Closing the Gap: Reforming the Investment Landscape for Green Transformation

Kiki Chan

Sustainable financing is an integral element of the post-2015 development agenda. Its significance is evident from the Rio+20 decision to establish an intergovernmental committee of experts on sustainable development financing, and to mandate the United Nations (UN) system to bring to the General Assembly its assessment of needs as well as to explore alternative and innovative sources of financing for public-private partnership.¹

Asia and the Pacific needs about $500 billion to $800 billion annually between 2013 and 2030 to close development gaps in the area of access to energy services, education, employment, health, and social protection.² Likewise, the region would need substantial financial resources to close the infrastructure gaps, another component of sustainable development.

Asian Development Bank (ADB) estimates that $800 billion would be required annually for infrastructural development by 2020.³ A more recent World Bank study estimated that South Asia alone would need between $1.7 trillion and $2.5 trillion.⁴ Estimates to modernize the region’s energy sector, through developing new technologies and renewable energy, range from $11.7 trillion to $19.9 trillion by 2035, or as high as $800 billion per year.⁵

With 56 per cent of the region’s population expected to live in urban areas by 2030, urbanization would multiply the financing need.⁶ The size of the challenge is further enlarged by climate change. Climate adaptation is estimated to cost $25 billion annually between 2010 and 2030,⁷ while losses from natural disasters are likely to be higher. Already, such losses amounted to $750 billion over the period 2003-2013.⁸
The cost of financing would be bigger still for the least developed countries. For instance, most emerging Asia-Pacific markets would require less than 10 per cent of their gross domestic product (GDP) to provide universal access to modern energy services. Bangladesh and Fiji would require, on average, about 16.4 per cent and 9.9 per cent of their GDP respectively over the period 2013-2030 to achieve universal energy access.9

Despite the paramount financing gap and challenges, the region has been underinvesting in sustainable development. This article will highlight how the current system has resulted in a vicious cycle of unsustainable development, why a reform to the existing system is required, and what policy tools and approaches would help deliver these reforms.

Locking into an Unsustainable Future

Due to misplaced incentives under the existing system, investment has been channeled to activities which present trade-offs between environment and socio-economic development.

One example is investment in fossil fuels, which has been driven by such market failure as fossil fuel subsidies. In 2012, fossil fuel consumption subsidy rates as a proportion of the full cost of supply in Asia-Pacific countries ranged from 0.3 per cent in Republic of Korea to 73.8 per cent in the Islamic Republic of Iran. This means that end users in the Islamic Republic of Iran pay merely a quarter of the international market price for fossil fuels.10

China, India, and Indonesia, together with the rest of the Group of 20 (G-20), pledged to rationalize and phase out fossil fuel subsidies over the medium term while providing targeted support to the poor. China and India were deemed to be in full compliance with their pledge in 2012,11 with 3.4 per cent and 17.6 per cent subsidization rates respectively. Indonesia, however, saw a rise in the rate from 23.2 per cent in 2011 to 28.3 per cent in 2012.12

Underpriced fossil fuels would induce over-consumption of the carbon-intensive energy sources.13 Despite the evidence that around 78 per cent of greenhouse gas (GHG) emissions were from fossil fuel combustion and industrial processes since 1970s,14 there have been no signs of decrease in coal-fired power plants worldwide. The world witnessed a record-high installation of coal-fired power plants with 350MW or above capacities over the last five years.15

The long lifespan of coal-power power plants and industries that are existent and in the pipeline means that there is little room for maneuvering the carbon ‘lock-in’ in the capital stock.16 Coal-fired power plants can be classified into ultra-supercritical, supercritical, and subcritical by descending order of efficiency. A new ultra-supercritical plant would lock in 4.5 million tonnes of carbon dioxide (CO2) over its lifetime of more than 30 years.17 The carbon lock-in would be higher for less efficient plants.

The carbon lock-in issue is problematic especially when a significant number of the built plants belong to the lower-performing category, as in the case of China and India. The problem is
heightened when these plants are new. In 2012, China already had 51 per cent of the world’s total capacity and 45 per cent of the emissions from coal combustion. Around 90 per cent of the plants in China are younger than 20 years, implying that the emissions trend would carry on into the foreseeable future.

