

Environmental Security and Regional Cooperation

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Comprehensive Security

Traditional Security

Promotion of security after the cold war
Territorial & Military Security



Nontraditional Security

Unconventional & Non-military threats at
sub-national, inter- & intra-state levels

Diversification of Actors

Diversification of Issues

Whom?

→ Security of What and by

Nontraditional Security

. Nontraditional (nonconventional) threats can originate from a variety of non-state human and natural causes, and they can affect both government institutions and civilian populations.
(by John Bailey)

(1) Natural disasters

(primarily regional-level problems with national and international consequences.)

- *Weather-related:* hurricane, flood, drought, increased risks of forest fires
- *Geophysical:* earthquake, tidal wave, volcano eruption, avalanche, mudslide
- *Disease-related:* existing threats by HIV/AIDS and tuberculosis; potential threats by cholera, influenza, SARS, etc.,

Nontraditional Security

(2) Essential Resources/Economic Conditions (affecting basic economic functioning.)

- *Energy*: secure access to petroleum and natural gas reserves
(protection of extraction and production facilities, pipelines);
- *Water*: frictions over fresh water – access to clean water, water pollution
- *Poverty, unemployment, inequality*:
absolute poverty, income divide
- *Communications infrastructure*:
digital divide

Nontraditional Security

(3) Crime, Terrorism and Regional Rebellion

(Intentional threats by human agents.)

- *Diffuse criminality*: violent crime (e.g., homicide, kidnapping, assault);
nonviolent crime (e.g., corruption, tax and regulatory evasion, illegal migration)
- *Impunity*: corruption and/or ineffectiveness of police and justice administration
- *Organized crime*: some forms, e.g., trafficking in illegal drugs, weapons and migrants, as well as document counterfeiting, money laundering and kidnapping (essentially law enforcement issues)
- *Terrorism*: groups that are ideologically, religiously, or culturally motivated to inflict large-scale death and destruction upon diverse targets.
- *Regional rebellion*: ethopolitical conflict
→ humanitarian consequences – complex emergencies

Nontraditional Security

Human Security

- : threat to individual sovereignty
problems of political instability, economic equality, environmental Degradation, and insurgencies
- : Freedom from Fear – Responsibility to Protect
- Freedom from Want – Millennium Development Goal

How to protect Vulnerable Groups in Complex Emergencies

Nontraditional Security

Human Security

Elements
1994)

(UNDP

- 1) **economic security** (e.g., freedom from poverty)
- 2) **food security** (e.g. access to food)
- 3) **health security** (e.g. access to health care and protection from diseases)
- 4) **environmental security** (e.g. protection from such dangers as environmental pollution and depletion)
- 5) **personal security** (e.g. physical safety from such things as torture, war, criminal attacks, domestic violence, drug use, suicide, and even traffic accidents)
- 6) **community security** (e.g., survival of traditional cultures and ethnic groups, and the physical security of these groups)
- 7) **political security** (e.g. enjoyment of civil and political rights, and freedom from political oppression)

Non-Traditional Security in East Asia

- The significance has begun to be recognized in East Asia in promoting regional security
 - ☞ UN indentified human right abuses, poverty, migration, drug & human trafficking, HIV/AIDS, resource scarcity, environmental degradation, and food security issues that affect several states simultaneously within the region
- Issues can complicate interstate relations and cannot be resolved by unilateral efforts (**collective and multilateral cooperation required**)
 1. Shortage of fresh water & food as threat to security in East Asia
 - serious water shortages by 2025 (UN estimate)
 - less water for irrigation → less irrigated land → food shortage (rice)
 2. Marine environmental issues
 - marine pollution, excessive resource exploitation, interstate competition for fish resources
 - affects traditional security

