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Environmental Ethics and Land Management

ENVR E-120

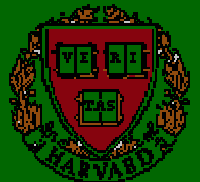
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Land Management and Public Health

Timothy C. Weiskel

Session 11
7 December 2006

Harvard University Extension School
Fall Semester 2006



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The “Landscape of Disease” has Changed radically in recent history - *disjunction*

Milestones in ‘Age of Optimism’ and enormous success – from **1890s to 1972:**

- Louis Pasteur – the triumph of the microbial theory of disease → clean water leads to radical decline of child mortality → success against cholera, etc.
- 1918 pandemic – *setback* and the discovery of *viruses*
- World War II and the emergence of Penicillin in “war on microbes.”
- Salk Vaccine – 1955
- Control of Small Pox – 1972 – ‘high water mark’ of progressive global health achievement.

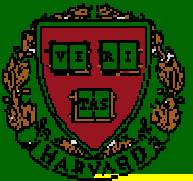


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The “Landscape of Disease” has Changed radically in recent history - *disjunction*

Since 1972 – Key factors have changed in landscape of disease:

- Population Growth – from 3 to 6 Billion people.
- Urbanization & ‘marginalization’ – sanitation, decline of per capita freshwater
- Growth of “diseases of civilization” – obesity, diabetes, heart disease.
- Expanded international travel.

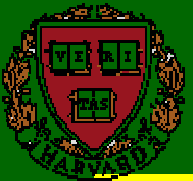


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The “Landscape of Disease” has Changed radically in recent history - *disjunction*

Since 1972 – Key factors have changed in landscape of disease:

- Declining standard of living of rural poor, leading to stressed human populations and increased predation on stressed animal populations – often the vectors or host populations of disease.
- Decline of public health regimes across the world – global *Betrayal of Trust*.
- Collapse of international efforts to control biological weapons.



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The “Landscape of Disease” has Changed radically in recent history - *disjunction*

Since 1972 – Key factors have changed in landscape of disease:

- Emergence of ‘super bugs’ from medical interventions and factory farming.
- Acceptance of global pandemic of AIDS as “normal” & expansion of MDRTB.
- Assault on natural ecosystems – rainforests, mining camps, agriculture/disturbed soils & rapidly destabilized ecosystems, etc.
- Changing climate/environment & the migration of vector species.



Last Four Factors.....(*in Reverse Order*)

Since 1972 – Key factors have changed in landscape of disease:

Changing climate/environment & the migration of vector species.

Assault on natural ecosystems – rainforests, mining camps, agriculture/disturbed soils & rapidly destabilized ecosystems, etc.

Acceptance of global pandemic of AIDS as “normal” & expansion of MDRTB.

Emergence of ‘super bugs’ from medical interventions and factory farming.



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*Considering this information may well encourage
us to rethink the*

Implicit Theories in our Ethical Discourse

Our (common) Theory of **Community**

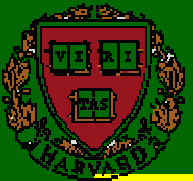
Our (common) Theory of **System**

Our (common) Theory of **Authority**

Our (common) Theory of **Change**

Our (common) Theory of **Agency**

Our (common) Theory of **Time**



The Upland Plover

“...just now back from the
Argentina.”

“The county records may
allege that you own this
pasture, but the plover airily
rules out such trivial legalities.
He has just flown 4,000 miles
to reassert the title he got from
the Indians.”



The Upland Plover

“...to prove again the age-old
unity of the Americas.”

“Hemisphere solidarity is new
among statesmen, but not
among the feathered navies of
the sky.”



The Upland Plover

“There was a time, in the early 1900s, when Wisconsin farms nearly lost their immemorial time piece...”



The Upland Plover

“Universal gunpowder plus the lure of plover-on-toast for post-Victorian banquets had taken too great a toll.”

“The belated protection of the *Federal Migratory Bird Laws* came just in time.”



The Upland Plover

“Hemisphere solidarity is new among statesmen, but not among the feathered navies of the sky.”

...Let's travel, for a moment, with the *'feathered navies of the sky.'*



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"Fresh fears on global warming," BBC News Online, (12 September 2006).



Click Controls to Pause, Start, or Stop









"Frozen Micro-Organism Raises Hopes of Martian Life,"
WBUR - On Point, (24 February 2005).





H5N1 Among Migrating Birds

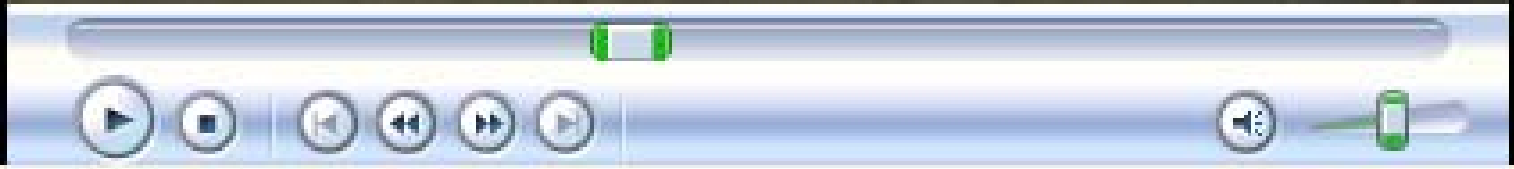
"Humans catch Bird Flu in Turkey," *BBC News - News Hour*, (8 January 2006 20:00 GMT).

