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Environmental Security in East Asia: A Critical View

M. SHAMSUL HAQUE

In the current era, the conventional discourse on international relations based on a state-centric and militaristic worldview has come under challenge due to the emergence of various local and global forces and issues that tend to diminish the role of the state and question the relevance of the military to national security. The major examples of such contemporary non-state forces and non-military issues include the globalization of transnational capital and information networks, proliferation of regional economic blocs, reinforcement of roles played by non-government organizations, and rise of concerns such as the cross-national developmental gap, universal human rights, gender equality, ethnic and religious identity, and environmental disorder.[1] The increasing influence of such newly emerging non-state actors and non-military issues may have diminished the validity of a state-centric notion of security, and reduced the explanatory capacity of the related international relations theories founded upon orthodox realist or neorealist assumptions.[2] In addition, beyond traditional military security, there are growing concerns regarding non-traditional issues such as human security, economic security, social security, information security, and environmental security.

Among these non-traditional security issues, however, environmental security stands out as one of the most critical concerns that transcends national boundaries, affects all societies, and has international conventions affecting all states. A global concern like environmental security certainly represents a serious challenge to the primacy of the state in safeguarding national sovereignty, questions the conflict of cross-national interests, and rejects the dichotomy between internal and external security suggested by conventional international relations theories.[3] The significance of this

environmental security lies in various ecological disorders and natural disasters – including water and air pollution, land degradation, deforestation, global warming, ozone depletion, sea-level rise, biodiversity loss, and resource scarcity – that threaten the very sustainability of human progress and marginalize the importance of military security.[4] Thus, in recent years, there has been a massive increase in environment-related conventions, protocols, conferences, and publications, and a higher level of awareness regarding the danger of environmental insecurity caused by population pressure, poverty and inequality, industrial expansion, arms proliferation, ecological stress, use of toxic chemicals, and consumption of environmentally harmful commodities.

The conceptual articulation of this environmental security began with scholars such as Lester Brown, Richard Ullman, and Jessica Mathews, who expanded the concept of security beyond military threats, and incorporated environmental dangers into the definition.[5] However, it was only after the Cold War – which dominated the theories and practices of security in the field of international relations for many decades – that traditional security perceptions came under question, unconventional threats gained importance, and environmental security began to draw attention from top policy makers.[6]

Today the issue of environmental security is recognized worldwide by academics, politicians, and activists. The existing interpretations of environmental security can be generalized into three major categories: one set of explanations emphasizes various forms of environmental degradation affecting all humans irrespective of nationalities; another set of definitions focuses mainly on national environmental threats that spill over to other countries and cause interstate tension; and the last set of analyses pays more attention to a nation's capacity to withstand environmental threats, rectify environmental damages, and guarantee public safety from adverse consequences.[7] In fact, there is no conflict among these three sets of interpretations: they just represent different levels and dimensions of environmental security, including the human implications of global environmental disorders, cross-national conflicts arising from these problems, and state capacity to prevent and manage such disorders.

However, there are controversies with regard to how environmental threats constitute a security problem. The existing studies attempt to explain that ecological degradation and resource scarcity lead to internal social upheaval and civil strife, that internal environmental disorders affect neighboring countries and may cause external conflict and warfare, and that regional cooperation in solving environmental predicaments often enhances

overall regional peace.[8] More specifically, it has been observed that environmental problems in any country (including carbon emissions, water pollution, land degradation, and natural disasters) may lead to population displacement, cross-border migration, and institutional instability, which in turn, may adversely affect other countries and create bilateral tension and armed conflict.[9] Some scholars tend to focus on the scarcity of environmental resources – often caused by overconsumption of resources (e.g. water and energy), degradation of land, and depletion of forests – as a major factor leading to conflict between states over controlling and sharing such resources.[10]

Conversely, intensive wars often involve the use of hazardous substances, contamination of air and water resources, destruction of forests and crops, thus causing environmental insecurity in the enemy territories. In short, environmental security is closely related to other forms of security in the economic and military spheres. Thus, the traditional militaristic notion of security must be reexamined and restructured to incorporate the idea of environmental security in order to reach any framework of comprehensive security.

Despite this growing evidence of the environment-security nexus from various studies, the practical security strategies continue to be guided by conventional security perception in different regions, including East Asia. The marginalization of non-traditional security issues, especially environmental security, and the dominance of military security in East Asia can be observed in the potential for armed conflict between China and Taiwan, political hostility between North Korea and South Korea, territorial disputes among various countries over the islands in South China Sea, and the expansion and modernization of national defenses in the region. Despite the irrelevance of traditional security assumptions due to contemporary changes in regional issues – including the end of the Cold War rivalries, the process of globalization affecting the state power, the rise of economic priorities over defense, and the increased influence of various civil society groups – there is still a strong tendency in the region to consider the state as the dominant actor and its military capability as the primary means to ensure national security. However, there is a growing significance of non-traditional, environmental security in the region due to the worsening forms of ecological degradation caused by population pressure, resource scarcity, industrial expansion, and hazardous production and consumption.[11] Because of these new security dynamics, there is a need to redefine security and restructure security options in East Asia based on an alternative set of assumptions.

In the above context, this study examines the following: (a) the current significance of environmental security in East Asia in terms of various forms of environmental threats and the limits of prevailing protection measures; (b) the dominant assumptions and modes of international relations pursued by East Asian countries and their critical environmental implications; and (c) the alternative set of international relations assumptions and security perceptions needed to address the emerging problems of environmental insecurity in the region. However, in order to explore these regional issues more meaningfully, the next section presents an analysis of common security perceptions in existing international relations theories, especially their limitations in addressing environmental security.

SPACE FOR ENVIRONMENTAL SECURITY IN INTERNATIONAL RELATIONS THEORIES

The legacy of international relations theories is characterized by certain intellectual ambiguity, fragmentation, and duplication due to the strong ideological (Cold War) underpinnings in theory-building, the use of terms borrowed from other fields and disciplines, the conversion of rhetorical tactics adopted by political leaders into theoretical models, and the close affiliation of academic experts with the state's strategic options. The fragmented and overlapping nature of these theories has been reinforced further by the development of alternative approaches in response to new challenges posed by the above-mentioned national and international events and issues that defy traditional security perception and demand non-traditional theoretical treatment. In addition, the situation is complicated by a new breed of theoretical constructs – including the critical, postmodern, and feminist perspectives – that tends to expose the inadequacies of mainstream theories or approaches in the contemporary world of international relations.[12]

There are varying taxonomies of international relations theories ranging from the simple classification of these theories into realist, liberal, and radical schools to more all-encompassing typologies that tend to consider even the specific security strategies as theories.[13] In order to avoid such tendencies of oversimplification and overgeneralization, this study presents the existing theories of international relations into four major traditions: (a) the *realist tradition* (which covers classical realism, neorealism, balance-of-power theory, and hegemonic-stability theory); (b) the *liberal tradition* (which includes classical liberalism, pluralism, and neoliberalism); (c) the

interpretive tradition (which encompasses different versions of constructivism); and (e) the *radical tradition* (which includes critical, postmodern, and feminist theories). These theoretical traditions differ from each other in terms of their basic assumptions regarding human nature, nature of the state, state-individual relations, ethics in interstate relations, and so on. This section briefly explains these theoretical traditions and examines their intellectual positions with regard to environmental security.

