

Global Environmental Monitoring and Intelligence



Anticipating Environmental Security Breakdowns that Threaten Security and Shape Operating Environments

Presented by

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IHS Jane's

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Agenda

- **An Introduction to the problem of “Environmental Security” and IHS Jane’s / Marstel-Day**
- **Bounding Environmental Security**
- **Is environmental strain and climate change a security issue?**
- **How do environmental breakdowns shape security and military challenges?**
- **Case Studies**
- **Environmental Security and Ports**

Section One

AN INTRODUCTION TO ENVIRONMENTAL SECURITY

Environmental Security Breakdowns and Security Planning



Problem

- *Environmental breakdowns increasingly are (and will continue to) generating strategic, operational and procurement challenges to which security professionals, law enforcement and militaries will have to respond*



Upside

- *Many environmental security breakdowns can be forecasted, their dynamics tracked, and their likely consequences factored into security planning to address contingencies or to shape strategic and operational opportunities*



Downside

- *Real and potential environmental security breakdowns exist in just about every geography—including the Americas—but the capability to track, analyze and forecast is not consistently held throughout the world*

Monitor, Analyze, Alert, Assist: The Marstel-Day/IHS Jane's Partnership

Marstel-Day, LLC

- **Environmental expertise and analysis** on issues that affect strategic planning and operations

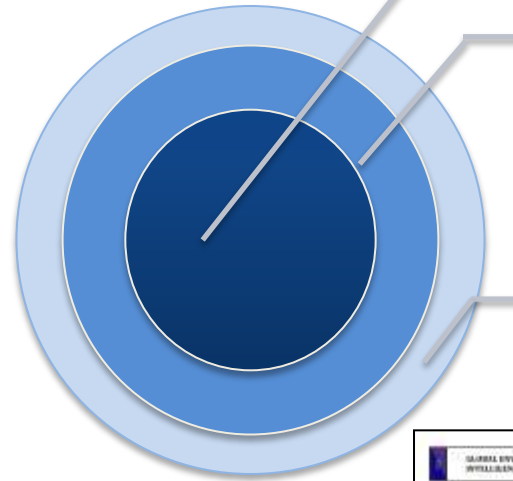
IHS Jane's

- **Global Presence and Expert Network (JEN):** Global open source intelligence collection network

Partnership

- Dedicated environmental monitoring and analysis with a regional perspective
- **Tailored Products:** Indicator & warning tracking, quick hitter analysis, country/regional studies, over-the-horizon forecasting
- **Services:** Advisory services and consulting, with a focus on gaining in-country insights

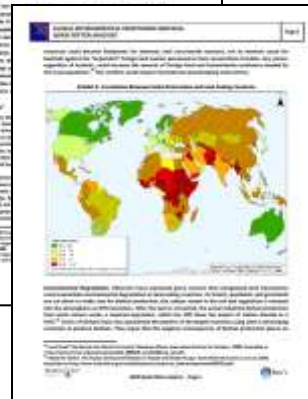
JEN Around the World



Core Network: Contributors used on a regular or retainer basis to gather and analyze information on particular issues or countries/regions.

Extended Network: Experts used less frequently to fill gaps in research and analysis on highly-specific areas of interest.

Network of Networks: Networks of our core and extended group of contributors to augment analysis with a range of multi-disciplinary perspectives



Section Two

WHAT IS ENVIRONMENTAL SECURITY

What is Environmental Security?

Environmental Security refers to the security and stability challenges associated with Climate Change, Resource and Natural Security and Environmental Strain and Degradation

Climate Change

- Rising sea-levels
- Extreme drought
- More frequent heat waves
- Flooding
- Wildfires
- Coastal Erosion
- Ocean acidification, changing currents, et al
- Extreme weather events

Resource and Natural Security

- Resource scarcity and competition
- Water
- Food
- Arable Land
- Power
- Energy
- Minerals

Environmental Strain and Degradation

- Decaying environmental infrastructure
- Contamination / pollution of air, water, soil and other resources
- Abuse / over-use of a resource base, such as deforestation and overfishing

What is an Environmental Security Breakdown?