"Bird Flu - Turkey," *BBC - The World Today Select*, (12 January 2006).

"UN urges Nigeria bird flu action," *BBC News Online*, (11 February 2006, 02:17 GMT Saturday)

"Bird Flu Fears Hit Europe," *CBS News Online*, (21 February 2006).

"Bird flu fears grip Europe," *BBC News Online*, (19 October 2005).



How bird flu has spread

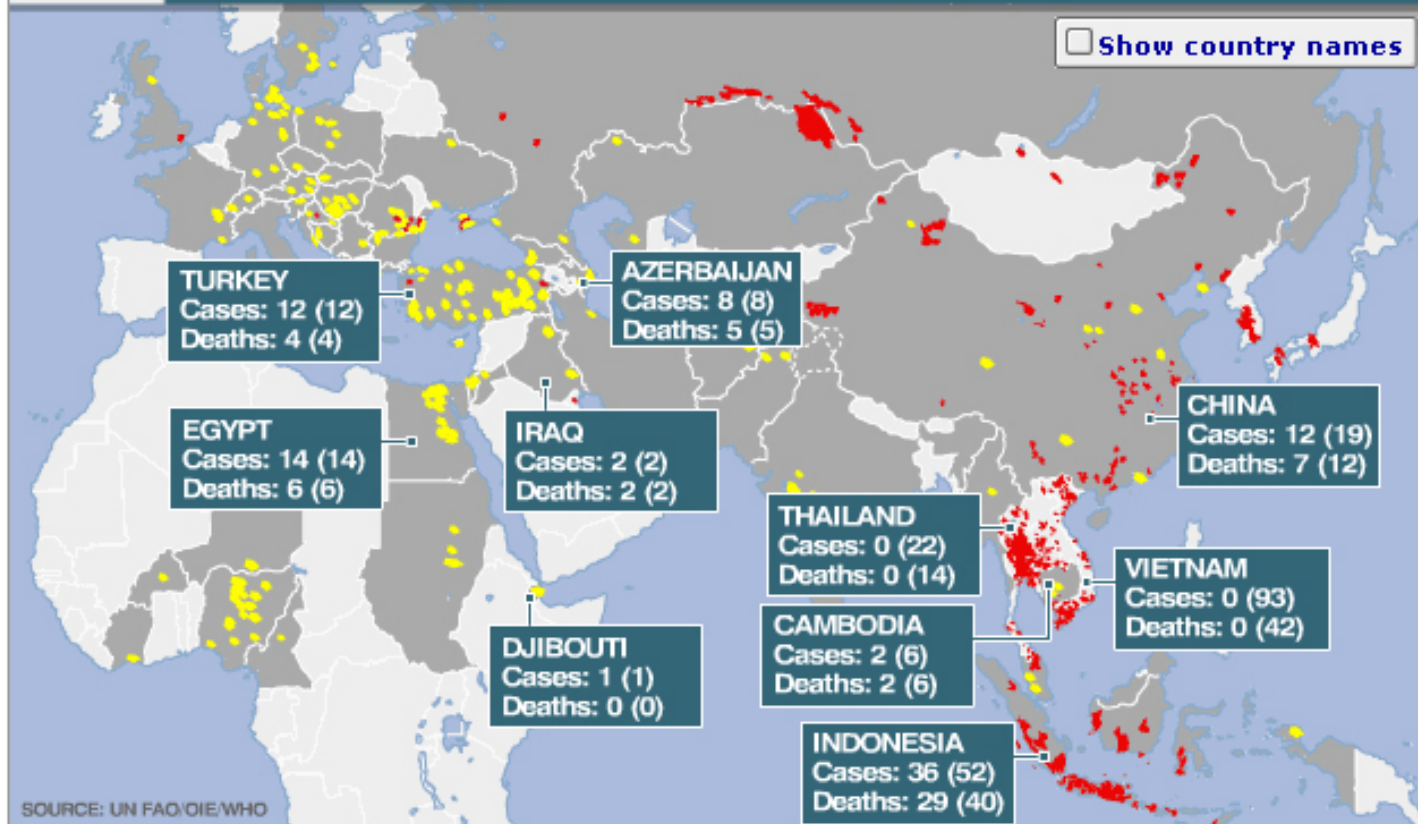


Bird flu outbreaks
 Human cases
 Bird migration zones

Jan-Jun 2004 Jul-Dec 04 Jan-Jun 05 Jul-Dec 05 Jan-Jun 06 Jul-date 06

JAN-JUN 2006
 BIRDS: ■ New cases ■ Previous cases
 No of new cases
 1-100 101-250 >250

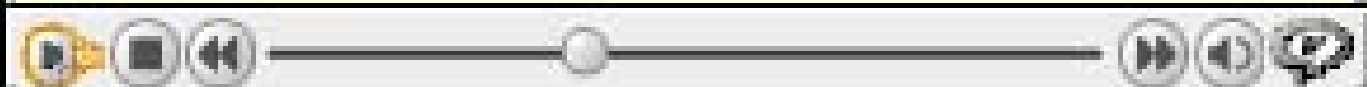
HUMANS: (Cumulative totals in brackets) Cases 87 (229) Deaths 55 (131)



"World 'not ready' for bird flu pandemic,"
BBC News Online, (13 October 2005).