Realist Tradition and the Environment

Within the realist tradition, the classical form of realism – initiated by Niccolò Machiavelli and Thomas Hobbes and reinforced by Hans J. Morgenthau, E. H. Carr, John Herz, and Raymond Aron – flourished under the Cold War characterized by superpower rivalry, arms proliferation, and distrust between the major ideological blocs. The proponents of realism, in general, hold the following assumptions: (a) human nature is predominantly guided by lust for power, and accordingly, the statesmen act on the principle of power rather than morality; (b) the atmosphere of international politics is hostile and anarchic, and thus the main goal or interest of the state is to strengthen its power to survive in such atmosphere; (c) the state, being unsure of the motives of other states, must enhance its power based on military capability in order to counter external military threats; (d) the state, guided by the instinct of survival, remains the primary actor to maintain sovereignty and shape its position in international politics; and (e) although a structure of balance of power may emerge from the desire of all states to maximize power, it is only a temporary condition under which interstate competition for power continues.[14]

The extension of classical realism to neorealism has hardly changed the above state-centric assumptions of international politics. The main departure, however, is that compared to realism, the neorealist perspective initiated by Kenneth Waltz puts greater emphasis on the balance of power. For Waltz, this balance of power results in a bipolar or multipolar structure of international system maintained by the major world powers.[15] Although the state still remains the main actor, its behavior is influenced by the structural properties (power structure) of this international system. But it is still the state's capability, based on its economic and military strengths and external alliances, which determines its position in the structure of international system.[16] Paradoxically, while the neorealists emphasize the influence of balance of power and its attendant international system on the behavior of the state, they tend to dismiss any significant role played by international institutions to regulate states and promote peace.[17]

In various ways, the above theoretical assumptions, arguments, and prescriptions offered by realist and neorealist thinkers can be found in other theoretical categories in international relations, including balance-of-power theory, deterrence theory, and hegemonic-stability theory. For instance, in extending the neorealist position, balance-of-power theory focuses on the importance counterbalancing power by forming and reforming alliances often under the auspices of a single state, especially when there are rapid changes in international power structure caused by interstate rivalries. The hegemonic-stability theory goes one step further to suggest that for ensuring the stability of the international system, there is a need for enforcing the rules of interaction among its member states. This enforcement of rules is ensured by a single dominant state or a hegemon that has strong economic, technological, and military power as well as commitment to these systemic rules. On the other hand, deterrence theory, which emerged largely during the Cold War, focuses on strategic options for major military powers, especially nuclear powers. Based on the realist assumption of states as unitary rational actors, the theory prescribes deterrence as an effective option. This deterrence is a dynamic process of continuous feedback to convince the opponents that any of their aggressive actions would invoke a response that would cause serious damage outweighing the potential benefit from the action, and thus to deter them from undertaking such action.[18] Some proponents of this theory even suggest that the proliferation of nuclear weapons would deter many states from engaging in war.

It is clear from the above description of various facets of realism, neorealism, and derivative strategic views that the realist tradition has no space for environmental and ecological questions. Its narrow state-centered and militaristic conception of security excludes non-military (especially environmental) threats to security; disregards the role of non-state actors such as non-government organizations (NGOs) in dealing with such security threats; and subordinates environmental issues to state-related categories such as national interest, sovereignty, and balance of power.[19] In fact, the assumptions, principles, and policy prescriptions of the realist tradition – which justify and encourage the expansion and use of state power through unrestrained military expenditures and defense alliances – are detrimental to environmental security due to the hazardous impacts of arms proliferation, especially nuclear weapons, and the diversion of resources to the defense sector that exacerbates resource scarcity. As discussed later, unfortunately, this environment-unfriendly realist perspective tends to dominate the security practice in East Asia.

Liberal Tradition and the Environment

The liberal tradition of international relations theories shares some of the basic principles of liberal political thinkers such as Immanuel Kant, John Stuart Mill, and David Hume. The proponents of liberalism, in general, hold a more positive assumption about human nature and collaboration, and support the protection of human liberty and equality through liberal democracy and free markets rather than state control. With regard to interstate relations, in opposition to the realist tradition, the proponents of the liberal tradition de-emphasize the unilateral role of the state, believe in interstate cooperation, encourage demilitarization, and propound collective security through international laws and institutions.[20] Extending this liberal theory further, pluralist thinkers emphasize multiple domains and actors in national and international security. They consider the state to be an embodiment of competing interest groups rather than a rational actor.

However, a more articulate attempt to extend liberal theory has been pursued by the scholars associated with neoliberalism or neoliberal institutionalism. In international relations, the neoliberals believe in most basic ideas and principles of liberalism such as interstate cooperation, non-state actors, collective security, and international law. But neoliberals have special focus on institutions – defined as sets of rules that prescribe roles, shape expectations, and outline activities – under which cooperation among states (based on their convergent interests) takes place. Among the major versions of neoliberalism, so-called 'complex interdependence' theory emphasizes the nature of interdependent relations among states and societies, the growing primacy of the economic sphere over the military dimension in such relations, and the increasing role played by non-state actors such as transnational corporations in this regard.[21]

Another version of neoliberal perspective is known as 'international regime' theory. It explains how a stable, orderly, and transparent mode of international cooperation is made possible by forming various international regimes – defined as sets of principles, norms, and rules reflecting the common expectations of actors in world politics – around specific issues like trade, security, the environment, and communication.[22] Although a regime may not be legally binding, its principles and norms, once agreed upon, shape the behavior of all participating states.

With regard to environmental security, the liberal tradition does not have a direct agenda, and its primary focus remains on international cooperation related to economic and military issues. However, the positive attitude of liberal thinkers towards interstate collaboration and their recognition of

non-state actors, may create potential for considering environmental threats as security issues and accepting the beneficial roles played by various environmental groups in world affairs.[23] In addition, since neoliberal theory of international regimes emphasizes the use of various sets of agreed norms and principles to guide interstate relations in different areas, the issue of environmental security is likely to receive more favorable treatment in discourse on international security. In the case of East Asia, the potential of the liberal tradition to address environmental issues is less relevant, because there hardly exists any of the above liberal features in the region's international relations and security perceptions.

Interpretive Tradition and the Environment

The interpretive tradition of international relations theories is more recent in origin. Most theoretical arguments in this tradition stress the 'intersubjective' dimension of international relations. A major theory within the interpretive tradition is known as constructivism, which borrows from the 'social construction of reality' perspective emphasizing the intersubjective domain of human action, especially in terms of how the identities and interests of actors are socially constructed and culturally informed.[24] For Checkel, constructivism is more of an approach to social inquiry than a theory: it criticizes the existing theories for using a reductionist methodological framework, focusing unilaterally on the agents (states) and their preferences, and neglecting the influence of agents' socialization in structures (global norms) on their preferences.[25] In opposition to this agent-biased or actor-centered analysis in major international relations theories, the proponents of constructivism emphasize interaction between agents and structures.

With regard to more concrete issues in international relations such as conflict and cooperation, constructivism interprets the causes of war in terms of the conflicting identities or self-perceptions of states; and explains international cooperation as a process of interaction that often has positive outcomes, including the reexamination of preconceived interests, redefinition of identities, shared understanding of reality, and potential for collective identity and security.[26] Beyond such interstate interaction, constructivism also emphasizes the mutual constitution of the state (agent) and the international system (structure).[27] However, there are two versions of constructivist theory – 'third-image constructivism' and 'fourth-image constructivism'.[28] While 'third-image constructivism' puts more emphasis on the state's 'social' identity (its perceived identity in relation to other states) than its 'corporate identity' (its various internal features) in

explaining its role in international politics, 'fourth-image constructivism' considers these two dimensions as interactive and mutually constitutive.

As far as environmental issues are concerned, constructivism does not have much to offer directly since its main focus is on the process of interaction between states and global norms, formation of states' identities and self-perceptions, shared view of reality in world politics, and potential for collective interstate identity. However, this framework may have indirect positive implications for environmental security – especially its emphasis on interstate cooperation based on shared understanding, may encourage the diversion of attention and resources from military security to environmental security. But the limitation is that constructivism remains a theoretical construct for academic discourse without much of its reflection in real-life world politics. The prevalence of a reductionist, militaristic notion of security among East Asian countries is a good example of how practical world politics is far away from the constructivist ideals of interstate collaboration and collective identity.