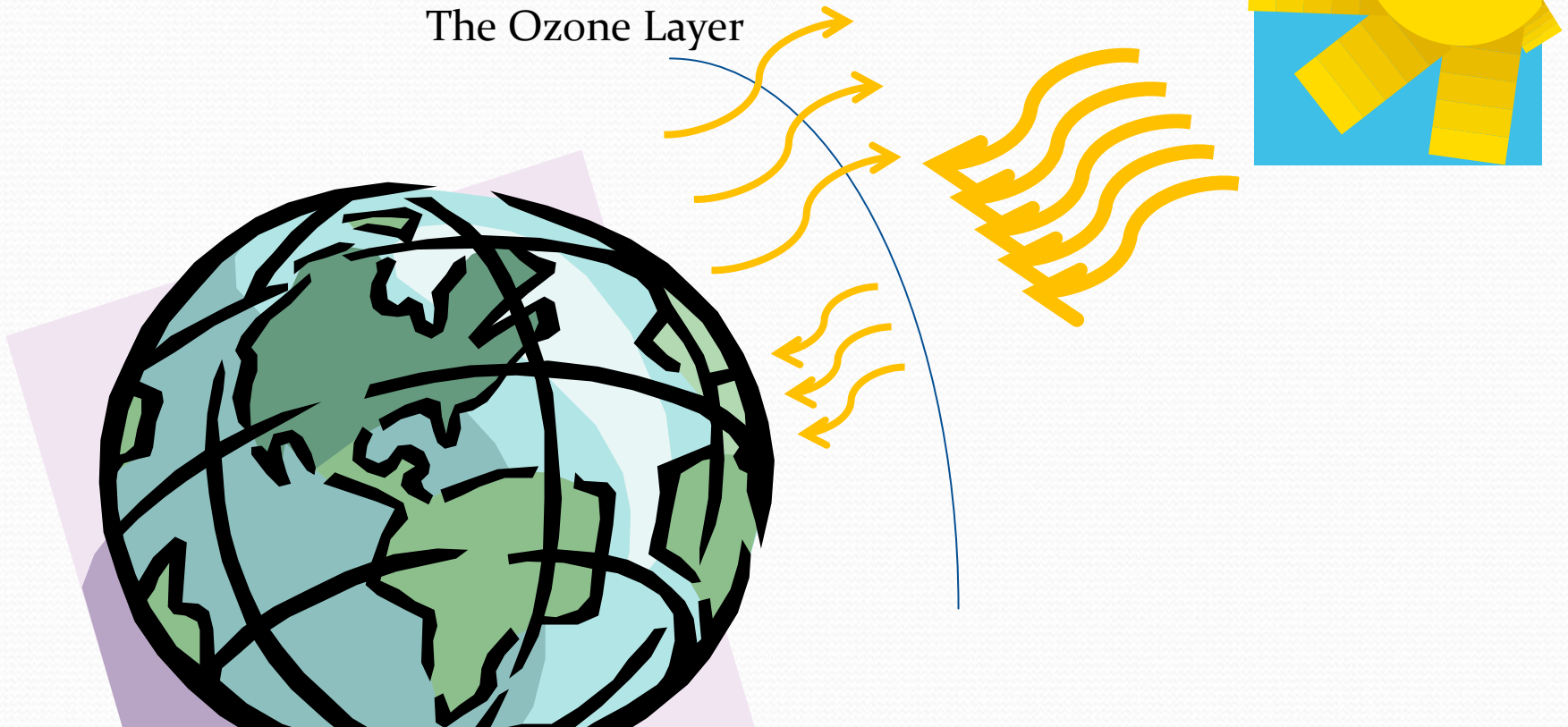
Environmental matters

- Academic vs. Policy communities
 - a) “securitizing” environmental matters
 - b) uncertainty about identifying environmentally induced conflict
 - Environmental cooperation needed to address transboundary and regional environmental problems
 - ☞ Global climate change
 - : increase of greenhouse gases by human activities disrupting atmospheric balances
 - unusual weather events
 - Emission of CO₂ (Ozon gas)
 - China (2nd), Japan (4th), Korea (9th)*
- as of Oct 2007.*