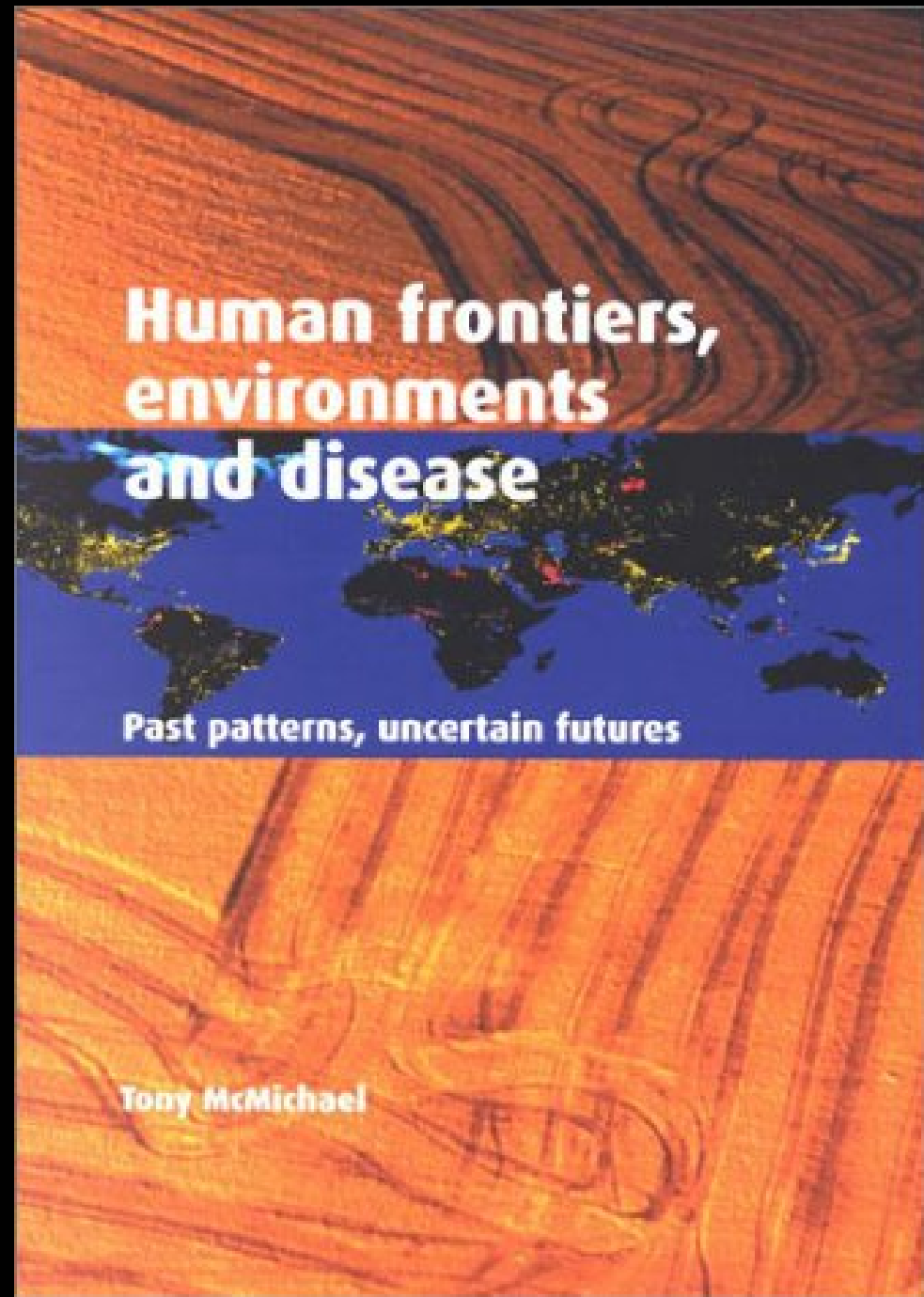


225.0 Kbps



Global Changes and Public Health

- Animal and Wildlife Diseases that can “jump”
 - Hong Kong Flu
H5N1



But Did H5N1 Emerge among Wild fowl?

H5N1 Among Hong Kong Chickens – 1997

Matt Frei

"Dec 1997: Hong Kong slaughters chickens," *BBC News Online*, (December 2006).

"Hong Kong / Avian Flu," *ABC Evening News*, (26 December 1997).



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EDITORS' BLOG

Last Updated: Tuesday, 29 June, 2004, 09:12 GMT 10:12 UK

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Bird flu is becoming more lethal

By Richard Black
BBC World Service science correspondent

A new study suggests that bird flu is becoming more dangerous each year.