Coal will still account for over half of the power mix in China in 2030 and carbon emissions from power generation in China could start to decline by 2027 as renewables are added, but this would hinge on factors ranging from the cost of shale gas to the enforcement of carbon price in the country. A significant share of the world’s existing and future plants needs to be retrofitted with carbon capture and storage to avoid the lock-in of high amounts of carbon emissions.

Once the carbon-intensive infrastructure is embedded into the economy, however, the lock-in would make it harder and more expensive to pursue greener alternatives. According to the International Energy Agency (IEA), for every $1 of investment in cleaner technology that is avoided in the power sector before 2020, an additional $4.3 would need to be spent after 2020 to compensate for the increased emissions.

Likewise, reform could be made difficult when the society is entangled in the carbon lock-in. In Indonesia, for example, attempts have been made since the late 1990s to reform fossil fuel subsidies. In 2003, price increases on diesel were trimmed back from 21.9 per cent to 6.5 per cent following opposition. Almost a decade later, in 2012, proposal to raise gasoline prices was met with protests and it failed to gain sufficient support from the parliament.

Fossil fuel subsidy reform did achieve some successes, including Indonesia’s attempt to raise the price of fossil fuels in 2005 and 2007, and that of Malaysia in 2013. Notably, these reforms shared a common objective to manage impacts through compensation to the poor. This took the form of cash transfer and spending on education, health, and social welfare. Alignment of incentives is one of the keys to the success of these programmes.

Potential of a Sustainable Future

Investments have to be redirected to sectors that could address the carbon lock-in, while at the same time creating socio-economic co-benefits to synergize environment and development.

The value of a sustainable future is evident from the creation of green jobs. The world’s working age population will grow from 4.5 billion in 2010 to 5.2 billion in 2025. Of these 700 million additional workers, 300 million will be in Asia and the Pacific, where there will be 2.5 billion working age people. In the next two decades, the number of green jobs is projected to reach 100 million worldwide, representing about 2 per cent of the future global workforce by 2030. Applying this same percentage to Asia and the Pacific, there will be 50 million green jobs in the region in 2025.
Positive Employment Effects from Green Policies (Adapted from Various Sources)

**China:** Government wind, solar, and hydro power targets could lead to the creation of 6.79 million direct and indirect jobs. The shift in the Chinese economy towards service sectors and away from basic industry could create a further 20 million. The economy is likely to expand at around 8 per cent per year and so while up to 17.38 million fewer jobs might be created if energy efficiency is increased by 60 per cent, the focus on low carbon and services sectors could outstrip these losses by almost 10 million.\(^{25}\)

**India:** Implementation of the Indian Government’s National Action Plan on Climate Change could create an additional 10.5 million direct jobs in wind, solar, and biofuel energy production. As India is already a world leader in wind technology, ambitious global expansion of wind power could see 288,500 Indian jobs created if Indian firms were able to command 10 per cent of the global market.\(^{26}\)

**Japan:** Japan’s green business sector, including renewable energy firms and developers of energy-efficient technologies, currently employs 1.4 million people and generates sales of $745 billion. The Ministry of the Environment aims to expand the sector to $1 trillion by 2020, creating employment for 2.2 million workers.\(^{27}\)

**Republic of Korea:** The Republic of Korea has drawn up a Five-Year Plan to facilitate the transition toward a green economy and cut carbon emissions by 20 per cent within five years under the coordination of the Ministry of Foreign Affairs and Trade with support from the ADB and the Global Green Growth Institute. Employment models analysed public investment of $97 billion, almost 2 per cent of the country’s annual GDP, between 2009 and 2013 to support green growth initiatives. The models also utilized adaptation targets in health management, food security, water and coastal management, climate disaster prevention, and forest protection. Through such a large public investment package, the study reveals a positive hiring effect of 11.8 million to 14.7 million new jobs. Additionally, through the creation of an energy rating system, fuel-efficient grade indication system and new technology, the model estimates that 1.18 million jobs could be created by 2020.\(^{28}\)

A sustainable future would also save considerable amount of money through preserving ecosystem services. The ASEAN TEEB Scoping Study gathered and reviewed existing evidence on the value of ecosystem services in Southeast Asia. It examined a business-as-usual scenario of loss in coral reefs and mangroves in Southeast Asia for the period 2000-2050, and the value of these critical ecosystems. The annual foregone benefits of reef-related fisheries is estimated to be about $5.6 billion in 2050 and that of mangroves’ coastal protection and habitat/nursery support for fisheries is estimated to be about $2.2 billion in 2050.\(^{29}\)

**Bridging the Price Gap**

In order for Asia and the Pacific to materialize the benefits of sustainable development, incentives have to be put in place to kickstart green transformation, while disincentives are also needed to
divert the region away from unsustainable practices. Policy tools and approaches can be deployed to put a price on negative, as well as positive, externalities to take into account the real cost of environmental degradation and the true value of ecosystems.