How the Earth manages itself

Absorption = Emission

The Ozone Layer

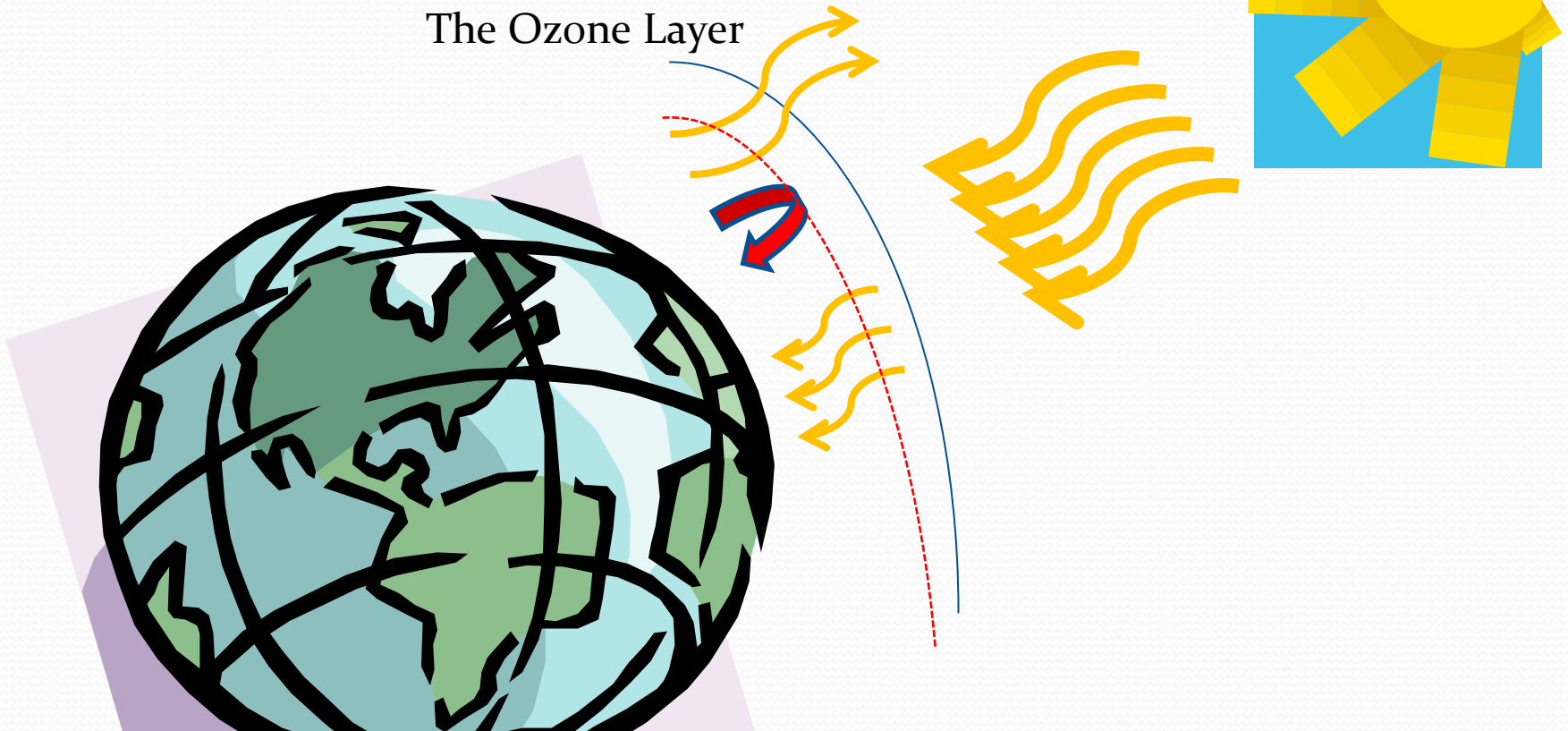


Global Warming

The Green House Effect

CO₂ → Absorption ≠ Emission

The Ozone Layer



Global Warming

- Since year 1860, the temperature of the Earth rose by 0.5-0.7°C annually.
 - ☞ recent years have been the warmest since measurement
- It has been forecasted that it will rise by 0.3°C per decade.
- The ratio of CO₂, which remained to 290 ppm/million for the past 450 thousand years, rose to 370 ppm owing to 7 giga tons of gas emission per year
 - ☞ without counter measures, it will rise to 800-1000 ppm by the end of the 21C

Things that happen

Melt down of glaciers and ice at the pole.



Rise of sea levels.



1. Increased frequency and strength of abnormal weather. More frequent droughts and floods.
2. Vast low lands submerged
3. Change in worldwide distribution of animal and plant species. Some face the danger of extinction.
4. Virulence of new diseases.

Things that happen

- 200m's of the Qori Kalis glacier of Peru is melting every year.
 - ☞ 40 times faster than the year 1978
- Icebergs of the Arctic are melting away.
- Over 100 animal species have been found searching for a place of more lower climate.
- Earlier spring.
 - ☞ rise in temperature of 1 °C will drop 10% of the aggregate production of corn. (Christopher B. Field)

Greenhouse Gas

- Carbon-dioxide gas is believed to be more than half of the reason that causes global warming.
: Carbon dioxide(CO_2), Methane(CH_4), Freon gas(CFC-11 or CFC-12), Nitro(N_2O), Ozone gas(O_3) and etc.