Radical Tradition and the Environment

The radical tradition tends to challenge and deconstruct the assumptions, principles, methods, and strategies of existing international relations theories, and suggest fundamental reforms in such theories. Within this tradition, the central intellectual tenets are borrowed from critical theory and postmodern and poststructural perspectives, and the application of these theories to international relations has been pursued by scholars such as Richard Ashley, R. B. J. Walker, and Ken Booth. For instance, in line with the original critical theory of the Frankfurt School, Booth challenges the norms of the Cold War in strategic studies, and explains security in terms of people's emancipation from war, poverty, and oppression.[29] In line with the postmodern and poststructural perspectives, Ashley suggests to question the very foundation of modern states and international politics based on geographical boundaries and geopolitical cultures, and prescribes the method of 'genealogy' in this regard.[30]

Despite certain variations among such radical scholars, in general, they postulate that there is no objective reality in world politics, and its structures and images are socially constructed. They suggest that the narratives of world politics based on modernity should be questioned, the hidden meanings of all texts and subtexts (e.g. speeches and arguments of policymakers) should be revealed, and the hegemonic theoretical traditions in international relations should be deconstructed.[31] With regard to concrete issues in world politics, they consider each state a representation of vested

interests constraining the potential of a conflict-free global community, and emphasize the realization of social justice in human arenas such as culture, gender, and environment.[32] Focusing more specifically on gender, the proponents of the feminist theory of international relations tend to interpret the state as a socially constituted category that conceals its masculine identity.[33] They also encourage the critique of international studies, reexamine the existing narratives of war and peace, advocate a feminist view of politics, and demand gender equality and greater role of women in world politics.

From the above discussion, it should be clear that the radical tradition is relatively sympathetic toward the environmental question. Due to their emphasis on the multiple dimensions and interpretations of international politics, the scholars associated with this tradition are more favorable to the incorporation of non-traditional issues such as the environment into security studies. However, one of the main weaknesses of this radical tradition is that it questions the narratives of existing theories and strategies of international relations, emphasizes unconventional issues such as gender equality and environmental security in international politics, but fails to provide a set of concrete theoretical and practical guidelines. As Kegley and Wittkopf mention, critical international relations theory 'is better suited to exposing the limits of others' analyses (deconstructing their logic) than to constructing theories that might identify ways to better explaining and improving world affairs'.[34] In the case of East Asia, even this potential for deconstructing the prevailing concept of security does not exist, especially since the region's realist security perception is hardly questioned or critically examined.

Before ending this section, it should be pointed out that although some recent developments in international relations theories seem to favor issues related to environmental security, in terms of an overall intellectual scenario, the field of international relations still remains relatively indifferent or uninvolved in dealing with environmental security in a more direct and serious manner.[35] Despite the recent proliferation of various non-traditional concepts, arguments, and perspectives of world politics and international security – especially those found in critical and postmodern theories – the realist and neorealist assumptions still have the dominance over practical international relations policies and strategies.[36] As mentioned above, East Asia represents a relevant example in this regard. However, before examining the dominance of realism in East Asian security perception, the next section explores how significant the issue of environmental security is in the region.

GROWING SIGNIFICANCE OF ENVIRONMENTAL SECURITY IN EAST ASIA: THE CURRENT CONTEXT

East Asia is comprised of countries with diverse demographic, economic, political, and ideological backgrounds.[37] These various forms of cross-national diversity create both the opportunity for cooperation and the potential of conflict among these countries, and thus, have implications for regional security. The situation, of course, is complicated by other past and present issues.[38] However, one of the most common security concerns that has implications for all countries in the region, especially due to their geographic proximity, is the neglected issue of environmental security. This section examines the significance of environmental security in East Asia, especially in terms of the forms and causes of environmental degradation, the interstate dimension of environmental tension, and the inadequacies of existing policies and institutions in this regard.

Major Forms of Environmental Insecurity

The significance of environmental security in East Asia lies in its concerns regarding various forms of environmental degradation, including water and air pollution, nuclear waste, acid rain, deforestation, soil erosion, depletion of marine resources, climate change, and sea level rise. More specifically, one of the most critical issues in East Asia is water and air pollution and its subsequent adverse effects such as the greenhouse effect and ozone depletion. There is a serious problem with marine pollution in the region – covering the Sea of Japan, the Yellow Sea, the East China Sea, and the South China Sea – which is largely caused by radioactive waste disposal, industrial waste dumping, oil spills, heavy metals, and agricultural chemicals.[39]

The level of oil pollution has worsened in the Sea of Japan (its level of pollution is often 2.5 times the level found in unpolluted ocean waters); the volume of marine oil spills has nearly tripled along the coast of South Korea; and the Yellow Sea has become one of the seven 'dying seas' of the world.[40] A more alarming form of pollution, however, is the disposal of radioactive materials, and the potential for nuclear accidents in the process of producing nuclear power in China, Japan, South Korea, North Korea, and Taiwan. For example, since the introduction of nuclear power in South Korea in 1971, there have been 350 nuclear power accidents in the country.[41]

In terms of air pollution, a critical concern in East Asia is regarding the emission of sulfur dioxide. A major source of such emission is from coal-burning factories and power plants in China that emit 700,000 tons of sulfur

dioxide per year, affecting other countries in the region such as South Korea and North Korea.[42] Another environmental danger emanating from sulfur emissions is acid rain to which Northeast China, Japan, North Korea, and South Korea are the most vulnerable. Chinese coal-fired power plants also emit carbon dioxide, which causes the greenhouse effect or global warming, and subsequently rise in sea level and climatic change. A significant increase in greenhouse gases has recently occurred due to the rapid pace of industrialization in China.

Other states in the region, especially Japan, Taiwan, and South Korea, are also greatly responsible for the emission of greenhouse gases since these countries are highly industrialized and urbanized. Between 1990 and 1996, the total amount of carbon dioxide emission increased from 244 million to 254 million tonnes in North Korea, 241 million to 408 million tonnes in South Korea, 1.0 billion to nearly 1.2 billion tonnes in Japan, and 2.4 billion to more than 3.3 billion tonnes in China.[43] In addition to such massive carbon emissions, the production and consumption of hazardous industrial goods in East Asia is responsible for the emission of chlorofluorocarbons (CFCs) that deplete the ozone layer.

Deforestation, which causes soil erosion and decline in biodiversity, represents another significant environmental problem in East Asia. The total area of deforestation during 1990–95 was 866 sq. km in China, 132 sq. km in Japan, and 130 sq. km in South Korea. One of the major causes of deforestation is the recent increase in demand for forest timbers in China, Japan, and South Korea.[44] With its huge timber-processing industry, Japan is considered the largest importer of raw logs in the world, and recently China has become another large consumer.[45] Today many of the forest areas – including those along the Pacific coast and the Chinese and Mongolian borders – have come under threat. Deforestation often leads to other environmental problems such as soil erosion, land degradation, and floods. For instance, in the case of China, deforestation has led to land desertification, loss of plant nutrients, and siltation of rivers – Chinese Premier Zhu Rongji has recently acknowledged the connection between deforestation and severe floods in the country.[46]

Deforestation, together with other environmental problems such as toxic pollution and acid rain, also accounts for the biodiversity loss, which has become a growing concern in East Asia. According to 1997 figures, the number of endangered mammal and bird species is 165 in China, 62 in Japan, 25 in South Korea, and 26 in North Korea; the number of such plant species is 312 in China, 707 in Japan, 66 in South Korea and 4 in North Korea.[47] In fact, the worsening situation of environmental degradation

represents a threat to the human population itself due to catastrophes such as the rise of sea levels, scarcity of fresh water, destruction of crops by floods, degradation of land, and decline in agricultural production. East Asian countries are facing today some of these severe problems of environmental insecurity. One of the recent examples is the flooding of the Chang (Yangtze) River in China in June 1998, which caused 2,500 deaths, made 56 million people homeless, and affected 7 million hectares of farmland.[48]

Critical Causes of Environmental Insecurity

First, among many factors causing the above forms of environmental insecurity, population pressure is often cited as one of the most critical concerns. An increase in population causes more demand for food, water, fuel, and space; more pressure on marine and forest resources; and perhaps more likelihood of land degradation and environmental pollution. In East Asia, increasing demographic pressure has worsened resource scarcity and ecological degradation. Within a short period between 1996 and 1998, total population size increased from 1.22 billion to 1.25 billion in China, from 45.55 million to 46.43 million in South Korea, from 21.68 million to 22.08 million in North Korea, and from 125.86 million to 126.49 million in Japan.[49] Such an increase in population in these East Asian countries, especially in China, has serious implications for environmental security.