Scientists in China and the US injected mice with samples of avian flu virus which emerged in different years.

They found that the newer forms of the virus kill more rapidly than their predecessors. The fear is that this will increase the risks to humans too.

The researchers, whose work is reported in Proceedings of the National Academy of Sciences, say more action is needed to try to curb the spread of the virus.

Earlier this year a strain of bird flu called H5N1 killed 23 people in east Asia - the most in any year since the strain first emerged seven years ago.



The avian flu virus continues to evolve

“ WHO have not adequately addressed the human/animal interface adequately.”

Professor Robert Webster

Now scientists have found evidence that it is mutating in ways which make it more lethal.

SEE ALSO:

- ▶ Bird flu's 'huge potential risk' 21 Apr 04 | Science/Nature
- ▶ Warning on avian flu vaccination 25 Mar 04 | Health
- ▶ Flu: A warning from history 17 Mar 03 | Health

RELATED INTERNET LINKS:

- ▶ Proceedings of the National Academy of Sciences
- ▶ St Jude Children's Research Hospital
- ▶ Harbin Veterinary Research Institute
- ▶ World Health Organization
- ▶ Food and Agriculture Organization of the UN)

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Avian flu 'discovered in pigs'

Scientists in China say they have discovered a highly virulent strain of bird flu virus in pigs.

An official at the China National Avian Flu Reference Laboratory said the H5N1 virus strain had been found in pigs at several farms in the country.



Thousands of birds have already been infected with avian flu

More than 20 people died and almost 200 million birds were culled during a flu epidemic in Asia earlier this year.

The spread to pigs has yet to be confirmed, but there could be serious implications for human health if it is.

The World Health Organization said that if the pigs were harbouring both bird and human flu viruses, the two strains could interact to create a strain capable of transferring easily to humans.

New development

Chinese scientist Chen Hualan first announced the existence of bird flu in pigs during a conference speech on Friday.

She later told journalists that the virus had been discovered in pigs in south-east China's Fujian province in 2003, and in "another place" in 2004.

SEE ALSO:

- ▶ [Bird flu is becoming more lethal](#)
29 Jun 04 | Health
- ▶ [Ducks blamed for deadly bird flu](#)
07 Jul 04 | Health
- ▶ [Bird flu's 'huge potential risk'](#)
21 Apr 04 | Science/Nature
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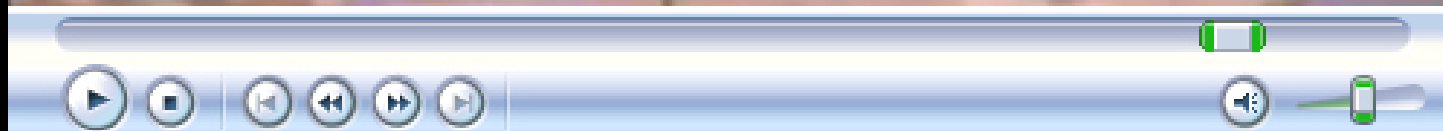
Why we
should
care
about
this...

“The single biggest threat to man’s continued dominance on the planet is the virus.”

**—Joshua Lederberg, Ph.D
Nobel laureate**



Health Problems in Wake of Katrina - CNN - 30 August 2005



Calcutta, India



West warned on climate refugees



Bangladesh: One of the most crowded countries in the world

By Alex Kirby, BBC News Online Environment Correspondent and presenter of Costing the Earth

The Bangladeshi Environment Minister, Mrs Sajeeda Choudhury, has said that if climate change causes sea levels to rise in line with scientific predictions, her country will have millions of homeless people.

And she said the rich world would have to find room for them.

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'Ignore global warming hype' says scientist
- ▶ [04 Nov 99 | Sci/Tech](#)
Deadline for global warming deal

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Thursday, 22 March, 2001, 00:00 GMT

World warned on water refugees

Developing countries facing water shortages by 2025



By BBC News Online's environment correspondent Alex Kirby

Two people in three across the world will face water shortages by 2025, a UK charity claims.

Many of these people will be forced from their homes to seek clean water supplies elsewhere, according to the charity, Tearfund, a relief and development agency.

It says global water consumption rose more than twice as fast as world population over the last century.

And dwindling water resources could make food supplies prohibitively expensive for more than a billion people.



People will be forced from their homes to seek water

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WORLD WATER CRISIS
 IN DEPTH

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BBC News Online's Alex Kirby reports
 'Already the charity claims the scale of water shortage is alarming'
 real **28k**

Andy Atkins, Tearfund
 'It is tragic if it carries on this way'
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The BBC's Mike Wooldridge, in Delhi
 '80 per cent of disease and death across the developing world is to do with the absence of safe water'
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Pim Martens and Anthony J. McMichael

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Paul Epstein, *“Is Global
Warming Harmful to Health?”*

- Malaria - Kenya
- Dengue fever
- West Nile Virus

Calcutta, India



TheObserver International

World

Now the Pentagon tells Bush: climate change will destroy us

- Secret report warns of rioting and nuclear war
- Britain will be 'Siberian' in less than 20 years
- Threat to the world is greater than terrorism



Mark Townsend and Paul Harris in New York
Sunday February 22, 2004

[The Observer](#)

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Climate change over the next 20 years could result in a global catastrophe costing millions of lives in wars and natural disasters..