1. Eliminate greenhouse gases in the atmosphere or reduce overall gas emission by decreasing energy use
2. Cooling the Earth : dust and aerosol in the stratosphere stops sun rays, causing the air to cool down(if sufficient); the idea of a plastic barrier in the stratosphere.
3. Forestation : 100-200 km^2 of new forest reduces 1GT of carbon per year(George Woodwell). The current forest ecosystem contains about 430 billion tons of carbon.

Environmental matters

Global Climate Change, Global Warming

El Niño

- causes earth's temperature to rise
- 1990s, warmest decade on record (US National Climate Data Center)
- continued global warming → rise of global sea levels, 15–95cm by 2100
 - threat to low-lying countries, coastal zones, island states
(e.g. Bangladesh, China, Egypt, the Maldives and the Marshall Islands)

La Niña,

subsequent to *El Niño*, cools the Pacific ocean's surface
→ reversal of global or regional climate patterns

Change in International Perception

- George Woodwell, Gordon MacDonald, David Keeling, Roger Revelle reported the Council on Environmental Quality(CEQ) that various activities of human kind is clearly affecting global warming phenomenon. (1979)
- US senator Abraham Ribicoff discusses the matter with Helmut Schmidt, the head of the Bundestag of West Germany at that time, and opens a symposium at the senate.
- While the CEQ and the Environmental Protection Agency was at the center of the debate, **the public actually knew of the matter in 1985.**
→ new scientific discoveries; being selected as an agenda at international conferences and in US Congress.

Change in International Perception

- Since 1972, the US and the Soviet Union have shown moderate progress in cooperating over environmental issues, including climate change.
 - in 1986, US senator Chafee and Gus Speth formed a working group to respond to climate change issues with Yuri Izrael and Alan Hecht of the Soviet Union.
 - in June, the senate requested that the US-Soviet summit put this matter on its agenda.
- **In Washington, December, 1987, Reagan and Gorbachov agreed to promote a common research on climate change.**

Change in International Perception

- The UNEP Governing Council, held in Nairobi, Kenya, state representatives insisted that the UNEP should play a more prominent role in preventing greenhouse effect
↔ other states, including the US, opposed this as an impetuous measure
 - ☞ 1. the council agreed to the secretary-general giving a policy proposal to the council on this matter until 1989.
 - 2. UNEP, together with the WMO, decided to conduct an intergovernmental joint research on climate change. (first meeting in Geneva, 1988)

Efforts by the International Community

- The 1st World Climate Conference (1979)

A basic consensus has been reached on the possibility of climate change caused by human activity and the need for a preventive measure against its negative effects.

- UNEP/WMO/ICSU Joint Conference (1985)

- ▶ Convened in Villach, Austria, between the 9th and 15th of October

- ▶ First conference by scientists on the issue.

- ▶ Scientific verification and agreement on the effects of the increased level of CO₂ and other radioactively active substances in the atmosphere on climate change

- ▶ Warned that the mean temperature of the globe in the century ahead will face an unprecedented rise because of the accumulation of greenhouse gas.

Efforts by the International Community

- UNEP/WMO/ICSU Joint Conference (1985)
 1. ...since the increasing concentrations of greenhouse gases are expected to cause a significant warming of the global climate in the next century. It is a matter of urgency to refine estimates of future climate conditions to improve these decisions.
 2. Climate change and sea level rises due to greenhouse gases are closely linked with other major environmental issues, such as acid deposition and threats to the Earth's ozone shield, mostly due to changes in the composition of the atmosphere by man's activities...
 3. While some warming of climate now appears inevitable due to past actions, the rate and degree of future warming could be profoundly affected by governmental policies on energy conservation, use of fossil fuels, and the emission of some greenhouse gases.

Efforts by the International Community

- Toronto Conference (1988)
 - ▶ First reaction to the call for action from the UN's World Commission on Environment and Development
 - ▶ First meeting to have an inclusive debate on the issue by specialists and high ranking policymakers
 - Over 300 experts from all over the globe by the invitation of the Canadian government
 - Discussion on the threat of climate change and its interpretation. Recognized the need for an immediate measure against greenhouse gas or other substances that induce the reduction of ozone layers, smog, and acid rain.

