

# Introduction to international environmental law critical essay

[Environment](#), [Ecology](#)



2/11/2013 M28CLS: International Environmental Law Lecture 1: Introduction

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[[email protected](mailto:email_protected@edu.gh)]edu. gh Tel: +233 (0) 302 200 622 Introduction • • • •

Intended Module Outcome General terminologies Assessment and requirements Important fundamental understanding of • energy, •pollution, • environmental sustainability Monday, February 11, 2013 Break: 15minutes break at 9. 30am 30 minutes break at 12. 30pm 15 minutes break at 3.

00pm 2 Intended Module Outcome 1. 2. 3. 4. Review the international law relating to environmental protection and pollution control.

Detail the application of particular international, regional and bi-national conventions relating to specific aspects of environment protection and pollution control. Appreciate the roles of international and intergovernmental agencies, advisory bodies and non -governmental organisations in formulating, implementing and enforcing specific environmental protection. Understand and critically evaluate key principles and theories of international environmental law. 1 2/11/2013 Course Structure Lecturer Topic No 1 FA 2 FA Introduction : Important Fundamentals Concepts of Environmental Issues

Introduction and history of International Environmental Law 3 FA International laws relating to environmental protection and pollution control 4 FA 5 FA 6 FA 7 FA 8 FA 9 FA 10 Monday, February 11, 2013 4 Priority Environmental Areas • • • • • • • Curbing Global Warming Creating Clean Energy Future Reviving the world's oceans Defending Endangered Wildlife and Wildplaces Protecting our health by preventing pollution Ensure safe and

sufficient water Fostering sustainable communities Some general terminology Treaty - An agreement under international law - leads to Protocols Protocol - A formal agreement between states or nations e. . Kyoto Protocol, Montreal Protocol. Forms basis for national/regional policies. Policy - a course of action adopted and pursued by an individual, company, government, ruler, political party, etc. e. g. a nation's foreign policy. Strategy - a long term plan, method, or series of manoeuvres or stratagems for achieving policy objectives e. g. A marketing strategy is a process that can allow an organization to concentrate its (always limited) resources on the greatest opportunities to increase sales and achieve a sustainable competitive advantage. Resource - An estimated quantity of fuel that has to be fully explored or evaluated.

Reserve - Proven quantity of fuel that is known to exist in a given location. Carbon Footprint - The total amount of greenhouse gases produced to directly and indirectly support human activities, usually expressed in equivalent tons of carbon dioxide (CO<sub>2</sub>). Monday, February 11, 2013 6 2 2/11/2013 Assessment and Requirements Dates Attendance Final Mark Required throughout the module Sat February 16th, 2013 Assignment 1: Issue Date Individual Written Assignment Submission Date Friday, 15th March, 2013 Project 2: Issue Date Sat February 16th, 2013 Student assignment Essay Hand-in Date Friday 15th March 201 (latest at 7. 00pm) 30% Total 0% 100% Pass requirements: • Pass mark is 40% • Each component must be at least 35% ? 7 Monday, February 11, 2013 Review of some important fundamental concepts related to Global Warming and Clean Energy Future • Energy units • Energy sources & uses • Carbon intensity

(CO<sub>2</sub> emissions from fossil fuels) - Fuel chemistry - Carbon emissions per unit of delivered energy • Calorific Value • Sustainability and Environmental Management System Monday, February 11, 2013 8 Energy units and orders of magnitude • Energy - - - - - Basic Unit of Energy, J = 1 N. m Basic Unit of Power, W = J/s Convenient alternative measure, Wh (1W for an hour)

Commonly used electrical energy measure, 1 kWh = 3.6MJ 1 Tonne oil equivalent (toe) = 41,868 MJ 1 Tonne coal equivalent (tce) = 29,307.6 MJ • kWh - A single 1-bar electric fire for 1 hour - One 100W incandescent light bulb for 10 hours 9 Monday, February 11, 2013 3 2/11/2013 Prefixes (multiples of 10) of energy units Prefix Symbol Factor (x10) μ 10<sup>-6</sup> Microns (used in place of micrometers) - wavelength of visible light m 10<sup>-3</sup> Milliampere - current flow from a single photovoltaic cell K 10<sup>3</sup> Killowatthour - unit of scale of electricity to a residential customer Mega- M 10<sup>6</sup> Megawatt - Maximum power output of the largest commercial wind turbines Giga- G 10<sup>9</sup> Gigawatt - measure of the annual output from a typical fossil-fuel-powered electric power plant Tera- T 10<sup>12</sup> Terawatt - measure of the total rated capacity of all power plants in the world Peta- P 10<sup>15</sup> Petajoule - Measure of all the energy used by the railroads in the US in 1 year Exa- E 10<sup>18</sup> Exajoule - measure of all the energy used by an entire 10 country in 1 year. MicroMilliKilo- Example of where it is commonly used Energy Sources Fossil Fuels • Fossil fuel - Coal - Oil - Natural gas • Emerging - Shale oil - Tar sands • Major Uses - Electricity generation - Space heating and cooling - Transportation Fossil fuel accounts for about 86% of all energy production • In poor countries however, biofuels such as wood dominate energy production. Monday, February 11, 2013 11 BP, 2006 Statistical Review Coal:

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Energy content, Major Usage • Energy content is measured in terms of energy density defined as the amount of energy per unit mass or volume available. • • • • • Coal 27 tonne Bulk density = 600 kg/m<sup>3</sup> Volume = 45m<sup>3</sup> Energy content (calorific value) = 36 MJ/kg • How many kWh? = 270, 000 kWh • Limited to stationary applications (cannot be combusted directly in internal combustion engines) - Electricity generation - Industrial applications Small scale domestic applications (cooking, space heating) Monday, February 11, 2013 12 4 2/11/2013 Non Conventional Fossil Sources • Oil Shale - Composed of mixture of fossil organic matter and sedimentary rock • Tar sands - Composed of mixture of sand and highly viscous hydrocarbon tar • Synthetic gas and liquid fuel products from coal - Transformation of conventional coal into substitutes for transportation and space heating Oil and gas • Flexible in usage and in terms of combustion - Transportation - Stationary applications 13 Monday, February 11, 2013 Energy content of fossil fuels • • • • Gasoline 50 litre tank

Gasoline density = 0. 74 kg/litre Energy content (calorific value) = 46 MJ/kg • How many kWh? = 473 kWh • • • • • Coal 27 tonne Bulk density = 600 kg/m<sup>3</sup> Volume = 45m<sup>3</sup> Energy content (calorific value) = 36 MJ/kg • How many kWh? = 270, 000 kWh Note: 1 kWh equals one 100W incandescent light bulb for 10 hours 14 Monday, February 11, 2013 Nuclear Energy • • • • • • Fission - Splitting of nucleus of one heavy atom resulting in two or more nuclei Fusion - Joining together of two light nuclei into a larger one. Energy released during fission/fusion reactions is transferred to working fluid Commonest use is in electricity production from fission of

Uranium atom, U-235 Estimated to last into the 22nd century based on U-235 High energy density Monday, February 11, 2013 15 5 2/11/2013 Coal vrs Nuclear 1 kg of pure coal (no impurities and moisture content) will release 32. 8MJ/kg 1 : 1 kg of pure U-235 (85% collision yielding fission) will release 200MeV/atom (0. 85) = 4. 36 x 10<sup>32</sup> eV ? 69. 8 TJ 2 million 16 Monday, February 11, 2013 Issues with Nuclear Energy • • • • • Management of radioactive substances during lifetime of nuclear energy (Chernobyl Nuclear Power Plant in Ukraine on the 26th of April 1986 still remains radioactive and there is a 30 exclusion kilometre zone).

Radiation risks during extraction, plant operation and waste management, Commercial use and prevention of proliferation (Atomic bombs Hiroshima and Nagasaki Deaths in August, 1945) Public perception (poor safety record; Partial meltdown, Fukushima nuclear power plant disaster after earthquake (March, 2011) Cost Monday, February 11, 2013 17 Sustainable development and renewable energy • Energy security - secure supply, reliable infrastructure • Economic prosperity - economic development, affordable energy prices • Environmental protection - Carbon mitigation, land and water use Monday, February 11, 2013 18 6 2/11/2013

COMMON RENEWABLE ENERGY SOURCES Photovoltaics Biomass/Biofuel Solar Thermal Hydropower Tide Geothermal Wind Wave Heat Pump Fuel cell Sustainable Transportation Building Efficiency Monday, February 11, 2013 19 Issues with Renewables: Solar Photovoltaic • Higher performance cells/modules • Advanced manufacturing techniques • Efficient energy storage Solar Thermal • Low cost high performance storage for base load