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A secret report, suppressed by US defence chiefs and obtained by The Observer, warns that major European cities will be sunk beneath rising seas as Britain is plunged into a 'Siberian' climate by 2020. Nuclear conflict, mega-droughts, famine and widespread rioting will erupt across the world.

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The document predicts that abrupt climate change could bring the planet to the edge of anarchy as countries develop a nuclear threat to defend and secure dwindling food, water and energy supplies. The threat to global stability vastly eclipses that of terrorism, say the few experts privy to its contents.

The Observer

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Pentagon report warns climate change may bring famine, war

Agence France-Press

London, February 23

A secret report prepared by the Pentagon warns that climate change may lead to global catastrophe costing millions of lives and is a far greater threat than terrorism, *The Observer* said on Sunday.

The report was ordered by an influential US Pentagon advisor but was covered up by "US defence chiefs" for four months, until it was "obtained" by the British weekly.

The leak promises to draw angry attention to US environmental and military policies, following Washington's rejection of the Kyoto Protocol on climate change and President George W Bush's scepticism about global warming -- a stance that has stunned scientists worldwide.

The Pentagon report, commissioned by Andrew Marshall, predicted that "abrupt climate change could bring the planet to the edge of anarchy as countries develop a nuclear threat to defend and secure dwindling food, water and energy supplies," *The Observer* reported.

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Secretive Pentagon report forecasts climate wars

BROOKLIN: Growing scientific evidence of faster than imagined climate change means the United States needs to begin planning how to repel waves of hungry environmental refugees from Mexico, South America and the Caribbean, according to a Pentagon report.

More intense storms, flooding, and rising seas, along with longer periods of drought in Africa and Asia, are likely to result in the eruption of desperate, all-out wars over food, water and energy supplies, says the study, reported by US business magazine 'Fortune' in January.

The Pentagon provided Fortune the previously unreleased report in what commentators see as an effort to get the US business community to take more seriously the threats posed by climate change.

Climate change has long been associated with slow gradual changes over 50 or 100 years. But increasing evidence has emerged that the climate in a large region could change abruptly.

Material found in ice cores in the Arctic and other regions demonstrates that a region's climate can change dramatically in just a few years, says Raymond Schmitt, a senior scientist at the Woods Hole Oceanographic Institution in the US state of Massachusetts.

Such an abrupt shift occurred 1,200 years ago in the



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CLIMATE CHANGE

Leaked Pentagon report warns of global disaster

Posted: 6:49 AM (Manila Time) | Feb. 23, 2004
Agence France-Presse

LONDON -- A secret report prepared by the Pentagon warns that climate change may lead to global catastrophe costing millions of lives and is a far greater risk than terrorism, The Observer said on Sunday.

The report was ordered by an influential US Pentagon advisor but was covered up by "US defense chiefs" for four months, until it was "obtained" by the British weekly.



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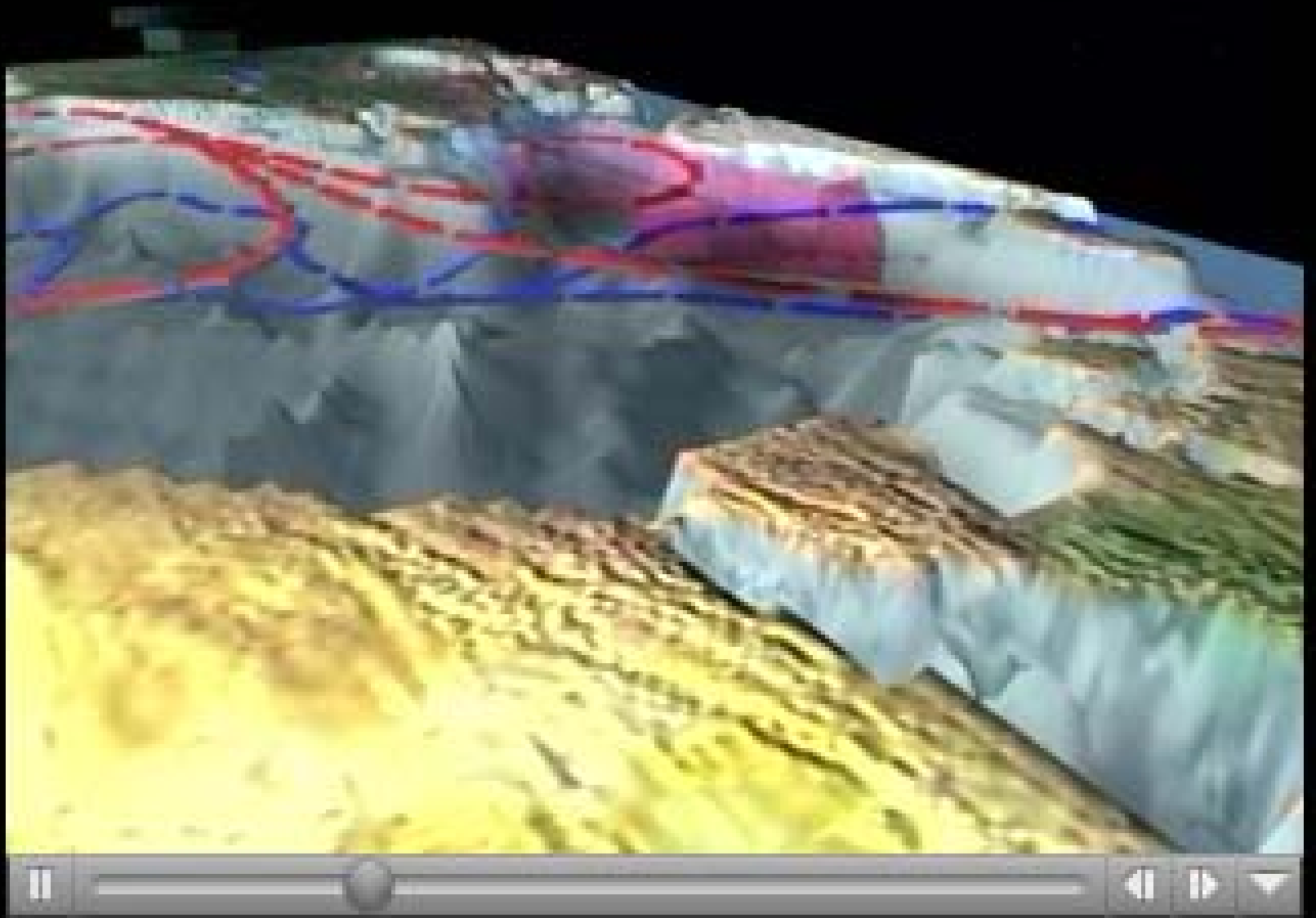
[Haiti rebels occupy second largest city](#)