Efforts by the International Community

- Toronto Conference (1988)
 - ▶ As the climate of the earth is assuming an unexpected aspect of change, appropriate policies should be promptly made and be implemented.
 - ▶ The statement of the conference, drafted by the 12 working groups,
 - a) appealed to reduce the emission of CO₂ down to 50% of current level
 - b) agreed to reduce emission gases to 80% of the amount in 1988 until 2005
 - c) leading industrialized nations should act progressively
 - d) arranged a measure to observe global warming through governmental cooperation

Efforts by the International Community

- Intergovernmental Panel on Climate Change (IPCC)
 - ▶ established by UNEP and WMO on November, 1988
- The 2nd World Climate Conference (Geneva, Swiss, 1990)
 - ▶ on the basis of the IPCC report, members agreed to begin negotiating a World Climate Treaty
 - ▶ UN GA resolution (45/212), December, 1990
 - agreed to hold an Intergovernmental Negotiating Committee (INC) to lay down the treaty until the UN Conference on Environment and Development (UNCED) in 1992
 - ▶ 5 negotiations in adopting the basic agreement and the attached Kyoto Protocol until May, 1992

Efforts by the International Community

- The UNCED (“The Earth Summit”, Rio de Janeiro, Brazil, 1992)
 - ▶ opened the signing of the UN Framework Convention on Climate Change (UNFCCC), of which 155 states participated
 - came into effect in 1994
 - ▶ Convention on Biological Diversity (“The Rio Treaty”) approved
- Conference of the Parties
 - ▶ The 1st conference in Geneva, Swiss, 1995, the parties agreed to set a goal on reducing emissions after 2000 at the 2nd conference
 - ▶ The 2nd conference agreed that legal binding powers should be given
 - following the scientific acknowledgement of effects of human activity
 - on climate change
 - ▶ The 3rd conference issued the monumental “Kyoto Protocol”, which has taken shape from the Rio Treaty

The Kyoto Protocol

- Ratified, accepted, accessed, or approved by 176 states (as of October, 2007)
 - ▶ put in effect from 16th February, 2005, to 2012 (1st commitment period)
Japan, EU, and other countries were subject to the Protocol
- Annex I
 - : a binding reduction goal for advanced nations
if the goal hasn't been reached, the state will be put under restraint
 - ▶ Between 2008-2012, 38 countries concerned should reduce 5.2% of their emission of CO₂, CH₄, N₂O, HFC, PFC, and SF₆ gases on average in contrast to 1990
 - ▶ regarding each states circumstances, 1995 can be set as the basic year

The Kyoto Protocol

- New greenhouse gas reduction measures

“The Tokyo Mechanism”

☞ based on market principles

Article 4: States can fulfill their commitments jointly

1) Joint implementation (article 6)

- ▶ certain portions of reduction made by advanced state A by investing in advanced state B counts as an accomplishment of A

2) Clean Development Mechanism (article 12)

- ▶ reduction made by advanced nation A by investing in developing state B can be counted as an accomplishment of A

3) Emission trading (article 17)

- ▶ allows trading between states their assigned amount of reduction given under an obligation to reduce their greenhouse gas emission

The Kyoto Protocol

- States actively cooperating in their own way
 - ex) England : decided to cut CO₂ emission down to 50% until 2050
- Remaining problems
 - ▶ withdrawal of US and her refusal to carry out the protocol
 - worried about the negative effects to its economy
 - will adopt the new low-carbon technology when invented (Spencer Abraham, Secretary of Energy, US)
 - ▶ Some scientists argue that the current warming is progressing very much slowly then known and humans can't affect it in any way (Patrick J. Michaels and etc.)
 - ▶ Future paths of large developing countries : China & India
 - current : emission per capita is 1/5 of advanced states
 - experts forecasted it will be 2-3 times larger than advanced industrialized states by 2100
 - absence of China and India gives US cause of default

The Kyoto Protocol

- To Solve the Problems
 - ▶ Advanced states should show exemplary conduct
 - ▶ Developing states should be persuaded to adopt new technologies that prevent discharging pollutants

- Corporations are successfully reducing pollutants that contribute to global warming while still making profit
 - ☞ reexamining whether fuel is wasted or leaking
 - BP : reduced emission by 10%, saved 650 million dollars
 - Du Pont : since 1990, reduced gas emissions to 65%, saved few hundred million dollars
 - General Motors : investing millions of dollars to develop hydrogen engines
- Several states are taking up positive attitudes against air-pollutants within the US
 - ☞ regulation over emission started first in individual states, setting up municipal ordinance
 - extension over 10 states helped the US Pollution rules get enacted in 1990

Uncertainties

- How much more will the climate rise?
- How will each area be affected by climate change?
- More frequent flood? Or more draughts?