markets • Advanced reflector design and heat transfer fluids Monday, February 11, 2013 20 Wind, wave and tide energy Improved performance: • Advanced rotor design • Integration into existing power grid Intelligent and low cost control • Electricity storage Building energy efficiency • Building systems integration efficiency • Computerised building energy optimisation models • Passive building temperature control Monday, February 11, 2013 21 7 2/11/2013 Fuel cell & Sustainable transportation • Reliability of fuel cells for building and electricity applications • Low-temperature fuel-cell use in transport • Research into materials • Energy storage - life and cost • Utility impacts • Vehicle cost • Recharging locations Monday, February 11, 2013 22 Biofuel (Biomass and Biogas) • Utilisation of residues Energy crops • New biofuels Geothermal and Heat Pump Low temperature geothermal for • direct use and • ground source heat pump • Retrofitting (Existing buildings) Monday, February 11, 2013 23 Fossil energy v. renewable energy 1. V. Gasoline 1 tank full (50 litre Tank) PV ? ~5m<sup>2</sup> PV array operating for 1 year in the UK V. 2. Coal 1 truck load = 100, 000 kWh electricity at ~37% conversion efficiency Rossendale Wind Farm - Lancashire ? 1 large wind turbine with generating capacity of 2. 5MW running for 6 days 24 8 2/11/2013 Carbon Content of Coal • Coal is the highest emitter of Carbon of all the fossil fuels 1 tonne coal contains ~ 900 kg Carbon Combustion • equation  $C + O_2 = CO_2$  • mols 1 +1 = 1 • mol wt 12+ 32 = 44 • kg 12+ 32 = 44 • kg 1 + 2. 67 = 3. 67 Thus 1 kg C requires  $32/12 = 2. 67$ kg oxygen and produces  $44/12 = 3. 67$  kg CO<sub>2</sub> • 1 tonne coal (900 kg) = 3. 67 x 900kg CO<sub>2</sub> = 3303 kg CO<sub>2</sub> Atomic weights: O = 16 C = 12 N = 14 H= 1 S = 32 25 Combustion of Methane CH<sub>4</sub> ? 2(O<sub>2</sub> ? (79 / 21) N<sub>2</sub> ) ? CO<sub>2</sub> ? 2 H<sub>2</sub>O ? (2 ?

79 / 21) N<sub>2</sub> 16 kg 2 ? 32kg 2 ? 3. 76 ? 28kg 44kg 36kg 7. 52 ? 28kg 16 kg  
 274. 56 kg Air (O<sub>2</sub> ? N<sub>2</sub> ) ? 44kg 36kg 210. 56kg Thus 1 kg methane : •  
 Requires 17. 16 kg air for complete combustion and Produces 18. 16 kg of  
 waste gases including 2. 75kg CO<sub>2</sub> Monday, February 11, 2013 26 Specific  
 CO<sub>2</sub> Emissions • Carbon - CV = 32. 8 MJ/kg (net = gross since no water! ) - 1  
 kg produces 3. 67 kg CO<sub>2</sub> - Specific emission = 112 gm/MJ = 403 gm/kWh •  
 Methane - CV<sub>gross</sub> = 55. 58 MJ/kg - 1 kg produces 2. 75 kg CO<sub>2</sub> - Specific  
 emission = 49 gm/MJ = 178 gm/kWh<sub>gross</sub> Monday, February 11, 2013 27 9  
 2/11/2013 Coal and Natural Gas compared (basis 1 kg) Coal Air required 11.  
 45 kg 17. 16 kg CO<sub>2</sub> produced 3. 67 kg 2. 75 kg Heat release (CV<sub>gross</sub>) 32. 8  
 MJ 55. 58 MJ Specific CO<sub>2</sub> emission • Methane 403 gm/kWh 178  
 gm/kWh<sub>gross</sub>

Methane requires more air/kg fuel because of the existence of hydrogen in  
 the molecule which burns to produce H<sub>2</sub>O. 28 Monday, February 11, 2013  
 CO<sub>2</sub> emissions from different fuels (kg/GJ<sub>gross</sub>) 120 101 94. 6 100 77. 4 80  
 74 56 60 40 20 0 0 Lignite Hard coal Heavy fuel oil Gas oil Natural gas  
 Hydrogen Monday, February 11, 2013 29 CO<sub>2</sub> from electricity Waste heat  
 210kW Fuel input 318kW<sub>gross</sub> Transmission & Distribution losses = 8kW  
 Power station Delivered electricity 100kW Energy (gross) thermal efficiency  
 = 31. 4% Large quantity of low grade heat wasted Monday, February 11,  
 2013 30 10 2/11/2013 CO<sub>2</sub> emissions from electricity - different enerating  
 technologies (gm/kWe. h) Conventional steam turbine (lignite eff= 34%)  
 Conventional steam turbine (coal eff= 34%) Clean coal (Gasification CC, eff=  
 46%) Conventional gas turbine (eff= 42%) Combined cycle gas turbine  
 (CCGT, eff= 55%) New CCGT (eff= 59%) Biomass Nuclear Renewables 1100



850-1050 700 500 400-425 350 ? 0 0 31 Monday, February 11, 2013 Gas v. Electricity • Gas systems... 0. 19 kg/kW-h(gross) • Electricity...0. 537 kg/kW-h • Green electricity...0 kg/kW-h Monday, February 11, 2013 32 Eg U. K. GHG emissions includes (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs and SF<sub>6</sub> ) Monday, February 11, 2013 33 11 2/11/2013 U.

