Since the 1970s, global environmental problems have been characteristically managed by top-down government-led methods involving international conventions and other arrangements.

With Asia’s breakneck economic growth increasingly threatened by further damage to the environment, World Economic Forum executive Dominic Kailashnath Waughray argues that adding a uniquely “bottom-up” dimension to Asia’s environmental management strategy, which galvanizes public-private partnerships across the region, could be a smart way to ensure it leads in the race to green growth.

Unleashing Green Dragons:
A Bottom-up Approach
By Dominic Kailashnath Waughray
TO AVOID CHOKING ON THEIR own growth, Asian economies must become centers for green economic innovation within the next two decades. If we envision the emergence of high-growth “Green Dragon” economies across Asia by 2030, we can see multiple economic benefits to the region and the world. They will sustain growth in Asia and, by default, in the rest of the world. They will avoid widespread social and political unrest occurring as a result of rapid, but dirty, industrialization and urbanization. They will help the older Group of Eight (G-8) economies to transform their own growth paths, not least through an East-to-West export of green technology, design, architecture, management systems and public policy. And they will help the world move onto a trajectory of reduced greenhouse gas emissions that can diminish the chances of catastrophic climate change, while also offering other regional environmental benefits.

China, Japan and South Korea are already beginning to demonstrate Asian green leadership. With some effort, the world system could assist Asian leaders to move more rapidly toward green investment and economic development within the next two decades.

Given the scientific view that greenhouse gas emissions must peak within the decade, how quickly could an Asian green economic transformation take place? And, notwithstanding the responsibilities that developed countries have to clean and green their own economies, how can international frameworks and partnerships best help Asian political and business leaders to accelerate such an endogenous transformation in their economic growth?

First, let me provide summaries of some general forecasts for Asia’s energy, water, urban and transportation sectors by 2030. Each summary makes for disturbing reading on its own. Together, they offer a snapshot of the structural economic challenges Asia’s leaders must address to avoid propelling the region’s environmental, demographic and economic growth trends inexorably toward a collision:

Energy

The International Energy Agency’s (IEA) “2009 World Energy Outlook” predicts an expansion in global energy demand of at least 40 percent by 2030, with developing Asian countries being the main drivers of this growth. Under the IEA’s reference scenario, fossil fuels, especially coal, will account for over 75 percent of the global increase in energy use between 2007-2030. In this scenario, over 95 percent of the projected increase in greenhouse gas (GHG) emissions will come from non-OECD countries, especially Asia and in particular India and China: of an estimated 11-gigaton rise in global GHG emissions 2007-2030 under the IEA reference scenario (from 28.8Gt in 2007 to 40.2 Gt in 2030), 8Gt (or 72%) of this increase will come from China and India alone. The IEA says that China, by comparison, will need to grow its power generation capacity by over 1300GW, close to 1.5 times the capacity of the US today.
phere in excess of 1,000 parts per million (ppm) of CO₂ equivalent by 2050.” (The Intergovernmental Panel on Climate Change recommends reducing global greenhouse gas emissions to 450 ppm by 2050. It estimates that 450 ppm equates to a global average temperature increase of 2°C by 2050, which offers a 50:50 chance of avoiding dangerous climate change. A rise to 1,000 ppm by 2050 would equate to the global average temperature rising up to 6°C, which the IEA says would lead “almost certainly to massive climatic change and irreparable damage to the planet.”) The challenge is stark: how to meet Asia’s growing energy needs with clean energy within the next two decades? The cost will be huge, on the order of hundreds of billions of dollars a year. Overseas Development Assistance (ODA) will not be enough to foot the bill. A rapid and fundamental change in private investment flows into Asia’s energy infrastructure will be required, combined with unprecedented deal flows in investment-grade clean energy.