Political Implications

- Discord among developed and developing states and communities over asymmetric adaptive capacity and damage
- Spill-over effects
 - ▶ climate change impacts spread from directly impacted areas and sectors to other areas and sectors through extensive and complex linkages as well as close territorial borders
 - ▶ possible environmental refugees crossing borders due to loss of habitat or serious food insecurity

Economic Implications

- Crop productivity decreased in seasonally dry & tropical regions, for even small local temperature increases (1-2°C)
 - ▶ increased risk of hunger
- Increases in local average temperature above 3°C decrease potential for global food production
- Increased frequency of droughts and floods will affect local crop production negatively
- Regional changes in the distribution and production of particular fish species
 - ▶ adverse effects on aquaculture and fisheries.

Economic Implications

- Most vulnerable places
 - ▶ Industries, settlements and societies in coastal and river flood plains, economies closely linked with climate-sensitive resources
 - ex) Africa : cost of adaptation could amount to at least 5-10% of GDP; Mangroves and coral reefs to be further degraded, with additional consequences for fisheries and tourism
 - ▶ areas prone to extreme weather events, especially where rapid urbanization is occurring
 - ex) Asia : sustainable development impinged, as climate change compounds the pressures on natural resources and the environment associated with rapid urbanisation, industrialisation, and economic development

Humanitarian Implications

- Heat-related mortality in Europe and other areas
- Increased malnutrition and consequent disorders, with implications for child growth and development
- Increase and spread of diseases
 - ▶ diarrheal disease & cholera (e.g. South Asia)
 - ▶ cardio-respiratory diseases due to higher concentrations of ground-level ozone related to climate change
 - ▶ altered spatial distribution of some infectious disease vectors (e.g. potential of malaria in Africa)
- Allergenic pollen in Northern Hemisphere, high and mid-latitude
- Substantial burden on health services

Humanitarian Implications

- Africa
 - ▶ longer dry seasons, more uncertain rainfall
 - area suitable for agriculture and yield potential decrease
 - agricultural production severely compromised
 - yields from rain-fed agriculture could be reduced by up to 50% by 2020
 - ▶ by 2020, between 75 million and 250 million people are projected to be exposed to increased water stress
 - ▶ decreasing fisheries resources in large lakes due to rising water temperatures



Food security under threat

Humanitarian Implications

- Latin America
 - ▶ salinisation and desertification of agricultural land
 - productivity of some important crops is projected to decrease
 - livestock productivity to decline
 - ▶ sea-level rise increase risk of flooding in low-lying areas
 - ▶ increases in sea surface temperature
 - adverse effects on Mesoamerican coral reefs; cause shifts in the location of south-east Pacific fish stocks
 - ▶ Changes in precipitation patterns & the disappearance of glaciers
 - affect water availability, agriculture and energy generation



Food security under threat

Humanitarian Implications

- North America
 - ▶ warming in western mountains
 - decreased snowpack, more winter flooding, reduced summer flows
 - exacerbate competition for over-allocated water resources
 - ▶ disturbances from pests, diseases and fire
 - extended period of high fire risk, large increases in area burned
 - ▶ major challenges for crops near the warm end of their suitable range or which depend on highly utilised water resources
 - ▶ increased number, intensity and duration of heatwaves with potential for adverse health impacts
 - ▶ coastal communities and habitats increasingly stressed, interacting with development and pollution
 - Population growth and the rising value of infrastructure in coastal areas increase vulnerability

Humanitarian Implications

- Small Islands
 - ▶ erosion of beaches and coral bleaching
 - affect local resources (e.g., fisheries) and reduce the value of these destinations for tourism
 - ▶ sea-level rise exacerbate inundation, storm surge, erosion and other coastal hazards
 - threaten vital infrastructure, settlements and facilities
 - ▶ reduced water resources insufficient to meet demand during low-rainfall periods



Security under threat

Humanitarian Implications

- Settlements in mountain regions and coastal areas at enhanced risk
 - ▶ glacier lake outburst floods caused by melting glaciers (e.g. the Himalayas)
 - ▶ 30% of global coastal wetlands lost
 - ▶ risk of environmental refugees
- Water availability reduced, particularly in large river basins (e.g. Central, South, East and South-East Asia)
 - ⊕ population growth
 - ⊕ increasing demand from higher standards of living
 - ≡ adversely affect more than a billion people by the 2050s