**Environmental Tax**

Environmental taxes shift the tax burden from traditional taxes to taxes on activities that are having a detrimental impact on the environment. Environmental taxes internalize the negative external environmental and social costs, which are usually not reflected in the market price. Revenue neutrality ensures that tax revenues are used to reduce existing taxes, or are returned to the public.

Environmental taxes have been adopted by a number of countries to achieve green policy objectives and drive green businesses. Taxation measures can take the form of incentives or penalties. Respective examples include the fossil fuel tax and renewable energy incentives in Japan, where the green tax policy is balanced between incentives and penalties. On the other hand, Republic of Korea is more inclined towards incentives, and it is among the most active countries in the world to encourage green innovation.

Taxation reform is not confined to the developed Asia-Pacific region. Viet Nam introduced the Environmental Tax Law in 2012. Consumption tax is levied on coal, refined fuels and environmentally harmful substances. The tax has a potential to reduce Viet Nam’s annual carbon emissions by up to 7.5 per cent. However, with the proposed tax rate on coal being significantly lower than that on refined fuels, unintended substitution of the ‘cleaner’ refined fuels by the ‘dirtier’ coal may result.

**Carbon Pricing**

Similar to environmental tax, carbon pricing takes into account negative externalities. A price can be put on carbon through a carbon tax or a carbon market. A carbon tax fixes the price of carbon emissions and lets the quantity fluctuate, whereas a carbon market fixes the quantity of carbon emissions and lets the price fluctuate. Revenues collected from a carbon tax can be used to reduce traditional taxes or returned to the public, making the carbon tax revenue-neutral.

Japan and Australia introduced a carbon tax in 2012, which stood at $4 per tonne of CO₂e and $24 per tonne of CO₂e respectively. The Australian Government repealed the carbon tax in July 2014, justifying that it would reduce the cost of utilities and consequently the cost of living, lower the ongoing compliance costs, and boost economic growth. However, carbon tax is not necessarily incompatible with economic growth. Carbon taxes adopted in several European countries caused GHG emissions to drop by 2 per cent to 6 per cent, while the effect on GDP was neutral or even slightly positive.
Countries in the region have planned to or have already implemented carbon markets. Tokyo’s carbon trading market caps energy-related emissions of around 1,400 commercial and industrial premises by 6-8 per cent in 2010-2014 and 15-17 per cent in 2015-2019. The scheme aims at helping Tokyo achieve its 25 per cent carbon emissions reduction goal by 2020 relative to the 2000 levels. In 2014, more than 90 per cent of offices and factories achieved the 6-8 per cent targets, and 70 per cent of the facilities already met the 15-17 per cent targets.\(^{36}\)

New Zealand is another developed country with a carbon market. The New Zealand Emissions Trading Scheme (ETS) was launched in 2010. Cheap imported carbon credits comprised 99.5 per cent of the units New Zealand emitters use to meet their obligations, and the government will close the loophole by excluding the New Zealand ETS from the international carbon markets from 2015.\(^{37}\) Uncertainty casts over its neighbor Australia, where the Senate voted in July 2014 to scrap the planned ETS which would otherwise begin in 2015.\(^{38}\)

On the other hand, carbon markets are emerging more rapidly in a number of developing countries in the region. Asia and the Pacific’s first nationwide ETS started in Kazakhstan in 2013 and the first exchange deals opened in 2014. The overall objective is to reduce carbon emissions by 7 per cent below 1990 levels by 2020 and 15 per cent below 1992 levels by 2025.\(^{39}\) Carbon markets are under consideration in Indonesia, Thailand, and Viet Nam. Thailand is expected to launch its Voluntary ETS in 2014, while Viet Nam may put forward an ETS by 2018.\(^{40}\)