Water Scarcity

- Overuse and contamination
- Changing weather patterns and glacial melting to cause permanent reduction in access to fresh water

Food Scarcity

- Loss of productivity of land resources due to overuse
- Lack of access to water
- Changing precipitation patterns and extreme weather (drought/floods)

Pollution and Degradation

- Contamination/degraded quality of air, water, soil and other resources
- Abuse/overuse of resource base (e.g., deforestation, overfishing)

Displacement of People

- Lack of access to sustainable resources
- Extreme weather and natural disasters
- Sea level rise

Changes to Operating Conditions

- Ocean acidification
- Changing physical impacts to infrastructure
- Opening of new regions (e.g., Arctic, Russian Far East)

Security – Focused Contingencies

- *Competition for scarce resources that leads to conflict*
- *Human migrations that destabilize regions and states*
- *Political unrest that challenges the legitimacy of governments*
- *Failing states*
- *Exploitation by outside forces*
- *Famines, epidemics, civil wars, genocides*
- *Cross-border effects that threaten war*
- *Natural and man-made catastrophes*
- *Shifting operational realities driving new procurement priorities*

Section Three

IS THIS REALLY A SECURITY PROBLEM?

Environmental Security Concerns and Security and Stability

The effects of climate change and environmental strain and degradation are a growing preoccupation of national / homeland security planners as well as defense, intelligence, law enforcement, and procurement communities throughout the world

Climate Change and Security

“The menaces from climate change cause growing concern. There is a global security implication of climate change.”
Secretary of the United States Navy, Ray Mabus

Water Scarcity and Conflict

“Water-scarcity threatens economic and social gains and is a potential fuel for war and conflict.”
Ban Ki-moon, UN Secretary-General

Climate Change and Conflict

“I think it is inevitable that wars and conflicts will happen (as a result of climate change).” —
Michael Klare, author of *Resource Wars and Rising Powers, Shrinking Planet*

National Security Planning Guidance Acknowledge Climate Change as Factor Shaping the Strategic/Operating Environment

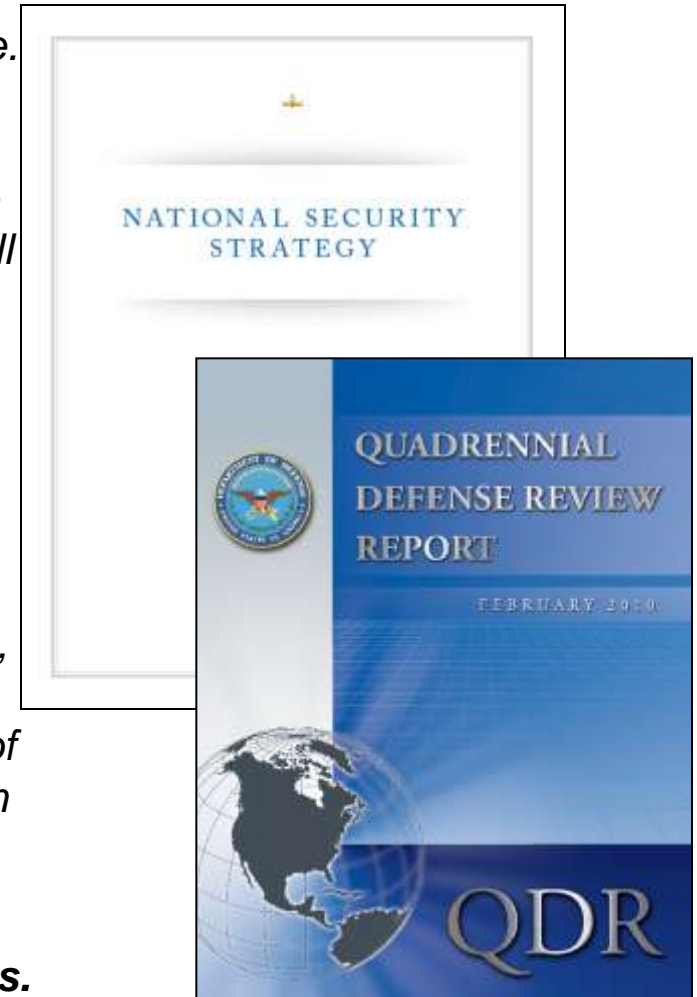
National Security Strategy (May 2010)