K. GHG emissions by source includes (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs and SF<sub>6</sub> ) Monday, February 11, 2013 34 U. K. GHG emissions includes (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs and SF<sub>6</sub> ) Monday, February 11, 2013 35 Issues of International Concern • Primary energy supply - Oil, Coal, Natural Gas, Biomass, Renewable, Nuclear - Forecasts • Security of supply - Long term - Short term • Environmental Sustainability -Climate change- Ozone depletion - Integrated pollution control - Developing countries Monday, February 11, 2013 Related Issues • Population growth •Poverty(fuel, food) • Developing economies 36 12 2/11/2013

Trend of energy use and sustainable development Pre-industrial era Civilization was powered by carbon neutral sources, mainly biomass Industrial revolution and the use of coal Negative effects were local at the time Steam engines and locomotives Cleaner burning plants, heating of homes Gas Transportation - Vehicles and later jet powered aircraft Oil Cleaner compared to coal But accelerated extraction of fossil fuel increasing CO<sub>2</sub> Promised: 1. no emissions of harmful air pollutants and 2. high energy density Nuclear Power Safety issues Renewable energy Increased population growth Share of benefits from Developing countries

Where we are today !! 37 Problems we face 1. How to spread the benefits of energy 2. How to contend with eventual exhaustion of non-renewable energy sources and 3. How to prevent climate change Motivations and Drivers for Sustainable Development Diversity of supply Security Sustainability Monday, February 11, 2013 38 Breakdown of problems we face... • Resources and availability - Finite nature of fossil fuels • Environmental pollution from energy production and use - Carbon neutral sources that has to replace fossil fuels • Uncertainty about the future - Interrelation among factors affecting energy use - Prediction accuracy Over-simplistic assessment of technology- Optimism in new technologies spread through use of IT - Underestimates difficulties and reality • The role of energy to global economics - Vital • Limitation of time to make needed changes • Proposed solutions and their effectiveness - Technology is bounded by physical laws - Constrained by resources and availability - Drawbacks of new sources usually not known Monday, February 11, 2013 39 13 2/11/2013 The aftermath of Hurricane Katrina, New Orleans, 2005 Climate Change? Is Climate Change Happening? 20 warmest years on record (°C anomaly from 1901-2000 mean) Year Global Land

Ocean 1983 0. 2817 0. 3718 0. 2508 1987 0. 2968 0. 2963 0. 2999 1988 0. 3006 0. 4196 0. 2585 1990 0. 3861 0. 5484 0. 3279 1991 0. 3360 0. 4094 0. 3105 1994 0. 2934 0. 3597 0. 2699 1995 0. 4073 0. 6531 0. 3191 1997 0. 4782 0. 5584 0. 4498 1998 0. 5971 0. 8321 0. 5087 1999 0. 4199 0. 6760 0. 3237 2000 0. 3886 0. 5175 0. 3406 2001 0. 5173 0. 7208 0. 4416 2002 0. 5745 0. 8318 0. 4794 2003 0. 5818 0. 7726 0. 5109 2004 0. 5416 0. 7095 0. 4812 2005 0. 6154 0. 9574 0. 4886 2006 0. 5601 0. 8151 0. 4664 2007 0.

5472 0. 9827 0. 3889 2008 0. 4803 0. 7784 0. 3727 2009 0. 5556 0. 7595 0. 4830 The values in the table above are anomalies from the 1901–2000 global mean of 13.9°C. For instance, the +0.55°C anomaly in 2007 added to the 1901–2000 mean of 13.9°C gives a global average temperature of 14.45°C for 2007. The coolest year in the record was 1911. [ Years 1880–1889 1890–1899 1900–1909 1910–1919 1920–1929 1930–1939 1940–1949 1950–1959 1960–1969 1970–1979 1980–1989 1990–1999 2000–2009 Temp. anomaly (°C) anomaly from 1951–1980 mean) ? 0.274 °C ? 0.254 °C ? 0.259 °C ? 0.276 °C ? 0.175 °C ? 0.043 °C 0.035 °C ? 0.02 °C ? 0.014 °C ? 0.001 °C 0.176 °C 0.313 °C 0.513 °C • Top five warmest years since 1890 are: 2005, 1998, 2003, 2002, 2006 Analyses (from trees, corals, ice cores and historical records) show that the 2000–2009 is the warmest decade followed by the 1990's in the last millennium. • STOP PRESS - June 2007 wettest month since records began in 1914. Annual Average Global Surface Temperature Anomalies 1880–2008 Global Land and Sea Temperatures Climatic Research Unit and the UK Met. Office Hadley Centre 14/2/11/2013 The Greenhouse Effect Sunlight enters the Earth's atmosphere, passing through a layer of greenhouse gases. As it reaches the Earth's surface, land, water, and biosphere absorb the sunlight's energy. Energy absorbed is sent back into the atmosphere.