Water
The OECD estimates that if present ground- and surface-water extraction trends continue, nearly 4 billion people, or about two-thirds of today’s global population, will live in areas of high water stress by 2030, the majority of them in Asia. The United Nations Development Program (UNDP) suggests that 56 percent of India’s groundwater is already being used more quickly than it can be replaced; the equivalent figure for China is 25 percent. The International Water Management Institute (IWMI) estimates that over 70 percent of freshwater in Asia is currently used for agriculture, a figure that will rise substantially by 2030. Yet by then, energy and industrial demand for water across Asia will also grow by 78 percent compared to 2000 levels, according to modeling by the Columbia University undertaken for the World Economic Forum. This means rising competition

What is required for the green transformation of Asia by 2030 is faster, more innovative and competition-inducing action to scale. This means relying on more than intergovernmental actions to devise new policies.
among different economic sectors for access to increasingly scarce water resources. Political trade-offs will be required. This is a transition that the wealthier economies in Asia have experienced already (Japan, Singapore, South Korea and increasingly China), mostly by allocating their own water to industry and by crafting land-for-food deals with overseas governments in water-rich countries, such as those in equatorial Africa. As this trend continues, Asia’s water footprint could become a global geo-political issue by 2030.

On top of these trends, climate change will make the region’s water security situation much worse. Aside from changing monsoon patterns, climate change threatens the glaciers of the Himalayas and Tibet. These act as the world’s largest freshwater bank, feeding Asia’s principal rivers and providing water to more than two billion people. These glacial banks are melting at an accelerating rate. In the 1990s, the Himalayan glacial mass shrank at three times the rate of the previous decade. Most analysis suggests that given current trends, Himalayan glaciers will disappear by 2100. Urgent reform of Asia’s water infrastructure is undoubtedly required — to both fix what exists and to inject new technologies, arrangements and policy incentives into the sector.

Cities

The United Nations estimates that for the first time in human history over half of the world’s population now lives in cities. Asia is at the forefront of this trend. The region already hosts the majority of the world’s mega-cities. In addition, China has 100 cities with a population of over one million; India has 35; and Pakistan has eight. In comparison, the United States has nine. By 2050, 73 percent of China’s population and 55 percent of India’s is expected to be urban. The environmental challenges of this trend are self-evident. For example, of China’s 669 cities, 60 percent suffer water shortages, and in 2005 nearly half lacked waste-water treatment facilities. If living standards in cities fail to improve, the social and political implications are also clear. Innovations in city planning and architecture and a step change in infrastructure investment at an unprecedented speed and scale will be required to transform Asia’s rapid urbanization over the next two decades into a suite of new models for sustainable mega-city growth.

Transportation

Despite the recent economic downturn, the aircraft manufacturer Boeing forecasts that the Asia-Pacific region will be the world’s largest aviation market by 2028, requiring close to 9,000 new commercial jets. Boeing estimates the region will represent more than 40 percent of the world’s aviation passenger market within the next two decades. Private automobile ownership in Asia over the same period will surge compared to the past decade. Industry forecasts predict that by 2030 China and India will become the first- and third-largest automobile markets in the world, respectively, with the US in second place. The projected size of China’s auto market in 2030 will be 62 million units (in 2009, it produced 13 million), dwarfing the still huge US market of 23 million units by that time. India, meanwhile, will have also crossed the 20 million-unit mark. In December 2009, Beijing alone had four million private vehicles registered, compared to three million in 2007 and one million in 1997. Given this rapid growth, an effective paralysis of transport systems in cities and in the air is fast looming, with corresponding effects on health, safety and the environment. A nearly complete dependence on oil for transport also raises concerns for Asia about energy security, localized air pollution and greenhouse gas emissions. Innovations in the
transportation sector — in technology, pricing, integrated systems management and government policy — are urgently needed to make this growth sustainable.