The adverse impact of population pressure on the environment is accentuated further by economic poverty, because it is often the poor who do not have any choice but to clear the forest for cultivable land, adopt intensive cultivation, and overexploit natural resources. In East Asia, the level of such 'environmentally detrimental poverty'[50] has been worsened further due to the recent economic crisis. In terms of income inequality, the shares of income for the poorest 10 per cent and the richest 10 per cent are respectively 4.8 and 21.7 per cent in Japan, 2.9 and 24.3 per cent in South Korea, 2.8 and 24.5 per cent in Mongolia, and 2.4 and 30.4 per cent in China.[51] During the period of economic crisis of 1996–98, the nominal per capita income declined in most East Asian countries except China – from $36,543 to $29,836 in Japan, $11,422 to $6,908 in South Korea, $989 to $573 in North Korea, and $460 to $436 in Mongolia.[52] The worsening condition of poverty and unemployment created by Asian economic crisis has caused a reverse migration from urban to rural areas, expanded pressure on limited land, and exacerbated resource scarcity and overexploitation of natural resources.[53] In other words, the condition of poverty accentuated by the recent economic crisis, has further worsened East Asia's environmental insecurity.

Second, a major cause of environmental degradation in East Asia is the fast and intensive process of land development and urbanization, intensifying the pressures on forest, wetland, and coastal habitats. During the past few decades, the pace of urbanization was unprecedented in East Asia, especially in Japan, South Korea, and Taiwan.[54] More recently, new mega-cities have mushroomed in China. The examples of environmental degradation caused by such a process include the modification of nearly 40 per cent of Japan's natural coastline and a significant decline in its total area of beaches and lagoons; an estimated 65 per cent loss of Korea's coastal wetlands caused by its planned reclamation; and the similar process of coastal reclamation in North Korea.[55] All of these activities have serious adverse impacts on marine resources and migratory species.

Third, most East Asian countries are well known for their most rapid and intensive rates of industrial expansion. Japan, South Korea, and Taiwan have been engaged in massive industrial development since the 1950s and 1960s. Although a latecomer, China has introduced extensive programs of industrialization since the early 1980s. This massive energy-intensive industrialization process (involving the use of coal, oil, and nuclear energy) in the region has critical consequences for its environmental security in terms of the depletion of nonrenewable resources, production of toxic waste, pollution of water and air, and emission of greenhouse gases. In this regard, it has been pointed out that China has become the second-largest electricity producer after the United States, and about 70 per cent of its total power generation capacity comes from coal and 21 per cent from oil.[56] The colossal use of such energy sources by East Asian industries poses a serious threat to environmental security, especially by producing industrial wastes and emitting deadly gases.

Lastly, one major feature that distinguishes East Asia from other regions of the world is its exceptionally high rate of economic growth (except the recent crisis period),[57] although such a distinct record of economic performance might have been achieved at the expense of environmental concerns.[58] Guided by the mission of economic growth, Japan, South Korea, Taiwan, and China have pursued policies in favor of free trade and foreign direct investment, which allegedly have adverse implications for environmental security.[59] For example, it has been pointed out that unfettered free trade in oil, timber, and minerals has often been detrimental to the environment in the region. The advocacy of trade liberalization for economic growth without raising environmental questions by the Asia-Pacific Economic Cooperation (APEC) – of which Japan, South Korea, Taiwan, Hong Kong, and China are members – has unfavorable

implications for the region. In order to achieve higher growth rates, most governments in the region provide various incentives, including the withdrawal of environmental regulations, to attract foreign investors. In relation to the economic-growth fetish, the unprecedented increase in environmentally hazardous consumption (especially of cars and gasoline) also represents a major threat to the environment.[60]

Interstate Tensions Caused by Environmental Factors

Major forms of environmental degradation (e.g. pollution, global warming, acid rain, sea-level rise, and biodiversity loss), due to their regional and global scope and impacts, involve different nations and states, and it is hardly possible to keep such environmental disorders within national boundaries. In other words, environmental problems emerged or produced in one state, have spillover effects at least on the neighboring countries. In addition, environment-related problems (e.g. pollution, soil erosion, desertification, drought, and floods) in a state may accentuate resource scarcity so severely, and make human habitats so unsuitable for living, that such a state may get involved in conflict with other states over scarce resources, and part of its population may illegally migrate to other territories and provoke interstate tension.

Beyond this interstate dimension, it should be emphasized that even if one nation's environmental disorders do not spill over to other nations, environmental security still remains relevant and crucial, because, for each nation, the essence of security is to guarantee the security of its citizens against any threat (military or nonmilitary) from anywhere (internal or external). However, the main objective here is to provide some explanations – for example external spillover effects, internal resource scarcity, and motives for further resource acquisition – of how the issue of environmental security becomes an interstate concern in East Asia.

With regard to external spillover effects, one major source of environment-driven interstate tension in East Asia is the transborder pollution of air and marine resources. There are tensions among China, Japan, and South Korea over transboundary air pollution, which is largely caused by the above-mentioned pollution in China from its coal-fueled power plants and industrial facilities. The massive emission of greenhouse gases (carbon dioxide) by these power plants and industries created so much tension between China and Japan (and other industrialized nations) that during the Kyoto Protocol, China was asked to make commitment to reduce the level of its greenhouse gas emissions. China is specifically blamed for having such power plants and industries that emit acidic pollutants, and thus

causes acid rain to which Japan, South Korea, and North Korea are quite vulnerable.[61] There are also controversies over the pollution of the Sea of Japan – caused by industrial waste dumping, radioactive waste disposal, and oil exploration and spills – which has coastlines with East Asian countries.

The second environment-related cause of potential interstate tension in East Asia is the situation of resource scarcity perceived and experienced by people, and which spurs their mobility within and between national borders. A major problem case of resource scarcity is China, which has a population size of nearly 1.3 billion (six times bigger than the combined population of Japan, Taiwan, and the two Koreas) with a significant percentage living in poverty. Due to the scarcity of land, water, and fuel wood caused by soil erosion, over-cultivation, and deforestation, there are millions of people (estimated 100 million to 130 million) who are on the move within the country.[62] A severe condition of resource scarcity and environmental degradation also prevails in North Korea. The subsequent cross-border migration and refugee flows from China and North Korea create apprehension among neighboring countries, especially because of the fear that such migration could spread further. It is estimated that about 100,000 to 400,000 North Koreans have fled to China owing to environmental disruption (e.g. resource scarcity) and political risk, and they intend to eventually settle down in South Korea.[63]

Another environmental reason for interstate tension among East Asian countries is their motive of increasing control over environmental resources beyond national borders. Such a scenario is exemplified in the continuing disputes over fishing in the regional seas, which are often caused by the tendency of these countries to take unilateral action to maximize their share of fishery stocks. Often these disputes are not resolvable by existing bilateral agreements.[64] Similar motivations can be seen in the continuing territorial disputes (mostly over islands) of Japan with China, South Korea, and Taiwan; the maritime boundary dispute between China and Vietnam; and the dispute over the Spratly Islands, especially, between China and Taiwan (each claiming itself as the sole legitimate authority to exercise control over these islands).[65] The motives of these countries to acquire these environmental resources represent one of the most primary factors behind such disputes.