Some of the energy passes back into space, but much of it remains trapped in the atmosphere by the greenhouse gases, causing the world to heat up. Human activities have increased substantially the concentration of greenhouse gases (carbon dioxide, methane, CFCs, HCFCs, nitrous oxide). As a result, a substantial warming of the earth surface and atmosphere

occurred that might adversely affect the natural ecosystem. Over the last hundred years, the mean temperatures have increased by  $0.3 \pm 0.68^\circ\text{C}$ . Doubling the amount of carbon dioxide in the atmosphere is likely to yield a further temperature increase by  $1.5 \pm 4.58^\circ\text{C}$ .

If no action is taken to reduce greenhouse gas emissions, the rate of growth of the average temperatures is likely to exceed that which occurred in the last 10,000 years [Houghton, 1995] Global costs of extreme weather events (inflation adjusted) • Total economic losses and number of events have been increasing over the decades • Within the last decade, 72 major events occurred, close to 100% increase over the 1980-1990 decade. Climate Change • Climate Change is not a new issue. In the early 1980s scientific consensus grew - climate change was a critical global issue. Following from this, governments established the Intergovernmental

Panel on Climate Change (IPCC) in 1988 to help them understand and build some international consensus on the nature of the problem. 15 2/11/2013 Is the link with CO<sub>2</sub> and other GHG's confirmed? • The Inter-governmental Panel on Climate Change in its most recent report stated: 'the balance of evidence suggests a discernible human influence on the climate system. ' Contributors to Global Warming Greenhouse gas Source/Application CO<sub>2</sub> All combustion processes Global warming potential (GWP) relative to CO<sub>2</sub> Methane (CH<sub>4</sub>) Oil/Gas supply Agriculture Landfill Nitrous oxide (N<sub>2</sub>O) Agriculture Combustion (IC engines) Chemical industry

Perfluorocarbons (PFC) Manufacturing 6,500 to 9,200 Hydrofluorocarbons (HFC) Refrigerants Propellants 140 to 11,700 Sulphur hexafluoride (SF<sub>6</sub>)

Electrical switchgear 1 21 310 23, 900 Increased atmospheric CO2 levels as measured in the atmosphere and in ice cores. The amount of net carbon increase in the atmosphere compared to carbon emissions from burning fossil fuels. 16 2/11/2013 Recent trends in measured atmospheric CO2 concentrations Projected CO2 Emissions Ozone depleting chemicals Substances that contribute to ozone depletion and climate: • Chlorofluorocarbons (CFCs), • Halons (CCl4), • Hydrochlorofluorocarbons (HCFCs) Substances that contribute to climate change but not ozone depletion: • Hydrofluorocarbons (HFCs) • Perfluorocarbons (PFCs) 17 2/11/2013 Emissions from Common Industrial Fuels Monday, February 11, 2013 53 Lecture 2 History of International Environmental Law 18 2/11/2013 History of International Environmental Affairs Most international environmental initiatives have occurred since 1960, following the emergence of the modern environmental movement in the West There were modest efforts at regional and global cooperation for the environment dating as far back as the late 1800's, mostly emanating from Western

Europe and North America. These efforts mirrored domestic environmental policy developments and were often concerned with wildlife conservation. International Efforts pre-1960 • 1872: Swiss propose international commission to protect migratory birds • 1900: First formal agreement: Convention for the Preservation of Animals, Birds and Fish in Africa, signed in London by European colonial powers with the intent to protect African game species, especially to limit export of ivory to reduce severe hunting pressure on African elephant • 1900: European states sign treaty to regulate transportation of toxic substances on Rhine River 1909: Canada-US Boundary

Waters Treaty • 1911: North Pacific Fur Seal Commission established by USA, Canada, USSR and Japan to regulate harvest of seals in North Pacific • 1918: US-Canada Migratory Bird Treaty Act, designed to protect bird species—esp. waterfowl—that seasonally migrate between the two nations Early International Efforts, cont'd • 1931: First efforts to regulate commercial whaling, led (in 1946) to International Convention for the Regulation of Whaling and establishment of International Whaling Commission, a permanent body responsible for negotiating & setting policy re- the harvest and preservation of whales. 1940: Convention on Nature Protection and Wildlife Conservation in the Western Hemisphere • 1946: Founding of the United Nations and World Bank, which would play leading roles in international environmental cooperation (World Bank, UNIMO, FAO, UNDP, WHO, UNEP & UNESCO) • 1954: International Convention for the Prevention of Pollution of the Sea by Oil, culmination of 28 years of negotiations by European and N. A. nations • 1958: International Maritime Consultative Organization (UN-IMCO) established with responsibility for negotiating international agreements on ocean pollution 19 2/11/2013 International Efforts (1960-1972)