The danger from climate change is real, urgent, and severe. The change wrought by a warming planet will lead to new conflicts over refugees and resources; new suffering from drought and famine; catastrophic natural disasters; and the degradation of land across the globe. The United States will therefore confront climate change based upon clear guidance from the science, and in cooperation with all nations . . .

Quadrennial Defense Review (February 2010)

Climate change will affect DoD in two broad ways. First, climate change will shape the operating environment, roles, and missions that we undertake. . . While climate change alone does not cause conflict, it may act as an accelerant of instability or conflict, placing a burden to respond on civilian institutions and militaries around the world. . .

Second, DoD will need to adjust to the impacts of climate change on our facilities and military capabilities.



National Security Planning Guidance Acknowledge Climate Change as Factor Shaping the Strategic/Operating Environment

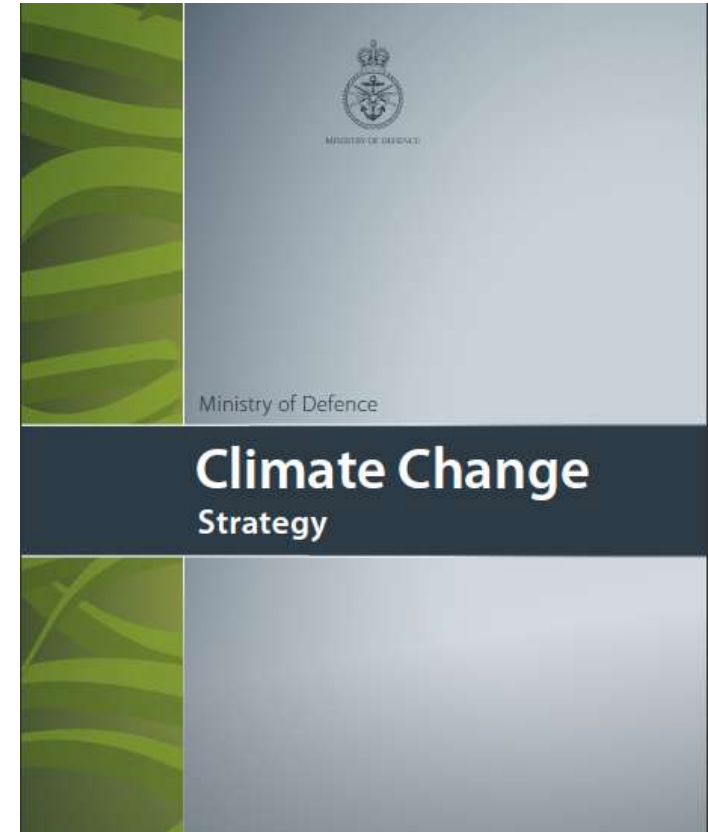
UK Ministry of Defence Climate Change Strategy (2009)

The impacts from Climate Change will be felt worldwide, and are likely to act as an amplifier of instability, posing a threat to Global security. This means we in Defence must ensure we build adaptive capacity into policy planning, equipment, and estate in preparation for the impacts of a changing climate

The UK and its dependencies will not be immune to the effects of climate change and the need for MOD assistance in dealing with extreme events in the UK (such as the floods in July 2007) is likely to increase

UK National Security Strategy (2008)

Climate Change is potentially the greatest challenge to global stability and security and therefore to national security



Section Four

HOW DOES THIS SHAPE SECURITY CHALLENGES?