Current Environmental Measures and Their Limits

The significance of environmental security in East Asia lies not only in its forms, causes, and interstate implications, but also in the inadequacies of existing protection measures practiced by these countries. First, at the

global level, there are various international conventions and protocols related to transboundary pollution, ozone depletion, waste disposal, and biological diversity.[66] There are also international institutions such as the United Nations Environment Programme, the United Nations Commission on Sustainable Development, the Intergovernmental Panel on Climate Change, the Secretariat of the Convention on Biological Diversity, and so on. As with other countries, these international legal and institutional measures have certain influence on East Asian countries in favor of environmental security.

At the regional level, there is the so-called Northeast Asia Environment Programme, which organizes conferences and invites high-level officials (mostly from foreign ministries), so that they can get involved in dialogue on common environmental problems and pursue regional cooperation in sharing information, conducting research and training, and monitoring the conditions of marine pollution, biodiversity, and acid rain. Another initiative is the Northwest Pacific Action Plan in which East Asian countries are participants. Its agenda is to produce a regional convention to protect the coastal and marine resources in the Sea of Japan and the Yellow Sea.

There is also the Tumen River Area Development Program (TRADP) comprised of participants such as China, Russia, North Korea, South Korea, and Mongolia. One of its main objectives is to promote environmental protection, initiate joint projects for environmental management, and raise sensitivity among these member countries regarding the environmental implications of domestic economic and industrial activities for their neighbors.

In addition, the Intergovernmental Oceanographic Commission's Sub-Commission for the West Pacific has member states from various regions, including China, Hong Kong, South Korea, North Korea, and Japan from East Asia. Its purpose is to develop local skills in research on geological conditions and resources. There are also regional initiatives such as the South Pacific Regional Environment Programme and the Lower Mekong Basin Development Environment Program, which involve environmental cooperation between Southeast Asia and Northeast Asia. In addition, regional economic institutions such as APEC have incorporated environmental issues in their agendas of cooperation. Beyond these regional-level plans, programs, and initiatives, there are bilateral treaties or agreements involving China, Japan, South Korea, and North Korea; environmental think tanks and movements in Japan, South Korea, and Taiwan; and government agencies, ministries, and/or commissions in all these countries to address various forms and causes of environmental threats and ensure environmental security.[67]

Despite the availability of the above initiatives for environmental security in East Asia, there are contradictions and limitations inherent in most of these measures. For example, in the case of TRADP, competing national interests have prevailed over the broader regional concerns, and the legacy of conflicting relations between North Korea and Japan has prevented the latter from participating in the program.[68] The intention of economic institutions like APEC to support environmental concerns, contradicts their broader policies of free trade and foreign investment as they often degrade the environment. On the other hand, a major limitation of existing environmental measures in East Asia is that they are mostly unilateral regulatory means and voluntary bilateral or multilateral programs rather than legally binding multilateral conventions and treaties. As a result, regional cooperation in environmental security remains relatively uncertain and ineffective, especially due to the absence of specific legal measures and enforcing agencies at the regional level and the continuing emphasis on national-level strategies and institutions. In fact, the potential for environmental protection through such individualistic national initiatives has recently come under challenge due to the lack of finances accentuated by the recent Asian economic crisis. Although East Asian countries were adopting laws and regulations in compliance with international demands and pressures in the past, the post-crisis period witnessed a decline in such environmental legal standards in the region.[69]

In addition, the prevailing measures hardly take into account various environmentally relevant issues such as poverty, arms proliferation, industrial expansion, economic growth, consumerism, free trade, and foreign investment. As stated above, in various ways, these issues represent indirect threats to the environment. For instance, poverty and inequality (especially in China, North Korea, and Mongolia) force the poor to deplete environmental resources while allowing the rich to consume expensive but environmentally harmful industrial goods. Arms proliferation (especially in China, North Korea, and Taiwan) multiplies radioactive waste and diverts resources from human and environmental needs to military purposes. Economic growth based on industrial expansion, free trade, and consumerism often depletes resources, pollutes air and water, produces toxic waste, and endangers the overall environment. One may list other non-environmental issues with serious environmental consequences, but the problem remains that these issues are not taken seriously by most East Asian countries obsessed with industrial growth, consumerism, foreign investment, and military expansion.

In East Asia, one of the major reasons why factors related to regional environmental security receives less attention than national economic safety and military security, could very well be the legacy of traditional security perception based on the realist assumptions of interstate relations. In the region, individual states are overwhelmingly concerned with their performance in economic growth and national defense, which may create adverse environmental impacts (discussed above) and encourage interstate competition rather than cooperation. In other words, there is a dilemma between the drive for economic growth and consumerism that adversely affects the environment and intensifies interstate competition on the one hand, and the need for environmental security requiring a reduction in growth and consumerism and an expansion of interstate cooperation on the other.

The dilemma also exists between long-established perceptions or habits of traditional (military) security and the worsening ecological situation that needs adequate attention to non-traditional (environmental) security. For example, it is unrealistic to expect smooth cooperation between China and Taiwan, between South Korea and North Korea, and between Japan and China in the sphere of environment when these countries already have a legacy of conflictual interstate relations in the sphere of military security. The continuity in such strained interstate relations in East Asia, which largely reflects the realist perception of international relations, is likely to constrain regional cooperation needed for environmental protection. Thus, the next section explains the dominant international relations outlook and its implications for environmental security in the region.

DOMINANT INTERNATIONAL RELATIONS OUTLOOK IN EAST ASIA: IMPACT ON ENVIRONMENTAL SECURITY

Despite the end of the Cold War and emergence of a globalized multipolar world, the dominant outlook of interstate relations in East Asia still appears to be founded upon realist or neorealist assumptions. The legacy of the realist tradition in the region's international relations can be found in the continued dominance of states as the main actors in regional politics, preoccupation with traditional security and marginalization of non-traditional security issues, expansion of military apparatus and defense expenditure, use of bilateralism rather than multilateral institutions, mutual negative perceptions among states, and apprehension about interstate military threats.[70] This section examines some of the major symptoms of realist underpinnings in East Asian international relations, the reasons or

rationales for this realist outlook, and the critical implications of realist perspectives for environmental security in the region.

Indicators of the Realist Perspective in East Asia

First, with regard to the dominant realist outlook in international relations, one major indicator in East Asia is the dominance of states as the main actors in regional and international affairs. Despite the diminishing role of the state in domestic economic management due to recent market-oriented government reforms, the state remains the central actor in international relations, especially in regional economic relations and security strategies. The state still plays the leading role in pursuing nation-building, articulating national identity, and promoting nationalism – all of which considerably affect security perceptions in East Asia. State-centric nationalism and sovereignty, although they may constrain regional cooperation, often shape the nature of foreign policy in China, North Korea, South Korea, and Japan. Although certain segments of society, including business managers, economic experts, and academic professionals, may have liberal, pluralist, or constructivist viewpoints; the main forces in actual foreign policy making (such as top political and military leaders) still hold the state-centric realist assumptions of sovereignty in international affairs.[71] This dynamics is most prominent in China and North Korea.

Second, in terms of regional security perceptions, countries in East Asia are mostly guided by the conventional realist notion of state power based on military expansion for encountering external threats. This militaristic view of security is evident in the continuous increases in defense expenditures in countries like China and Japan. China has modernized its military and increased defense spending by 10 per cent each year since 1989, while the continual expansion of military expenditures in Japan during the recent decades has made its defense budget the second largest in the world.[72] However, the tension between the two Koreas, exacerbated by their potential nuclear threats and missile programs, has led to massive concentration of troops along their shared border.[73] The overall size of military forces and the amount of weapons in East Asia is quite alarming, and such an expansive defense system implies the dominance of a realist, militaristic security perception in the region, which is reinforced further by the formation of strong bilateral military alliances with the United States by Japan, South Korea, and Taiwan. Such alliances are observed suspiciously and cautiously by China and North Korea.