Context: Increase in international environmental efforts mirrored rise in Modern Environmental Movement in west • Cumulative environmental effects of Post-war boom (industrialization, prosperity, consumerism) • Affluence = greater concern over “ quality of life” • New environmental science: e. g. , Rachel Carson “ Silent Spring” published in 15 countries, 1962 • Growing media coverage of environmental events e. g. 1954 London “ Killer Smog”, 1959 Mercury poisoning in Minimata Bay, 1967

Torrey Canyon oil spill in the English Channel • Rise of Vietnam, civil rights & counter-culture protests against status quo Globalization of communication; increased recognition of interdependence among nations: Apollo 11 “ Earth-rise” photo in 1969 Efforts 1960-72 , cont’d. • Creation of first prominent and truly international environmental NGO’s (e. g. , Greenpeace, WWF, etc. ) • Emergence of first “ Green” political parties in New Zealand, Western Europe and Australia • Between 1970 and 1972: 14 industrialized nations established environmental ministries and passed significant environmental legislation (Environment Canada, Clean Water Act, Clean Air Act, etc. ) • But, little progress in LDC’s or Communist Bloc 1971: RAMSAR Convention on Wetlands of International Importance • 1972: UNESCO-sponsored Convention for the Protection of World Cultural and Natural Heritage. • 1972: Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft. • 1972: US-Can Great Lakes Water Quality Agreement U. N. Stockholm Conference on the Human Environment (1972) UN General Assembly resolution to host international meeting “... to provide a framework for comprehensive consideration within the UN of the problems of the human environment in order to focus the attention of governments and public opinion on the importance and urgency of this question” • Preparatory period dominated by Western, industrialized countries • Soviet bloc boycotted effort because of ideological differences and unrelated political conflicts • LDCs encouraged to participate, but remained skeptical: feared environmental initiatives might get in way of economic development priorities • LDCs willing to cooperate, but only if development interests were not compromised and the West assisted them with finances and technology to

invest in environmental protection. Also disapproved with West's fixation on need for LDC population control. 0 2/11/2013 Stockholm, cont'd 114 nations, 1200 delegates (2 heads of state)-large by UN standards. Much media coverage and 500 NGO's participated in parallel " Environmental Forum".

Outcomes... • Stockholm Declaration of the UN Conference on the Human Environment: 26 principles, intended as a foundation for future developments in international environmental cooperation - established basic principles of international environmental law. • Action Plan for the Human Environment: 109 recommendations for govt and inter-govt. action on issues ranging from species onservation, forests and atmospheric and marine pollution, to development policy, human settlements, and technology transfer. • Established United Nations Environment Program (UNEP) and Environment Fund • Formal acknowledgment of Additionality Principle: wealthy North should pay for some or all of added costs of environmental initiatives in developing south • Emergence of environmental civil society movement as a significant international stakeholder

Between Stockholm & Rio (1972-1992) Developed Western Nations: • Much progress with domestic legislation and programs had been made in the late 1960s/early 1970's.

The benefits of these efforts were being felt by the late 1970s, with improvements in water & air quality, reductions in toxins like lead & DDT, and increases in protected areas. Lesser Developed Nations: • Environmental conditions deteriorated severely: urban pollution & squaller, deforestation, soil erosion, water-born diseases. In spite of opposition at Stockholm, many LDCs began to respond by establishing environmental ministries & associated laws (from 11 nations in 1972 to 102 in 1980). As



well, many moved ahead with aggressive population planning (e. g. India, China). Soviet Bloc: Environmental problems worsened: air & water pollution, nuclear contamination, environmental health & disease. • Had boycotted Stockholm and made limited progress afterward (economic growth remained the priority). Civic activism & information remained suppressed until the fall of Communism in late 1980's

Between Stockholm and Rio, cont'd • 1972: London Convention for the Prevention of Marine Pollution by Dumping of Wastes (toxic & nuclear waste dumping at sea). • 1973: International Convention for the Prevention of Pollution from Ships (MARPOL). • 1973: Convention on the International Trade of Endangered Species (CITES). 1974: Paris & Helsinki Conventions to protect marine environments of the North and Baltic Seas. • 1974/84: 1st & 2nd UN Population Conferences. • 1979: Convention on Long-Range, Transboundary Air Pollution (LRTAP). Canada, US & Europe agreement to address concerns about acid rain; first major international effort to regulate air pollution. • 1980: IUCN/WWF/UNEP World Conservation Strategy. promoted conservation planning in LDCs.