The Broad Effects of Climate Change on Security



Threat Multiplier / Intensifier / Amplifier

- Environmental issues intersect with existing societal tensions to create new or intensified threats to local security environments



Installations and Readiness

- Climate change and environmental strain are a direct threat to fixed installations and infrastructure and to the operational readiness of military and security forces and equipment



The "News": Procurements, Missions, Targets

- Changing operational environments, particularly maritime environments will create a series of new capability requirements, missions, CONOPS and doctrines for security planners



New Competitions

Climate change and environmental and natural security are creating new theaters for competition

The Temporal Element

Time Frame	Intensifier / Accelerator	Installations and Readiness	The “News”	Strategic Competitions
Now				
Short-Term (0-5 years)				
Medium-Term (5 – 30)				
Long-Term (plus 30)				

Three key take-aways on time:

1. We are already seeing a range of security implications due to climate change and environmental strain / degradation
2. Effects will grow worse with time
3. The most intense effects will be felt in 15+ years (in many cases much longer than that), but for security and military planners to deal with these effects, decisions must be made in the short-term

Intensifier / Amplifier of Tension and Conflict

“The impacts of Climate Change will be felt worldwide, and are likely to act as **an amplifier** of instability, posing a threat to Global security.”—UK MOD Climate Change Strategy

“While climate change alone does not cause conflict, it may act as **an accelerant** of instability or conflict, placing a burden on civilian institutions around the world.”—US DOD Quadrennial Defense Review, February 2010

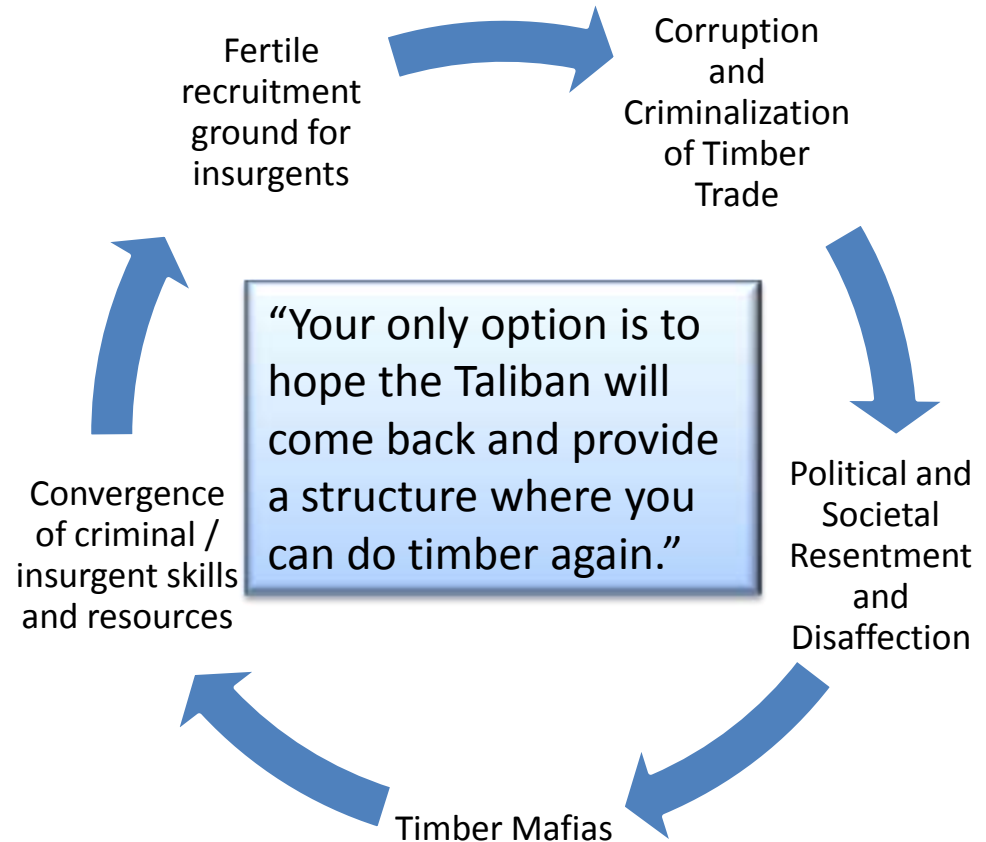
“Climate Change will have wide-ranging implications for the United States over the next 20 years. This is because it will aggravate existing problems such as poverty tensions, environmental degradation, ineffectual leadership, and weakened political institutions that threaten state stability.”—Major General Richard Engel, Director, Climate Change and State Stability Program, Office of the Director of National Intelligence