Third, realist security assumptions in East Asian countries become obvious when their mutually negative perceptions are considered. One prime

example of such negative perceptions is the apprehension about the 'China threat' in other countries of the region, which is largely their perceived threat of China caused by its nuclear power, military capability, significant territorial and demographic size, permanent seat on the UN Security Council, strong nationalistic attitude, and desire to get control over the disputed South China Sea.[74] There is also a negative perception about Japan due to its colonial past, its formidable economic strength, and its potential revival of military power. Such negative interstate perceptions are often reinforced by the above-mentioned territorial and border disputes among various East Asian countries. For all these disputes, the unilateral use of military force remains one of the most preferred options in these countries.

Last, another indicator of realist or neorealist assumptions under-girding the international relations outlook of East Asian countries (except Mongolia) is their preference for a national security realized through bilateral security arrangements rather than multilateral institutions.[75] For instance, China is unwilling to pursue multilateral regional cooperation,[76] especially because of its state-centric nationalism that tends to rule out multilateralism due to its potential constraint on its sovereignty. Similarly, Japan has a tradition of engaging itself in bilateral ties, although its security cooperation with the United States may constrain its multilateral cooperation within the region.[77] It is true that East Asian countries have created certain multilateral institutions such as the TRADP and the APEC. But, as mentioned above, multilateral cooperation through such institutions has been constrained by the particularistic national interest of each member country. On the other hand, although an institution like the ASEAN Regional Forum involves some East Asian countries (China, Japan, South Korea, and North Korea), it does not address security issues that are unique to East Asia.[78] This relative absence of genuine and direct multilateral cooperation in East Asia reflects the realist assumption that the balance of power is less stable when it involves more than two states.

Reasons Behind the Realist Perspective

What are the major reasons for the dominance of realist assumptions in the practice of East Asian international relations? The most frequently mentioned reasons are the history of Japan's military aggression against other East Asian countries during World War II and the legacy of Cold War rivalries, which still continue to perpetuate mutual distrust, perceived external threats, and negative attitudes toward the neighboring countries.[79] For instance, there has been tension between Japan and other countries in the region (especially China) due to their demand for an apology from Japan

for its war crimes and Japan's reluctance to comply. Similarly, the Cold War – which created tension between the communist bloc (China and North Korea) and the capitalist bloc (Japan, South Korea, and Taiwan) – continues to influence contemporary security perceptions and practices in the region. Concrete examples of this Cold War legacy include the current tension between China and Taiwan, and between South Korea and North Korea.

The second major reason for the realist framework's dominance in East Asia is the unequal regional power structure in both economic and military domains. More particularly, Japan is the regional economic power, although in recent years, China has become a potential giant mainly due to its huge markets, enormous enterprises, and high growth rates. Although South Korea and Taiwan have higher rates of per capita income than China, their economies are much smaller in size. Meanwhile, the poorest economies are Mongolia and North Korea. This uneven economic power – reinforced by the membership of Japan and South Korea in the WTO and the OECD (inaccessible to North Korea and China) – exacerbates economic tension, and makes multilateral cooperation less likely.[80] In the military sphere, China has become a formidable global power, and it possesses a military capability in terms of personnel, organization, and conventional and nuclear weapons that surpasses the total defense capabilities of all other East Asian countries. The military power of North Korea, especially its missile development program and potential nuclear capability, also represents a regional threat, especially to South Korea and Japan.[81]

Another major reason for a realist view of international relations in East Asia may be found in internal problems such as economic decline, poverty, unemployment, and class conflict. These factors often lead states to use the rhetoric of nationalism, external threat, and militarism in order to deflect public attention away from the politically damaging domestic problems. For example, China is facing an increase in unemployment (from 10 million to 16 million during 1998–99), a growing income gap and urban-rural divide, and political challenges from its Muslim population and religious sects such as Falun Gong.[82] One should not discount the pressure caused by these domestic problems, and the temptation for the government to divert public attention elsewhere by overemphasizing external security threats. Similarly, North Korea is suffering from severe poverty and hunger and South Korea has the worsening problem of unemployment and labor strikes. It is easier for both states to maintain public confidence in governance by portraying each other as a security threat than to resolve internal socioeconomic problems.

Finally, the realist perception of regional security in East Asia is also perpetuated by the presence of external actors, especially the extensive

military presence of the United States, in the region. Since US foreign policy and security perception continue to be guided by a predominantly realist worldview, its trusted military allies such as Japan, Taiwan, and South Korea also are psychologically influenced. The United States assists these allies not only by providing advanced weapons and military training but also by maintaining its thousands of troops within their territories. The presence of the US army creates certain distrust between China and Taiwan, North Korea and South Korea, and Japan and China. Such distrust, in turn, encourages a realist security perception among these East Asian countries, and encourages them to expand and modernize their military capabilities. Thus, the US presence or influence remains one of the major factors reinforcing the realist view of security in the region. Although there is a strong belief that this US presence is essential for security and stability in East Asia, the fact remains that such a notion of regional security and stability is in line with the aforementioned balance-of-power and hegemonic-stability theories within the realist tradition.

Impacts of the Realist Perspective on Environmental Security

During and after the Cold War, most East Asian states, especially China, South Korea, North Korea, and Taiwan, pursued the expansion and modernization of defense based on a realist assumption of security emphasizing the need for state power to encounter external threats. Such a one-dimensional security outlook precludes the non-traditional dimensions of security such as the environment.

In addition, due to the primacy of military security based on a realist perspective in East Asia, there has been a proliferation of conventional, chemical, biological, and nuclear weapons that are detrimental to the environment. While there is already a problem of disposing nuclear waste and radioactive materials from the production of missiles and nuclear weapons in China, the missile development program and potential nuclear warheads in North Korea are likely to increase the volume of such hazardous materials. In addition, the current strategy of maintaining a US-led military superiority in South Korea and Taiwan also involves the transfer of hazardous weapons and equipment to the region. Beyond these examples, there are indirect environmental implications of such a military expansion. More specifically, as the increase in defense expenditures in East Asian countries diminishes their available resources needed for reducing poverty and satisfying people's basic needs, the impoverished population may have no other choice but to over-cultivate land and overexploit forest and marine resources. This risk is more serious in relatively poorer countries such as North Korea and China.

Another adverse implication of a realist view of security in East Asia is the perpetuation of a state-centric bilateralism at the expense of building collective security through multilateral cooperation. The absence of multilateral cooperation is not conducive to environmental security because the cross-boundary nature of various environmental problems requires multilateral initiatives. However, the traditional habits of East Asian states to manage security problems by themselves or by establishing bilateral defense ties with external actors such as the United States, are not easy to change even in this post-Cold War world. The hegemonic influence of the United States itself is a critical factor discouraging its allies (Japan, South Korea, and Taiwan) to engage in any multilateral cooperation with its adversaries such as China and North Korea. Such a barrier to multilateral cooperation in military security has negative spillover effect on the potential for such cooperation in environmental security. In other words, if East Asian countries remain adversaries, and cannot achieve regional cooperation with regard to military security, one should not expect them to achieve a collective regional security for the environment. Thus, in order to realize environmental security, East Asian countries must question their traditional, realist view of security founded upon the assumptions of state power, external threat, and military expansion, and make a paradigm shift toward an alternative security perspective that values interstate cooperation, emphasizes multiple actors, and recognizes non-traditional security issues like the environment. The next section attempts to explore the major constituents of such an alternative.

CHANGING THE INTERNATIONAL RELATIONS PERSPECTIVE FOR ENVIRONMENTAL SECURITY

As discussed earlier, a new direction in thinking of international relations has emerged in terms of redefining security to encompass non-military security issues and multiple actors under new terms such as comprehensive security and non-traditional security.[83] In line with this intellectual shift, various international conventions, protocols, and institutions have been introduced in relation to different forms of environmental insecurity. Unfortunately, this current trend of re-conceptualizing security and creating international institutions for environmental security is not yet reflected in the perception and practice of regional security in East Asia. There is hardly any effective legal and institutional means at the regional level to deal adequately with environmental problems. In this context, what steps should be taken by East Asian countries to ensure environmental security in the region?