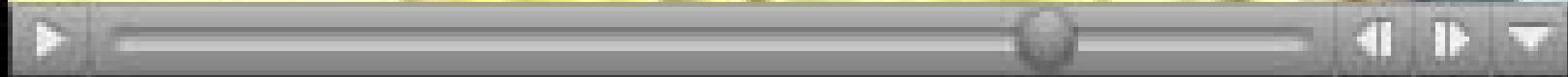
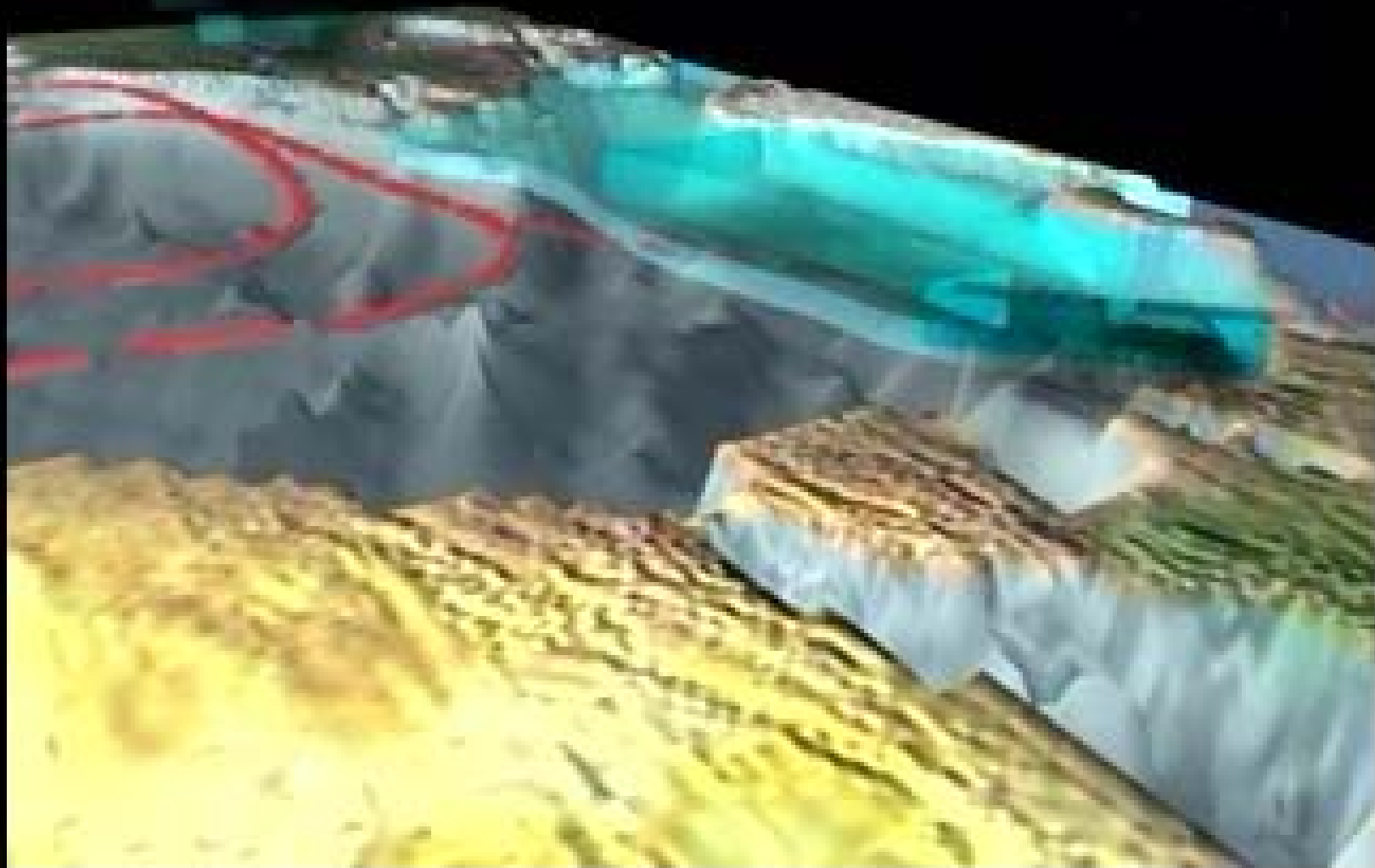
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