The intersection of environmental breakdowns with existing political and societal tensions, bad governance, economic challenges, cultural differences, demographic shifts, and, in some cases, active conflicts will intensify, accelerate and amplify instability and insecurity

Case Study: Deforestation in Afghanistan

The conflict in Afghanistan is being deeply affected by a whole range of environmental security issues, including water scarcity and, most notably, deforestation, which has created a series of cascading, complex, and connected challenges for ISAF forces.

These environmental issues are creating challenges that effect the strategic military and operational environment on the ground



Case Study: Dislocation in South Asia and the South Pacific

The Southwest Pacific and Other Islands in Jeopardy

- **The Carteret Islands** (right / top): Over 1,500 “Climate Change refugees” from PNG
- **Bhola Island** (right / bottom): Bangladesh’s largest island; about 500,000 refugees.
- Other islands in jeopardy of being over-run by rising sea levels / sinking atolls:
 - Tuvalu
 - Kiribati
 - **The Maldives**
 - Lamu and Pate, off the coast of Kenya
 - Key West, USA



Horizon Scanning: The Next Darfur?

Environmental security's most profound effects in the near-to-medium term future are to create new and daunting security challenges and to destabilize states and societies

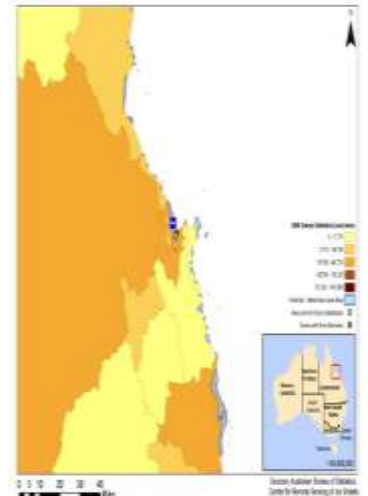
- Resource Scarcity, Competition and Unrest
 - Water
 - Power
 - Food
 - Arable Land



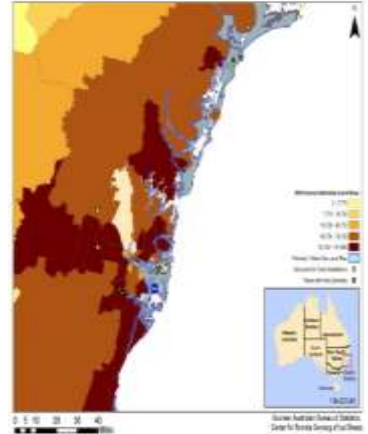
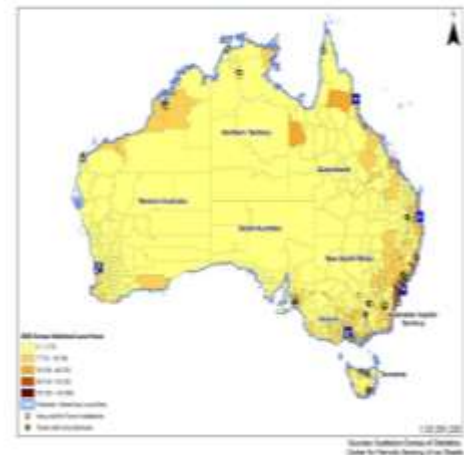
Installations and Readiness: Australia's Sea-Level Rise Challenge