Among the ETSs in the pipeline are the ones in China and Republic of Korea. By the end of 2013, pilot ETSs have started operating in six cities and provinces in China and the country plans to roll out a national carbon market or tax by 2020.\(^{41}\) The Cabinet of Republic of Korea has passed relevant law and set up an interdepartmental agency to lead the design and implementation of the ETS.\(^{42}\) The market has been confident about the forthcoming ETSs in these two countries, with a majority of respondents in a market sentiment survey considering that the ETSs would be in place before 2020.\(^{43}\)

**Payment for Ecosystem Services**

Environmental tax and carbon price internalize the cost of environmental bads, whereas Payment for Ecosystem Services (PES) factors in the value of environmental goods and services. Reducing Emissions from Deforestation and Forest Degradation (REDD) is an effort to create a financial value for the carbon stored in forests, incentivizing developing countries to reduce emissions from forested lands and to invest in low-carbon paths to sustainable development. REDD+ additionally includes the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks.\(^{44}\)

The UN-REDD Programme currently supports 15 partner countries in Asia and the Pacific. Nine countries, namely Bangladesh, Cambodia, Indonesia, Mongolia, the Philippines, Papua New Guinea, Solomon Islands, Sri Lanka, and Viet Nam, receive direct support for their National UN-
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REDD Programmes. Bhutan, Lao PDR, Malaysia, Myanmar, Nepal, and Pakistan can benefit from receiving targeted support from the UN-REDD Global Programme for national actions. It is predicted that financial flows from North to South for REDD could reach up to $30 billion a year worldwide.\(^45\)

REDD+ comprises three phases – development, implementation, and verification – and Viet Nam is the first of the 47 UN-REDD partner countries worldwide to move to the second phase.\(^46\) With almost 40 per cent of land covered by forests, the value of forest products amounts to $458.9 million in Viet Nam.\(^47\) To date, the National REDD+ Action Programme has been formulated and capacities have been strengthened.\(^48\) Communities are willing to increase forest patrol and reforestation to receive compensation, which preferred forms go beyond cash payments to agricultural support services, small-scale infrastructure, and vocational training.\(^49\)

**Bridging the Time Gap**

While the price gap indicates a failure to perceive the cost of unsustainable practices, the time gap signifies how short-term decisions overlook the long-term detrimental impacts. As long as short-termism prevails, long-term sustainable practices would face difficulties in gaining foothold in the investment community. This is especially the case when green investment entails higher upfront costs, discount rates, and political and regulatory uncertainty than conventional investment. Measures are needed to rectify policy distortions, de-risk green investment, and improve corporate governance to enable long-term investment.\(^50\)

**Fossil Fuel Subsidy Reform and Green Revenue Recycling**

Fossil fuel subsidies result in underpriced energy, encouraging excessive energy consumption and artificially promoting energy-intensive industries. These accelerate the depletion of natural resources and distort resource allocation, while reducing incentives for investment in renewable energy. Higher-income households capture most subsidy benefits, and the effects of increased energy consumption on climate change are felt by future generations, both of which reinforce inequality.\(^51\)

Any reform to fossil fuel subsidies should be accompanied by green revenue recycling, where revenues from the reform is reallocated to support environmental or social investments in public goods, or to reduce taxes that generate distortions or have regressive impact. The Clean Energy Cess on Coal in India levies tax on coal, lignite or peat and the tax revenues contribute towards to the National Clean Energy Fund, which seeks to leverage $1.5 of private finance for every $1 of public finance provided. In 2012, 15 projects with a value of $0.3 billion were supported.\(^52\)

**Public-private Partnership**

Public-private partnerships (PPPs) transfer the risks of long-term green investment to the private sector. PPPs operate on a continuum between full privatization and traditional government
procurement, allocating risks between the public and private sectors according to each of their capability to deal with such risks. In the clean energy sector, PPPs have proven to be successful at leveraging private finance and assisting the growth of a commercially immature industry through various policy incentives. Sources of capital, such as those from development banks or private sources, will be discussed later.

In Asia and the Pacific, countries in general have positive attitudes towards the concept of private-sector participation in infrastructural development. PPP markets in the region can be classified as nascent, emerging, developed, or mature. Countries with more sophisticated PPP markets share the characteristics of strong legal and regulatory, institutional, and investment conditions. Mature and developed PPP markets can be found in Australia, Republic of Korea, and Japan, with India managing to join the league thanks to its strong political will and advancing public capacity and processes for the development of PPPs.