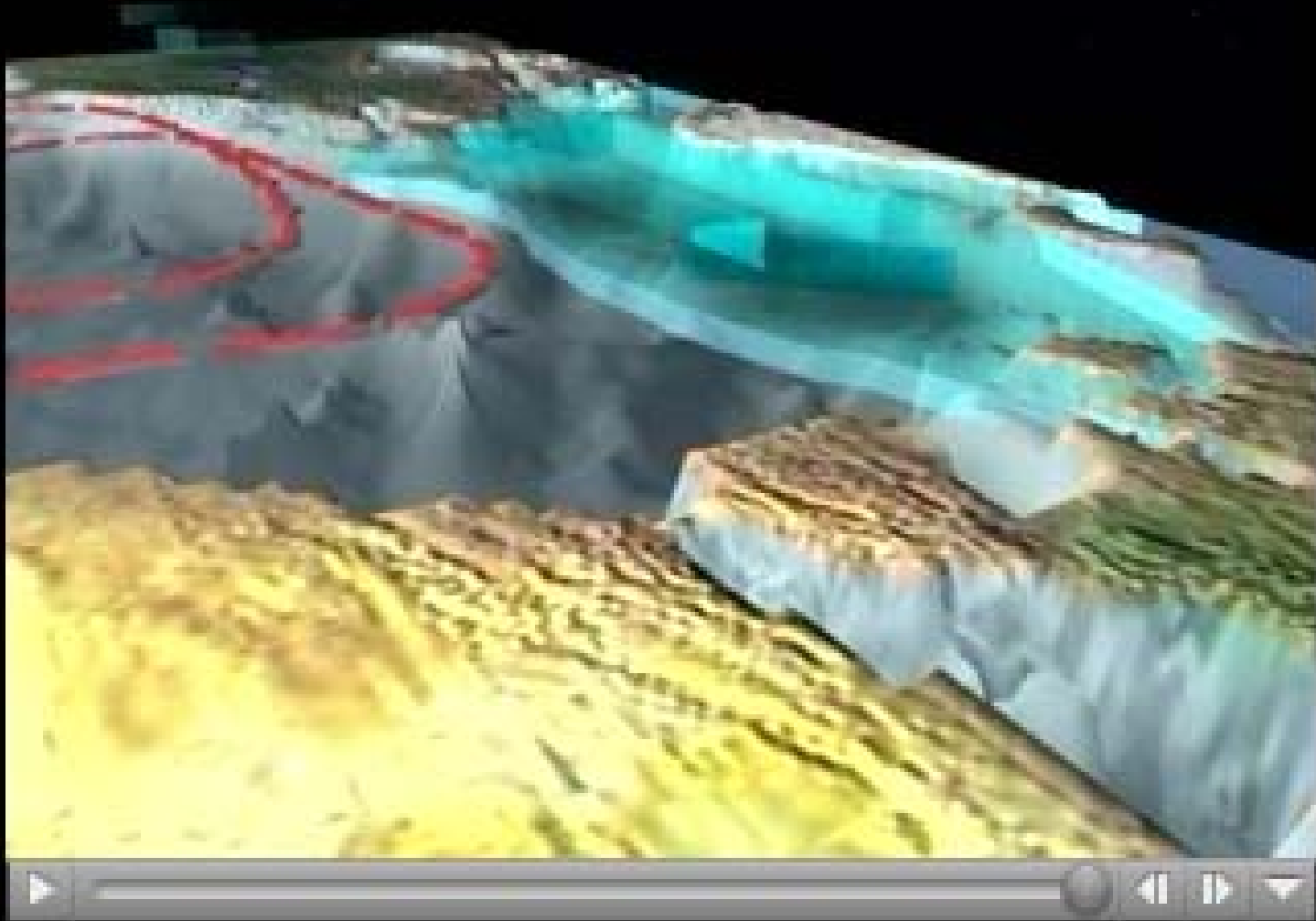
[Armed rebels take control of Haiti's 2nd](#)