- Australian government is studying impacts of Climate Change
 - October 2009: Parliament's Standing Committee on Climate Change, Water, Environment and the Arts "Managing our Coastal Zone in a Changing Climate"
 - November 2009: Department of Climate Change: Climate Change Risks to Australia's Coast"
- Both studies underscore that the impact of sea-level rise will be manifold and cost billions of Australian dollars:
 - Affecting Australia's growing coastal population
 - Imposing adaptation costs on many economic sectors
 - Threatening the viability of energy, water, and sanitation infrastructure;
 - And diminishing the ADF's military infrastructure and readiness

GRAPHIC 2: VIEW OF AREAS AFFECTED BY SEA LEVEL RISE AROUND CARRIS AND SYDNEY



GRAPHIC 3: AUSTRALIA'S POPULATION DENSITY, MILITARY INSTALLATIONS, AND MAJOR AIRPORTS, OVERLAIN WITH AREAS AFFECTED BY A 3-METER SEA LEVEL RISE



“The News”: Missions, Procurement, Testing, Evaluation

- New Missions
 - New Coast Guard Missions in Arctic: Evacuating villages (Newtok, Shishmaref, Kivalina)
 - HADR
 - Coastline and EEZ protection
- New missions, being carried out in new, harsher, less optimal environments, will create new requirements for:
 - Security-related equipment;
 - Testing and evaluation of this equipment;
 - Training
 - Concepts of operations for utilizing this equipment
- There are a range of both sub-sea and surface effects of climate change that will be directly relevant to port and coastal security:
 - Changing water densities due to ice-melt (increased densities in the tropics, decrease in northern latitudes)
 - Ocean acidification
 - Water salinity
 - Changing currents (beyond 30 years)
 - More frequent weather events
- These changes will affect sonar, buoyancy, maintenance, operational readiness, and training

Changing operational environments, particularly maritime environments, will create new requirements for procurement, maintenance, testing, and evaluation of security equipment and complicate security challenges. It may also create opportunities for forward-thinking security organizations

New Strategic Theaters

The Arctic

- Posturing has already begun for five states:
 - Canada
 - Russia
 - US
 - Denmark
 - Norway
- New sea-lanes have definite impact on current port operations and plausibly security
- Global knock-on effects
- Afghanistan
 - New minerals will create a new Central Asian strategic competition



Section Five

THE ENVIRONMENT AND PORTS SECURITY

Regional Environmental Issues

North America

- The Arctic
- Intersection of precipitation, evaporation, temperature change, and El Nino / La Nina likely to create more intense weather events
- Ocean acidification, coastal erosion
- Lots of uncertainty about future environmental challenges

Central and South America

- Increase in wildfires
- Wetting along tropical Pacific and Atlantic coasts and in Southern Chile
- Increased drought and risk of desertification in Central America
- Increased precipitation along the equatorial Pacific Coast and Southern Brazil, Uruguay, and northern Argentina
- Erosion, salt-water intrusion, flooding and damage from storm surges
- Observed sea-level rise, which to date outpaces most projections

Implications for Ports

Outside the Fence-Line

- Environmental breakdowns accelerate societal instability and intensify outside the fence-line threats, such as criminal and militant behavior
- Population movements

Installations and Infrastructure

- Degradation of installations and infrastructure pose a direct threat to facility and operations security
- Must plan now for building and securing infrastructure that is resilient to the challenges created by

Equipment and Environments

- New dimensions demand new maps (and new missions and new equipment that is capable of ensuring security in a changing operational environment)

Intelligence: Monitoring global environmental events and identifying key vulnerabilities is essential to meeting the security challenges resulting from environmental breakdown

Global Environmental Monitoring and Intelligence

Questions

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