
- Public-private partnerships



NEW ZEALAND

- Holistic disaster recovery
 - Sustainability principles
 - Ecosystem recovery
 - Economic recovery
 - Buildings, infrastructure, people



CHINA

- Use benefits of rapid economic development to make possible a **transition** from high disaster death rates to low rates
- Upgrade disaster services
 - Hazard monitoring
 - Forecasting and warning
 - Disaster relief
- **Address societal transformation**
 - Two Chinas



EUROPEAN UNION



- Continent-wide integrated system of hazard management
- "Risk Society"
 - Management of threats to human welfare is first task of governance
- Primacy of EI technologies
 - Mechanism for encouraging common identity

NEEDED DEBATES

- "All hazards" **policy** in post 9/11 environment
 - Emergency management v Hazard mitigation
 - Secrecy v Transparency
 - Sustainability v Safety
 - Domestic v International
- Relationships between global environmental change **science** and hazard management **science**
 - Remote observation, simulation-modeling, disjunctive perturbations, surprise, adaptive biogeochemical systems, parallel contributions from natural and social science
 - Direct observation, empirical testing, normalcy, reliability, designed futures, combined social and natural science approaches

MAKE BETTER USE OF EXISTING SCIENCE

- Target underserved populations
- Extend management time horizons
- Take advantage of present societal trends

VULNERABLE GROUPS UNDERSERVED BY SCIENCE AND TECHNOLOGY

- Elderly shut-ins during heat and cold waves
- Illegal immigrants crossing southern border
- Victims fearful of revealing identities
- Publics vulnerable to terrorist attacks at home, in workplace, in mass transit, at play

EXTENDED TIME HORIZONS

- Forward and backward
- New evidence of pre-20th century events
- 500 year historic reference periods
 - Increased probability of major storms and floods?

UNPLANNED SOCIETAL CHANGES

- A lesson from historical research
 - Once we begin to address hazards on decade to century time scales it becomes increasingly important to question assumptions about the continuance of present societal - as well as environmental - conditions and to identify trends that hazard managers can work with to achieve disaster resilience

CAUSES OF NJ FOREST FIRES

CAUSAL AGENT	1895	1990
Locomotives	49%	<1%
Accidents/carelessness	41%	39%
Incendiary	6%	50%
Other (e.g. natural)	2%	10%

NEW JERSEY FOREST FIRES 1902-2000

DECADE	FIRES	BURNED ACRES	RATIO ACRES/FIRES
1902-1909	1,509	424,984	281
1910-1919	7,085	713,215	101
1920-1929	10,241	668,751	65
1930-1939	13,841	586,176	42
1940-1949	15,020	257,619	17
1950-1959	12,573	171,418	14
1960-1969	15,165	311,540	21
1970-1979	16,746	122,718	7
1980-1989	15,776	79,580	5
1991-2000	16,147	69,497	4
TOTAL 1902-2000	124,103	3,405,498	27

A GROWING RANGE OF CHOICES



Do nothing, relocate



Disaster relief

1824



1849



1879



PRIORITY TASKS

- Expand thinking about disasters to guide science investments
- Make better use of existing science and technology
 - Target underserved populations
 - Extend management time horizons
 - Take advantage of present societal trends
- Assert strengths of science
 - Nurture alternatives
 - Confront fear with reason