21/11/2013 Cont'd... • 1982: UN Conference on the Law of the Sea (UNCLOS). 200 mile territorial jurisdictions established, etc. • 1982: IWC commercial whaling moratorium. 1987: Montreal Protocol on Substances that Deplete the Ozone Layer • 1988: Intergovernmental Panel on Climate Change formed by UNEP & WMO • 1989: Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes • 1991: Canada-US Air Quality Agreement to reduce SO<sub>2</sub> emissions that cause acid rain • 1991: Protocol on Environmental Protection of Antarctica: moratorium on mineral and related exploration and development for 50 years • European Union: Broad progress

on regional, international environmental cooperation pertaining to toxics, water quality, waste management, air pollution, wildlife protection and noise pollution

Rio Summit: UN Conference on Environment & Development (1992) Context:

- “ Rio Summit” needs to be seen in light of the rapid resurgence of environmental concern in the 1980s. New, ominous environmental problems emerging and resulting media coverage: \* Three Mile Island nuclear mishap (1979) \* Bhopal Union Carbide chemical accident (1984) \* Ozone hole over Antarctica discovered (1985) \* Chernobyl nuclear accident (1986) \* Severe drought/famine in Africa (mid-80s) \* Caribbean hurricane David (1988) \* Severe floods in Bangladesh (1988) \* Assassination of activist Chico Mendes (1989? ) Time magazine (1988): “ Earth: Planet of the Year” \* Exxon Valdez oil spill in Alaska (1989) Effect: • Record growth in environmental NGO membership • Huge support for Green parties in Europe & Australia • Growing pressure on governments to act Rio Summit, cont'd. • 1985-87: World Commission on Environment & Development: UN special commission composed of senior officials tasked by UN General Assembly to evaluate state of the global environment and development. Findings published in Our Common Future (1987). Document had tremendous impact because: \* Timing coincided with high environmental concern Credibility and pragmatism of the authors Our Common Future made popular “ sustainable development: development which meets the needs of the present without compromising the ability of future generations to meet their own needs”. • UN General Assembly subsequently sponsored UN Conference on Environment and Development to address many of the issues raised in Our

Common Future. • The “ Rio Summit” was first-ever “ World Summit” and was unprecedented in scale: \* Largest meeting of world leaders ever: 178 nations; 118 heads of state \* 1, 400 NGOs present in parallel “ Global Forum” with 18, 000 participants 22 /11/2013 Key Outcomes of Rio Summit • Rio Declaration: statement of key principles on environment & development • Agenda 21: detailed list of recommendations • Statement of Forest Principles: watered down version of forest convention • Biodiversity Convention: weakened by United States. • Climate Change Convention: Precursor to Kyoto Protocol • Global Environment Facility (GEF): financeinvestments in environmental protection in LDCs • UN Commission on Sustainable Development: Provide followup to Rio Progress Since Rio... • 1993: North American Commission for Environmental Cooperation: NAFTA side agreement 1994: 3rd International Population Conference, Cairo. • 1997: International agreement to reduce the production, storage and use of land mines. • 1997: Kyoto Protocol on the Reduction of Greenhouse Gases. • 1998: Rotterdam Convention on Prior Informed Consent for trade in hazardous chemicals and pesticides • 2000: Ozone Annex to 1991 Canada-US Air Quality Agreement, smogcausing emissions (NO-x) • 2001: Cartagena Biosafety Protocol on Genetically Modified Organisms (Biodiversity Convention) • 2001: UN-Stockholm Convention on Persistent Organic Pollutants (DDT, PCBs, dioxin) UN World Summit for Sustainable Development: Rio + 10,

Johannesburg, 2002 • Follow-up to 1992 Earth Summit • Event held in the wake of 9-11 and in the context of a rightwing, unilateralist US administration with little interest in the environmental agenda and little

support for UN initiatives • Summit high on rhetoric and platitudes, low on actual accomplishments • Discussions focused more on meeting specific development rather than environmental objectives • Constructive engagement of private-public sector partnerships, etc. • Goals established to increase peoples' access to sanitation, safe drinking water, etc. 23 2/11/2013 UN World Summit for Sustainable Development: Rio + 10,

Johannesburg, 2002 • Follow-up to 1992 Earth Summit • Event held in the wake of 9-11 and in the context of a rightwing, unilateralist US administration with little interest in the environmental agenda and little support for UN initiatives • Summit high on rhetoric and platitudes, low on actual accomplishments • Discussions focused more on meeting specific development rather than environmental objectives • Constructive engagement of private-public sector partnerships, etc. • Goals established to increase peoples' access to sanitation, safe drinking water, etc. UN World Summit for Sustainable Development: Rio + 10,