Humanitarian Implications

- Many millions more people to be flooded every year due to sea-level rise by the 2080s
 - ▶ Densely-populated & low-lying areas where adaptive capacity is relatively low, and which already face other challenges such as tropical storms or local coastal subsidence, are especially at risk.
 - ▶ Numbers affected will be largest in the mega-deltas of South, East and South-East Asia and Africa

Environmental Matters

- Drastic climate change as a result of human activity is increasingly becoming one of the most serious concerns to East Asian countries
- Increasing list of regional and international environmental problems include,
 - a) disintegration of stratospheric ozone
 - b) loss of biological diversity
 - c) tropical deforestation
 - d) depleted fisheries
 - e) transboundary air, soil, water, and marine pollution

Environmental Matters

- Deforestation
 - ▶ More forests are being lost in developing countries
 - Tropical forests of Southeast Asian countries have been largely cut down
 - slash and burn agriculture practices
 - ▶ Results in a loss of carbon dioxide sinks
 - ex) Indonesia
 - at least 400,000 ha of forest destroyed by fires in 1997/1998
 - monsoon season delayed → worst drought in 50 years.
 - serious smog problems throughout Southeast Asia
- Acid rain, yellow dust and marine pollution
 - ▶ devastating impact on the Northeast Asian ecosystem.

Environmental Matters

- Required at the regional level,
 - A) Sustainable development practices within a state
 - B) Inter-state cooperation & policy coordination
- Growing concerns over cross-border environmental problems
 - Regional and international environmental negotiations
 - Establish regional environmental networks & multilateral organizations
- ❖ Transnational environmental issues present,
 - A) a prime opportunity for regional cooperation
 - B) a source of inter-state conflicts.

East Asia and Environmental Security

- Passive and *ex post facto*
- Inadequate responses
- Different interpretations and emphasis of environmental standards and values
 - ☞ a continued barrier to regional regime-building process.

Obstacles to East Asian cooperation

- History of strained intra-regional relationships as a result of colonization and war (esp. Northeast Asia)
- Significant disparities among political systems
Disparities in economic development and liberalization
- No regional institution taking on any central coordinating responsibility
 - ▶ the level of multilateral collaboration has not progressed beyond the level of exchanging information or agenda setting for a regional multi-governance mechanism both for traditional and nontraditional security management

Impetus of Regional Cooperation

- High environmental interdependence in East Asia
(e.g. forest fires in Southeast Asia, yellow sandstorm in Northeast Asia)
 - ▶ imperative to create a framework to promote greater cooperation
 - countries should support UN and other international activities
- East Asia can better strategically define its policies
 - More effectively address global environmental problems
 - More effectively address global environmental problems
- Need of institutionalizing an epistemic community
 - ▶ “East Asian environmental security forum,” composed of environmental specialists from various disciplines
 - ▶ The community can provide a very effective example of environmental diplomacy by contributing to further multilateral cooperation, both at the intra- and inter-regional levels

Impetus of Regional Cooperation

- Understanding of destabilizing environmental implications for insecurity
 - ▶ recognition of the importance of common action through inter-state cooperation, and to take action.
- Environmental confidence building
- Cross-border ecological issues
 - ▶ strong incentives for building a collective environmental regime
 - thaw intransigent barriers of distrust, miscommunication, uncertainty, and differing views
 - establish regional confidence-building

Prospects for East Asia (esp. NEA)

- Functionalist approaches
 - ▶ may not work especially in the case of Northeast Asia
 - intensifying economic and social interdependence, transfrontier environmental problems have not generated the necessary conditions for a regional community
- A “more traditional” political and military sector
 - ▶ consolidating confidence building measures seem to be more crucial
 - the role of political leaders with strong commitment and will to make a political breakthrough is most important
- Efforts of institutionalizing multilateral cooperation should be continued

Prospects for East Asia (esp. NEA)

- Formation of an effective regional environmental regime will be a long-term process
 - ▶ non-traditional and “soft” security issues will not receive the same amount of attention as traditional security issues
 - ▶ the process would increase the habits of dialogue and the exchange of views
 - contribute to set the stage for political dialogue
- Once established, regardless of its success, the regime itself will have the authority to promote inter-state cooperation efforts