First, it is essential to rethink and take initiative to resolve the legacies of traditional conflicts – arising from events and issues such as Japan's role of aggression in World War II, the Korean War affecting the current inter-Korean relations, intraregional divisions created during the Cold War, and age-old territorial disputes – which tend to overshadow more crucial contemporary concerns such as environmental security. More specifically, it is necessary for China and Korea to question the practical significance of Japan's apologizing for its past role, and for Japan to question why it is so difficult to do so. All East Asian countries also need to reexamine their Cold War identities in this post-Cold War world, use pragmatic and rational rather than obsolete ideological criteria in their interstate relations, reassess the need for external actors (especially the United States) in shaping their security perceptions, and sort out their interstate rivalries by themselves. In this process, a critical factor is the demystification of negative perceptions that East Asian countries hold about each other, which requires diverse mechanisms – such as formal confidence-building measures, informal meetings and dialogues, and information and knowledge exchanges – to build mutual trust based on sincerity and commitment. They should increasingly replace the negative perceptions arising from historical conflicts with positive attitudes towards issues of common interests, and adopt a 'win-win' rather than 'win-lose' approach.[84] By overcoming negative perceptions, rebuilding trust, and complementing mutual needs, East Asian countries can divert attention away from military security and move to non-military security problems such as the environment.

Second, after changing mutual perceptions and attitudes among East Asian countries, the next step is to reexamine and restructure the traditional institutional frameworks predominantly based on unilateral defense strategies (except bilateral ties with the United States in a few cases). Once the above measures of replacing mutual misperception with trust are effective and the significance of military security is diminished, these countries have to find ways to restructure the existing security arrangements, especially in terms of reducing the defense sector (budget, personnel, weapons). In this regard, being the largest power in the region, China has to set examples for other states. Although China encourages the two Koreas to reduce potential nuclear proliferation in the Korean Peninsula,[85] it has to demonstrate its sincerity by reducing its own nuclear arsenal. On the other hand, countries like Japan, South Korea, and Taiwan have to rethink their military alliance with the United States (one of the central factors causing interstate distrust), and take initiatives to establish a collective regional security. In other words, based on mutual trust, these

countries need to replace unilateral or bilateral security, and build institutions for multilateral security involving all states in the region

With regard to environmental security, this reduction in the defense sector and expansion of multilateral regional collaboration will not only mitigate the problem of hazardous arms production, it will also release considerable financial and human resources from the military to satisfy basic needs of the poor, and thus, minimize their dependence on environmental resources. In addition, such a regional collaboration in military security will set an example or precedence of multilateralism needed for environmental security in East Asia. In fact, there is an urgent need for regional cooperation to address various forms of environmental problems in the region, including transboundary air pollution, acid rain, marine pollution, deforestation, and potential nuclear catastrophe.[86] However, it is necessary to add that multilateral cooperation for environmental security should involve various levels of stakeholders – including governments, NGOs, research institutions, and environmental experts – so that it becomes mutually reinforcing. More importantly, multilateralism in environmental security must result in legally binding regional environmental conventions requiring strict compliance of all states in the region.

Third, beyond the direct measures of regional cooperation and institution-building for environmental security, East Asian countries need to address critical issues such as population pressure, poverty, and inequality that have adverse implications for environmental security. Although there are extensive programs for controlling population growth in these countries, these programs must be supplemented by nationwide publicity, access to information, basic education, and adequate health care, so that people are motivated rather than coerced to follow such programs. With regard to poverty, states in East Asia must undertake comprehensive anti-poverty programs – especially to ensure the satisfaction of people's basic needs such as food, health care, education, transport – which, as stated above, can easily be financed by money saved from cuts in defense expenditure. In addition, a reduction in income inequality by adopting various redistributive measures can contribute to poverty alleviation. If effective, these policies and programs to reduce population pressure and poverty are likely to minimize the overuse and depletion of natural resources by the poor.

Fourth, for greater environmental security, East Asian countries should reexamine and readjust their policy priorities. More specifically, recent state policies in these countries (except North Korea) have mostly been guided by the objective of economic growth. During the period since World War II,

Japan, South Korea, and Taiwan experienced extremely high rates of economic growth, and more recently, China has become another high-performing economy in the region. As discussed in this study, such a high growth rate – mostly based on expansive industrial production, massive consumption, and trade liberalization – is often achieved by worsening environmental degradation. Thus, it is necessary to revise the objectives of economic growth, reexamine the current market-centered policies undertaken in the name of economic growth, and adopt more environment-friendly economic policies. More specifically, East Asian governments should revise the policies guided by economic growth, and adopt policies based on the principle of 'sustainable development' that favors environmental security.[87] If certain market-led policies and reforms are really unavoidable, each government in the region must adopt strict regulations for environmental protection, introduce measures to incorporate the environmental costs into the costs of concerned commodities,[88] and empower various environment protection agencies to enforce such regulations and measures.

Finally, all the above initiatives and policy measures are less likely to be adopted if there is no basic change in the realist security assumptions held by East Asian states. In this regard, it is imperative for the top policy-makers of these countries to reexamine the validity of realist assumptions underlying their security perceptions, assess the environmental (and other) costs of holding such a realist outlook in security strategies, and explore alternative theories or paradigms of international relations that are conducive to all forms (traditional and non-traditional) of security. As discussed earlier, there are other approaches to international relations with varying environmental implications.

With regard to environmental security, while the liberal tradition has certain potential (but otherwise indifferent), the interpretive tradition is accommodative (but without specific policy agenda), and the radical tradition is sympathetic (but without a concrete theory of its own). In considering these diverse international relations perspectives to articulate and promote an environment-friendly approach to security, the academic scholars and experts in the region can play a crucial role through publications, conferences, and media networks. In this regard, however, the academics themselves may have to critically examine their own preconceived assumptions regarding international security in general, and environmental security in particular.

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33. Christine Sylvester, 'Feminist Theory and Gender Studies in International Relations', *International Studies Notes* 16–17/3-1 (1991–92) pp.32–8; Jacqui True, 'Feminism', in Burchill and Linklater, *Theories of International Relations* (note 14) pp.229–32.