The range and complexity of the environmental, demographic and economic growth challenges that Asia faces are clear. It is also clear that these regional problems are far too interconnected with the performance of the international system economically and environmentally for any one Asian government to solve unilaterally — or, indeed, to solve at a regional level in isolation from the broader international community. This is especially true if Asia’s economies seek to sustain their robust economic growth.

A NEW INTERNATIONAL APPROACH

Within this uncharted geo-political context, the G-8 nations face a new and historic responsibility. Given the global economic benefits of green growth in Asia, how can historically richer “Western” nations enable Asia to both speed up and scale up an endogenous green shift in regional economic development?

This will require a different, or complementary, approach than the pursuit of a global, top-down, rules-based architecture for environmental governance through the United Nations, which arguably has been the core strategy typically advanced by rich nations since the 1970s through such initiatives as the Montreal Protocol, the Convention on International Trade in Endangered Species, the Convention on Biological Diversity, the Law of the Sea and, indeed, the Kyoto Protocol. Instead, what is required for the green transformation of Asia by 2030 is faster, more innovative and more competition-inducing action to scale. This means relying on more than intergovernmental actions to devise new policies. International bureaucracy takes a long time and the policy signals are invariably too weak to provoke a sharp, unambiguous and widespread market response. Instead, the task requires new thinking — perhaps the creation of a market-based race to green growth “from the bottom up,” rather than another set of “top-down” rules.

A new public-private dimension to Asia’s growth strategy is therefore required — one designed specifically to sustain and simultaneously green the region’s growth quickly, to scale and in a competitive manner. It will need new arrangements that can unleash the innovation and entrepreneurial talent inherent in civil society and the private sector. It will also need to enable this talent to work to scale, in substantive public-private partnerships both with individual Asian governments and with multiple governments on regional public-private programs. In this way, the core market-based components of Asia’s new green economy can be built from the bottom up.

This will also require different financing arrangements. Historic funding sources such as ODA will not provide enough cash or attract enough deal flow to meet the needed scale and speed of the public-private investment transformation. Nor does ODA generally create productive investments that can boost gross domestic product in individual countries. New forms of public-private financing are required, especially to meet Asia’s clean infrastructure needs. These arrangements can be designed to draw in patient capital from institutional investors such as pension funds or sovereign wealth funds and buy down risks using public finance mechanisms provided by institutions such as the Asian Development Bank.\(^20\) They could also structure project financing in a way that would be tailored to regional, country or sector fund levels. In this way, a dimensional step change in private investment flow into Asia for clean or low carbon infrastructure can be created.

\(^{20}\)Recent Analysis by UNEP suggests that using public finance in this way can leverage between three and 13 times as much private sector capital for infrastructure investments in developing countries. See http://www.uneo.org/PDF/PressReleases/Public_Financing_Mechanisms_Report.pdf
The range and complexity of the challenges that Asia faces are clear. It is also clear that these regional problems are far too interconnected with the performance of the international system for any one Asian government to solve unilaterally.

MOVING BEYOND COPENHAGEN
The recent Copenhagen Accord agreed at the December 2009 meeting of the UN Framework Convention on Climate Change could provide a useful platform from which to launch such a first wave of innovative public-private arrangements to green Asia’s economic growth.21 This is because the Accord is designed as more of an “opt-in” agreement than a top-down framework of global rules. Consequently, it can provide the space for innovative, bottom-up regional approaches to deliver low carbon growth.

Consider the possibilities: What if, under the auspices of the Group of 20 nations and the Asia-Pacific Economic Cooperation forum, leaders of Asian and G-8 governments could discuss with development finance experts, non-governmental organizations, investors and business leaders how to use some of the future financing made available through the Copenhagen Accord, as well as other forms of regional financing, to tackle climate change in Asia in a way that would leverage much more private investment in low carbon infrastructure for the region?