Animation: A simplified model of global ocean circulation] Abrupt Climate Change
from: "Abrupt Climate Change: Should We Be Worried? - Prepared for a panel on abrupt climate change at the World Economic Forum Davos, Switzerland, January 27, 2003," Ocean and Climate Change Institution - Woods Hole Oceanographic Institution, (27 January 2003)







Animation: "If too much fresh water enters the North Atlantic..." Abrupt Climate Change: Should We Be Worried? - Prepared for a panel on abrupt climate change at the World Economic Forum Davos, Switzerland, January 27, 2003," Ocean and Climate Change Institution - Woods Hole Oceanographic Institution., (27 January 2003).

An Abrupt Climate Change Scenario and Its Implications for United States National Security
October 2003

By Peter Schwartz and Doug Randall

Imagining the Unthinkable

The purpose of this report is to imagine the unthinkable – to push the boundaries of current research on climate change so we may better understand the potential implications on United States national security.

We have interviewed leading climate change scientists, conducted additional research, and reviewed several iterations of the scenario with these experts. The scientists support this project, but caution that the scenario depicted is extreme in two fundamental ways. First, they suggest the occurrences we outline would most likely happen in a few regions, rather than on globally. Second, they say the magnitude of the event may be considerably smaller.

We have created a climate change scenario that although not the most likely, is plausible, and would challenge United States national security in ways that should be considered immediately.

Executive Summary





Global Dimming?



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- Resurgent Tuberculosis

- Russia faces TB time bomb*

- *Eastern Europe*

- *TB: The Other Global Epidemic*

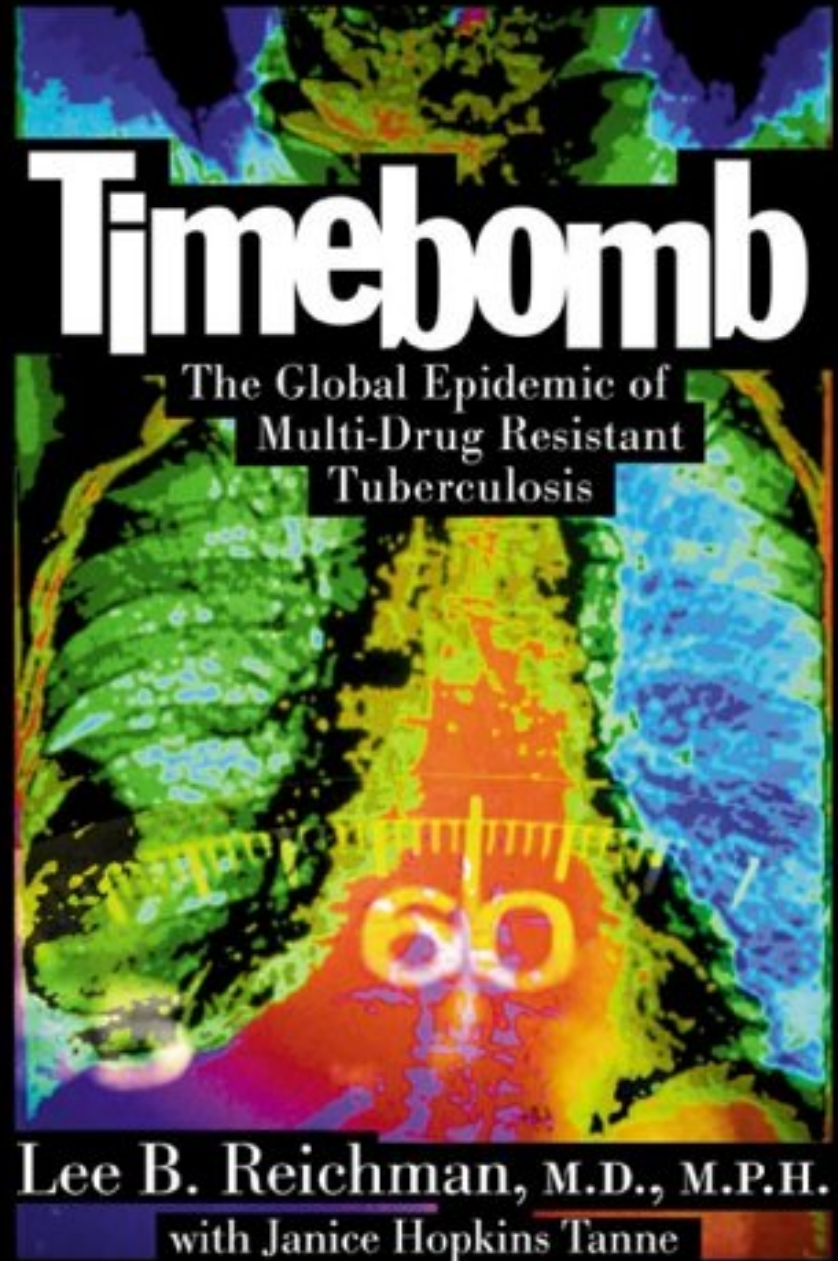
- *Drug Resistant TB*

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- *Cholera*

- *Drug Resistant forms of Cholera*

- *Malaria*



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Land Management and Public Health

Timothy C. Weiskel

Session 11
7 December 2006

Harvard University Extension School
Fall Semester 2006