34. Kegley and Wittkopf (note 12) p.28.
35. Pirages (note 13) pp.53–64.
36. Dabelko and Dabelko (note 3); Iftekharuzzaman, 'South Asia', in Paul B. Stares (ed.) *The New Security Agenda: A Global Survey* (Tokyo: Japan Center for International Exchange 1998) pp.273–4.
37. For instance, demographically, China has a total population of 1.25 billion, Japan 126.5 million, South Korea 46.4 million, North Korea 22.1 million, and Mongolia 2.4 million; and in economic terms, the nominal per capita GDP is $29,836 in Japan, $6,908 in South Korea, $910 in China, $573 in North Korea, and $436 in Mongolia. In politico-ideological term, there is a democratic tradition with advanced capitalist market in Japan, a process of democratization and a developed market system in both South Korea and Taiwan, a move towards market-led reforms and expanding democratic forces in China and Mongolia, and a rigid system of communist rule and an underdeveloped market system in North Korea. See M. Shamsul Haque, 'How Critical is "Environmental Security" as a Non-Traditional Security Issue in Northeast Asia?', paper presented at the workshop of Inter and Intra-Regional Cooperation and Institutions Research Group, University of Hong Kong, 11–12 Dec. 2000; Akaha (note 1).
38. Some of these issues include the memory of Japan's colonial intervention in other East Asian countries; the remembrance of the Korean War; the legacy of the Cold War mind-set; the strong alliance of the US with Japan, South Korea, and Taiwan, but rivalry with China and North Korea; and the nuclear power of China and North Korea. Peter Hayes and Lyuba Zarsky, 'Environmental Issues and Regimes in Northeast Asia', *International Environmental Affairs* 6/4 (Fall 1994).
39. Hernandez, Tigno, and Torres (note 11) pp.130–2; NISSD (note 6); SCFA (The Standing Committee on Foreign Affairs), *Crisis in Asia: Implications for the Region, Canada, and the World.* Report of the Standing Committee on Foreign Affairs, Dec. 1998, Canada.
40. Hayes and Zarsky (note 38); Lee (note 1) p.188.
41. Hernandez, Tigno and Torres (note 11) p.133.
42. Hayes and Zarsky (note 38); Lee (note 1) p.188.
43. World Resources Institute, *World Resources 2000–2001* (Washington DC: World Resources Institute 2000).
44. World Bank, *World Development Report 2000–2001* (NY: OUP 2001) p.291.
45. Hayes and Zarsky (note 38).
46. Mao Yu-Shi, *The Economic Cost of Environmental Degradation in China: A Summary.* Occasional Paper of the Project on Environmental Scarcities, State Capacity, and Civil Violence (Univ. of Toronto 1997) >www.library.utoronto.ca/pcs/state/chinaeco/summary.htm<; Matsushita Kazuo, 'Environment and Development in Asia', *Japan Echo* 27/3 (June 2000).
47. World Bank (note 44) p.222.
48. Kazuo, 2000.
49. Akaha (note 1).
50. Among the poorer countries in East Asia, the percentage of people earning less than one US dollar a day was 18.5 per cent in China in 1996, and 13.9 per cent in Mongolia. World Bank (note 44) pp.280–81.
51. World Bank (note 44) pp.282–3.
52. Akaha (note 1).
53. Lyuba Zarsky and Simon Tay, 'Civil Society and the Future of Environmental', in D. Angel and M. Rock (eds.) *Asia's Clean Revolution: Industry, Growth and the Environment* (Sheffield: Greenleaf 2001).
54. Lee (note 1) p.187.
55. Lyuba Zarsky, 'The Domain of Environmental Cooperation in Northeast Asia', paper prepared for the Sixth Annual International Conference Korea and the Future of Northeast Asia: Conflict or Cooperation?, Portland State University, Portland, OR, 4–5 May 1995.
56. NISSD (note 6).
57. The average rate of economic growth was 9.8 per cent in Japan during 1956–73, 8.95 per cent in South Korea during 1963–91; and 9.7 per cent in China during 1979–99. Li Kai, 'The

Impact of Expanding Population and Economic Growth … in the People's Republic of China', in Carolina G. Hernandez and Gill Wilkins (eds.) *Population, Food, Energy, and the Environment: Challenges to Asia-Europe Cooperation* (Tokyo: Council for Asia-Europe Cooperation 2000) p.141.

58. As pointed out by World Bank, 'East Asian countries have been pursuing rapid economic growth, industrialization, and modernization with little consideration of environmental issues.' World Bank, *Environmental Implications of the Economic Crisis and Adjustment in East Asia* (Washington DC: World Bank 1999) p.2.
59. Hernandez, Tigno, and Torres (note 11) p.130; Zarsky and Tay (note 53); Gill Wilkins, 'The European Overview', in Hernandez and Wilkins, *Population, Food, Energy, and the Environment* (note 57) pp.9–10.
60. Between 1990 and 1996, the number of cars per 1000 people increased from 1 to 3 in China, 283 to 373 in Japan, 48 to 151 in South Korea, and 5 to 12 in Mongolia; and between 1987 and 1997, the consumption of motor gasoline per person increased from 20 to 35 liters in China, 308 to 422 liters in Japan, and 39 to 245 liters in South Korea. World Resources Institute (note 43).
61. Zarsky (note 55); NISSD (note 6).
62. SCFA (note 39).
63. Lee (note 1) p.202.
64. Zarsky (note 55).
65. SCFA (note 39); Deng Yong, 'The Asianization of East Asian Security and the United States' Role', *East Asia: An International Quarterly* (Autumn 1998). Christopher C. Joyner, 'The Spratly Islands Dispute: What Role for Normalizing Relations between China and Taiwan?' *New England Law Review* 32/3 (Spring 1998).
66. The examples include the Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter (1972), Convention on Long-Range Transboundary Air Pollution (1979), Vienna Convention for the Protection of the Ozone Layer (1985), Montreal Protocol on Substances that Deplete the Ozone Layer (1987), Convention on Biological Diversity (1992), Framework Convention on Climate Change (1992), Convention to Combat Desertification (1994), Comprehensive Test Ban Treaty (1996), the Kyoto Protocol (1997).
67. For the examples of national-level initiatives in China and South Korea, see Yi-Chi Wang, 'Republic of China', in Asian Productivity Organization (ed.) *Asian Approach to Resource Conservation and Environment Protection* (Tokyo: Asian Productivity Organization 2000) pp.43–56; Kyung-Ho Maeng, "Republic of Korea', in Asian Productivity Organization (ed.) *Asian Approach to Resource Conservation and Environment Protection* (Tokyo: Asian Productivity Organization 2000) pp.142–6. For such initiatives in Japan, see Organization for Economic Co-operation and Development, *OECD Environmental Performance Reviews: Japan* (Paris: OECD 1994).
68. Akaha (note 1).
69. Due to the growing concern for recovery from economic crisis and increase in international competitiveness on the one hand, and the diminishing financial capacity of the state to enforce comprehensive environmental regulations on the other, the regulatory measures are being eroded or deemphasized in the region. Zarsky and Tay (note 53).
70. NISSD (note 6); and Haque (note 37).
71. Akaha (note 1).
72. Ibid.
73. Deng (note 65); Masashi Nishihara, 'Japan's New Search for Security', Department of Foreign Affairs and International Trade, Canada, 1999.
74. SCFA (note 39); Lee Lai To, *China and the South China Sea Dialogue* (Westport, CT: Praeger 1999) p.10.
75. In the environmental domain, the examples of bilateral arrangements include the Agreement on Cooperation in the Field of Environmental Protection (1993) between South Korea and Japan, the Agreement on Environmental Cooperation (1995) between China and South Korea, and the Environmental Cooperation Treaty (1994) between Japan and China. Hernandez, Tigno, and Torres (note 11) pp.135–6.
76. Lee (note 74), pp.72, 80.

77. Japan's bilateral cooperation with China in terms of providing foreign assistance has largely been based on the domestic interests and pressures within both countries. Quansheng Zhao, 'Japan's Official Development Assistance to China: A Bilateral Megapolicy', in John D. Montgomery and Dennis A. Rondinelli (eds.) *Great Policies: Strategic Innovations in Asia and the Pacific Basin* (Westport, CT: Praeger 1995) p.194.
78. Akaha (note 1).
79. Hernandez, Tigno and Torres (note 11) p.136
80. It is mainly because, since Japan and South Korea already have access to global economic forums and are participants in international financial agencies, they have lesser interests to form any multilateral financial arrangement primarily for East Asian economies. Akaha (note 1).
81. For example, in 1998, the launch of a missile over Japan by North Korea considerably intensified Japan's security concern. Ibid.
82. Nishihara (note 73).
83. Eric K. Stern, 'The Case for Comprehensive Security', in Daniel H. Deudney and Richard A. Mathew (eds.) *Contested Grounds: Security and Conflict in the New Environmental Politics* (Albany: State Univ. of NY Press 1999) pp.127–54; Maddock (note 2) pp.160–80.
84. East Asian countries can complement each other based on their individual strengths. For example, Japan and South Korea have the technological and financial advantages, North Korea and Mongolia have primary resources, and China has a large labor force. Hayes and Zarsky (note 38).
85. Quansheng Zhao, 'How China Views Korea: A Balanced Act Tilting Toward the South', in Wang Gungwu and John Wong (eds.) *China's Political Economy* (Singapore UP 1998) p.318.
86. Zarsky (note 55); NISSD (note 6).
87. Haque (note 4) pp.199–222.
88. According to the World Bank, in East Asia, one of the major reasons of excessive resource exploitation and pollution is the underpricing of natural resources and the exclusion of negative environmental externalities. World Bank (note 58) p.3.