Green Investment Bank

Given that green investments incur higher risks, government can play a role in developing new risk-sharing models that aim at de-risking green investments to accelerate private capital deployment. The Green Investment Bank, established by the UK Government in 2012 with $5 billion funding, is the first bank of its kind. It supports green investment in the areas of offshore wind, energy efficiency, waste-to-energy, and waste recycling through capital structure and debt, equity, and guarantees.

A few countries in Asia and the Pacific have established institutions that serve the functions of a green bank. Australia’s Clean Energy Finance Corporation (CEFC) was set up in 2012 to overcome market barriers and mobilize investments in renewable energy, energy efficiency, and low-emissions technologies. The $9 billion CEFC was retained despite the repeal of the carbon tax and plans for emissions trading. The Green Bank, established by Japan in 2010 with a capital of $0.6 million, supports solar energy research and development.

New Zealand’s Green Party is working on plans for an investment bank for new energy projects, while the Malaysian Green Technology Corporation is studying to set up a dedicated bank to finance clean and low-carbon projects. Another bold idea of a multilateral development bank (MDB) comes from China, which proposes the Asian Infrastructure Investment Bank to fund infrastructure investments in Asia. Already, China and India, together with the rest of the BRICS countries, have set up the $100 billion New Development Bank to finance infrastructure and sustainable development in BRICS and other emerging and developing countries.

Institutional Investors

Institutional investors – pension funds, insurance companies, and other long-term investors – have distinctive risk/return requirements and long-term investment horizon, making them suitable for financing sustainable development projects with long lifespan. These investors’ $71
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trillion-worth assets form one of the largest pools of private capital. For the energy sector in developed countries, for example, ‘there is not a shortage of potential investment in renewable energy; rather there may only be a shortage of opportunities at the price – and level of risk – that governments and energy consumers are willing to pay’.  

Attempts have been made to structure investment vehicles to tap into institutional investor demand. Climate bonds have been developed to lower the cost of capital for climate-related investments and to suit the risk appetite of pension and insurance funds. The global climate bond market is estimated to be $502.6 billion in 2014. The Chinese Government has planned to create a green bonds market in mobilizing capital to achieve the objectives of its Five-Year Plan. It aims at attracting the very high levels of domestic savings to a regulated market of green investments that would bring about clean water, clean energy, and clean transport.

Corporate Governance

More fundamentally, corporate governance should be improved to fix such problems as short-termism in the private sector. Guidelines such as the Natural Capital Declaration (NCD), Principles for Responsible Investments (PRI), and Principles for Sustainable Insurance (PSI) have been put forward by the UN in recent years. The NCD drives the private sector to integrate natural capital criteria, such as the valuation and preservation of ecosystem services, into financial products and services. The PRI and PSI seek to incorporate environmental, social, and corporate governance (ESG) issues into investment decision-making and disclosure.

Sustainable investment, thus far, is at best emerging in Asia and the Pacific. For global investors headquartered in Asia, sustainable investment is still a relatively new practice. Australia and New Zealand constituted 1.3 per cent ($178 billion) of the global sustainable investment, with Japan sharing 0.1 per cent ($10 billion), and Asia excluding Japan sharing 0.5 per cent only ($64 billion) in 2012. Asia’s private markets tend to focus on sustainability-themed investment, especially in environmental technology, while investment screening, integration of ESG factors, impact/community investing, and corporate engagement and shareholder action are less common.

Way Forward

Against the context where misplaced incentives have locked Asia and the Pacific into an unsustainable future, as in the case of fossil fuel investment, the region has to break the vicious cycle for a sustainable future which would balance the economic, environmental, and social dimensions of development. Governments have to reconcile market failures by bridging the price gap to reflect the cost of environmental degradation and the value of ecosystems, and by bridging the time gap by removing policy distortions. While the private sector has a key role in financing a green economy, governments have to create an enabling environment to reform the investment landscape to unlock green transformation.
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8 ESCAP, based on data from EM-DAT. www.emdat.be
36 The Japan Times, 2014, March 14, Tokyo Cuts CO2 Emissions but Hoards Credits.
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