Johannesburg, 2002 • Follow-up to 1992 Earth Summit • Event held in the wake of 9-11 and in the context of a rightwing, unilateralist US administration with little interest in the environmental agenda and little support for UN initiatives • Summit high on rhetoric and platitudes, low on actual accomplishments • Discussions focused more on meeting specific development rather than environmental objectives • Constructive engagement of private-public sector partnerships, etc. • Goals established to increase peoples' access to sanitation, safe drinking water, etc. Recent Progress (or Not! ) (2002 +) Climate change has emerged as pre-eminent

global environmental issue • Yet, progress on this and other international environmental challenges has been uneven, with considerable gains within the European Union; but virtually none in the Americas • 9/11 & US-led “ War on Terrorism”, combined with an ideological antipathy to government regulation and multilateralism, has undermined progress on climate change, etc. • Emerging economies of China, India and Brazil assuming a much greater political voice and influence on the world stage but, for the most part so far, have not made environmental concerns a priority Momentum appears now to be shifting again in a green direction as George W. Bush fades from the scene, Barack Obama ascends, and evidence of global warming mounts

24 2/11/2013 Recent Progress (or Not! ) (2002 +) • Climate change has emerged as pre-eminent global environmental issue • Yet, progress on this and other international environmental challenges has been uneven, with considerable gains within the European Union; but virtually none in the Americas • 9/11 & US-led “ War on Terrorism”, combined with an ideological antipathy to government regulation and multilateralism, has undermined progress on climate change, etc. Emerging economies of China, India and Brazil assuming a much greater political voice and influence on the world stage but, for the most part so far, have not made environmental concerns a priority • Momentum appears now to be shifting again in a green direction as George W. Bush fades from the scene, Barack Obama ascends, and evidence of global warming mounts Recent Progress (or Not! ) (2002 +) • Climate change has emerged as pre-eminent global environmental issue • Yet, progress on this and other international environmental challenges has been uneven, with considerable gains within the European Union; but virtually

none in the Americas 9/11 & US-led “ War on Terrorism”, combined with an ideological antipathy to government regulation and multilateralism, has undermined progress on climate change, etc. • Emerging economies of China, India and Brazil assuming a much greater political voice and influence on the world stage but, for the most part so far, have not made environmental concerns a priority • Momentum appears now to be shifting again in a green direction as George W. Bush fades from the scene, Barack Obama ascends, and evidence of global warming mounts International Environmental Law 25 2/11/2013 Definition and Purpose

International Environmental Law consist of a combination of treaties, regulations and protocols that regulate the interaction of humanity and natural environment. Essentially, it deals with: a) pollution control b) b) resource management The purpose is to reduce the impact of human activity on the natural environment within nations and beyond. Sources of the Law • • • • a) Treaties b) Protocols c) Conventions d) International Courts and Tribunals Principles of International Environmental Law • a) 1972 Stockholm Declaration on the Human Environment. (Principle 21 concept of “ Good neighborliness”) • b) “ All citizens have a right to a decent and healthy environment” • c) The “ polluter pays” principle. • d) The “ duty to notify and consult” other states 26 2/11/2013 Principles of International Environmental Law (Continued.. ) • e) Duty to do Environmental Impact assessments. • f) The “ precautionary principle” • g) 1982 UN Convention for Nature principle of sustainable development. • h) Principle of “ Intergenerational equity” Limitations to International Environmental Law • IEL is considered to be “ soft law”. This means agreements and principles are meant to nfluence

nations to respect certain concepts. • This also means these principles are not enforceable on their own in a national court. • Countries must consent to being sued in the first place. They cannot be forced to do what it is not willing to do. Overcoming the Limitations • Despite the limitations countries do sign up to treaties and protocols. They do so due to: a) Moral or diplomatic obligations. b) Pressure from other signatories. c) Public pressure from their societies. d) Strategic and economic benefits 27 2/11/2013

Famous Environmental Events and Agreements • • • • • a) 1972 Stockholm declaration. b) 1982 UN convention on the Law of the Sea c) 1987 Montreal Protocol on the Ozone Layer c) 1992 UN Convention on Climate Change d) 1992 Rio Declaration e) 1997 Kyoto Protocol f) 2009 Copenhagen Summit on Climate Change What the future holds after Copenhagen • Kyoto Protocol Summary • In the Copenhagen Summit it was agreed by both developed and developing nations to cut their greenhouse gas emissions, although this was not a full treaty. • November 2010 Cancun Summit • South Africa 2011 • Korea 2012 Examples of future proposals and