What if, under the auspices of the G-20/APEC, these Asian and G-8 leaders could craft a regional arrangement to 2030 for a set of projects and programs to be implemented over the next five years across Asia to make high impact, productive use of this new capital? A “bottom-up” set of large-scale low-carbon and green-growth infrastructure initiatives

95% of the projected rise in GHG emissions by 2030 will be from non-OECD countries, most in Asia

A “bottom-up” set of large-scale low-carbon and green-growth infrastructure initiatives would stimulate investment, create jobs and help to deliver on the emission reduction pledges that Asian governments are to make under the new Copenhagen Accord.

The sorts of innovative big projects and multi-country public-private initiatives that could be launched might include, for example:

• An initiative to create a network of Asian energy research, innovation and efficiency centers located in key countries or provinces. It could be modeled on the Consultative Group on International Agricultural Research (CGIAR), a public-private applied-research model for food crops that helped drive the 1970s “green revolution” in agriculture in developing countries. In short, a 21st century Consultative Group on International Energy Research to drive the clean revolution in solar, wind, bio-energy, energy efficiency and clean fuels, initiated within Asia.

• An Asian low carbon finance initiative focused on attracting much more private investment into low-carbon infrastructure by using public money to buy down risk. The aim could be to build a set of low-carbon infrastructure investment funds for each major country or sub-region in Asia (perhaps starting with China and India) to be ready for business by 2013 and able to mobilize billions of dollars of private capital per fund on a regular basis up to 2030.

• A common metrics initiative to get rid of the bureaucratic “green-tape” facing companies operating in Asia, enabling them to use a universal regional reporting standard for corporate climate disclosure suitable for all government regulators. This would enable companies to race toward more low carbon investments and innovations, and help Asian countries better compare their emissions reduction performance.

• A multi-city smart electricity grid demonstration initiative that would create a regional program across some of Asia’s major cities. This public-pri-
vate initiative would help city governments, utilities, companies and populations work out how major urban electricity grids can be revamped to transmit new, clean forms of energy that would supply power to electric vehicles and sustainable buildings and enable people to improve the efficiency of their energy use, save money and reduce emissions at the same time.

- A carbon capture and storage (CCS) initiative to create an Asian portfolio of two dozen major carbon capture and sequestration demonstration projects between 2013 and 2025, focusing on China and India. The Chinese and Indian governments, companies and expert organizations, collaborating with their counterparts in G-8 countries, would learn in practice how cleaner coal power stations with CCS actually work, how costs can be brought down and how technologies can be tried and shared. The size of the potential market in India and China, and the emissions abatement rewards from 2025 onward, would drive these collaborations.

Regional governments could work with experts and business leaders to help get these various initiatives going, while at the same time continuing important top-down negotiations within the UN framework to transform the Copenhagen Accord into a stronger, more detailed arrangement. In fact, it might provide credibility and focus to their ongoing talks, if these projects were seen as “quick-start initiatives” designed to help deliver the commitments that Asian governments make on emission reductions — due by January 31, 2010 — as part of the Copenhagen Accord.

Finally, this is not just a set of ideas.

The World Economic Forum, with many collaborators, has over the last 10 months undertaken detailed work on how such an innovative, bottom-up approach to climate strategy could work. Networks of investors, companies and experts, including World Economic Forum industry partners and specialists from across Asia, are ready to be mobilized in such a public-private effort. Political leadership from a group of major governments in Asia and the G-8, perhaps under the auspices of the G-20 (chaired by South Korea in 2010) and APEC, can make this happen. In fact, a similar group of countries helped create and support the Copenhagen Accord reached in December.

The World Economic Forum Annual Meeting in Davos in January 2010 could be the perfect post-Copenhagen platform for the incoming G-20 chair to invite discussions on the potential for such a program. It might be called the “Green Dragon Initiative,” the first substantive public-private program of technical and financial innovation spawned by the Copenhagen Accord. It would be Asian-led and designed to help the broader regional economy become a green first-mover, shifting Asia onto a low-carbon, high-growth path before 2030 and positioning it at the front of the race for green growth.

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