Taking the long view

Why a long term approach for the developing world is critical to achieving sustainable development goals and climate safety
Contents

5 __ Introduction

6 __ The developing world has a key role to play in solving climate change

9 __ Strong economic growth can be achieved without significant growth in greenhouse gas emissions

10 __ Decoupling economic growth from emissions is necessary for the achievement of other Sustainable Development Goals

12 __ Rapid decarbonisation can be achieved in a way that enables the other SDGs

14 __ Mid-century pathways are vital to ensure a smooth and just transition

16 __ Significant finance is available to support the transition, but much more is needed

18 __ Countries who continue to increase emissions may face continued economic disadvantage

24 __ The process must be country driven
Introduction

Developing countries have much to gain, and potentially much to lose, in the world’s rapid transition towards net zero emissions.

The Paris climate Agreement commits the world to limiting global temperature rise to well below 2 degrees Celsius, aiming for 1.5 degrees. This means achieving net zero emissions globally, by the second half of this century. It signals a new era in which developing countries are looking to rapidly grow their economies, lift their populations out of poverty and minimise the environmental impacts that typically accompany rapid development.

As the developed world moves to replace emissions intensive infrastructure, technologies and practices with low or zero emissions alternatives, many developing countries have the opportunity to ‘leapfrog’ the fossil fuel technologies that are typically associated with economic development, yet now face redundancy in a decarbonising world.

Why is this now possible?

Costs for very low or zero emissions technologies such as renewables are dropping rapidly. Significant improvements in ‘smart grid’ technologies are enabling electricity to be transported and used more efficiently. And protecting and restoring forests presents a potential economic opportunity in a world where greenhouse gas emissions will increasingly face a real or implied carbon price. Many of these opportunities can be captured by countries who are rapidly developing, with substantial climate finance available from a range of bilateral and multilateral donors and the private sector to support these investments. When deployed in a manner consistent with long-term lowest emissions sustainable development, countries in Southeast Asia and the Pacific Islands can position themselves for successful and inclusive green growth.

This paper argues that not only is decarbonisation (or avoided growth in emissions) possible for developing countries, it is in fact essential for the achievement of other sustainable development goals. The significant adjustments required - policy, capacity, governance and financial - are complex and difficult, yet they must be a priority if countries are to achieve sustained economic growth, social development outcomes, and the environmental stability that is foundational to these two outcomes.
The developing world has a key role to play in solving climate change

**Emissions are growing rapidly in Southeast Asia**

Although historically, developing countries have contributed the least to climate change, the developing world is now responsible for 60% of global greenhouse gas emissions (Fankhauser and Jotzo, 2017). Six of the world’s top ten emitters are developing countries, and collectively the developing world will be responsible for practically all emissions growth from now on (Fankhauser and Jotzo, 2017).

Nowhere is this more apparent than in Asia, where emissions are growing faster than any other region in the world (ADB, 2017). This rapid growth in emissions is being driven primarily through deforestation and growing energy demand, with five countries - Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam - making up more than 90% of the region’s emissions (Raitzer et al., 2015).

Southeast Asia’s cities hold the key to its future, and the choices made over the next decade will determine whether that future is economically resilient, socially inclusive and climate safe. The urban planning decisions — or, as it currently often the case in unplanned or ungoverned urban development, the ‘non-decisions’ — and investments made during this period are therefore critically important (Crenson cited in Yap, 2013).

As the largest emitter in Southeast Asia (ADB, 2015) and ranking amongst the world’s top 10 emitters,1 Indonesia is one of the most important countries requiring carbon mitigation action (Elson, 2011). Emissions from land-use change and forestry comprised 65.5% of the country’s total greenhouse gas emissions in 2013 (WRI, 2017) and was responsible for the country jumping to the world’s 4th largest emitter in 2015, due to peatland forest fires (WRI, 2015).

At the sub-national level, provinces that contribute the largest share to Indonesia’s emissions are those where large scale deforestation is occurring, mainly North Sumatra, Riau, East Java, Central Kalimantan and Lampung (WRI, 2016). However, Indonesia is also home to a rapidly urbanising population with energy-based emissions dominating in 10 provinces including Jakarta. WRI Indonesia forecasts that Jakarta’s emissions are expected to increase from 28.74 MtCO2 base emissions in 2010 to 116.8 MtCO2 under BAU (WRI Indonesia, 2017). With a rapidly rising population and increased activity in the transportation and industrial sectors, demand for energy saw energy emissions grow at a rate of 4.5 percent annually between 2000-2012 (Jupesta & Wakiyama, 2016). These rising trends are likely to continue unless Indonesia urgently develops and implements long-term lowest emissions development pathways.

---

1 Indonesia’s position in the top 10 varies from year to year, with changes driven by land use, agriculture and forestry, including peat land fires. In 2012, Indonesia was the world’s 6th largest contributor to greenhouse gas emissions (including land use change and forestry) (WRI, 2017), and fourth largest emitter in 2015 due to extensive peatland fires (WRI, 2015).
The region's rapid growth in greenhouse gas emissions reflects the strong economic growth experienced in several Southeast Asian countries over recent decades, which in turn, is lifting tens of millions of people out of poverty. For example, using a 'basic needs' poverty line in Viet Nam, poverty fell from 58 percent in the early 1990s to 14.5 percent by 2008, and was estimated to be well below 10 percent by 2010 (World Bank, 2013).

In the Philippines, poverty incidence was reduced from 25.2 percent to 21.6 percent between 2012 and 2015, lifting almost 2 million people out of poverty in just three years (World Bank, 2017).

However, climate change risks are undermining these gains as developing countries are often highly vulnerable to such impacts. Recent analysis by the Asian Development Bank (ADB, 2015) shows that Southeast Asia is likely to sustain larger economic losses from climate change impacts than the rest of the world - up to 11% of regional GDP by 2100 under a business-as-usual scenario where climate action is not prioritised by any government (ADB, 2015).

The Asian Development Bank estimates that, to have a reasonable chance of stabilising global temperature rise below 2 degrees of warming, emissions in Southeast Asia need to be 30% below 2010 levels by 2050 (ADB, 2015). Further, they predict that under business-as-usual without any specific policies, the region's greenhouse gas emissions are estimated to increase by at least 60 percent by 2050 compared to 2010 levels, with energy emissions sector emissions expected to be 300% higher.

To manage these risks, the ADB urges Southeast Asian countries to take a leading role in global climate action, proactively shifting to a low carbon economy (Raitzer et al., 2015).

**Pacific Island nations are amongst the world's most vulnerable to climate change**

While Pacific Island Countries (PICs) only account for 0.03% of global greenhouse gas emissions (Holland et al., 2014), they are at the front line for climate change impacts, with 5 PICs ranking in the 2016 World Risk Report's top 20 most vulnerable countries globally (UN, 2016). Some islands are at imminent risk of complete inundation, which will render them uninhabitable (Norton Rose Fulbright, 2017). And PICs are at far greater risk of economic losses due to climate change compared with global averages (Figure 1) (UN-OHRLLS, 2015). For example, the average annual loss in Vanuatu is already estimated at 6.5 percent of GDP, compared to a global average of 0.5 percent.

And the costs of managing climate impacts are also substantially higher as a share of GDP, with the total value of infrastructure, buildings, and cash crops considered at some level of risk in the Pacific estimated at over US$111 billion (UN-OHRLLS, 2015). The asset replacement cost for Pacific small island developing states is on average 4 times greater than GDP (in 2013), and as high as 14 times GDP in some countries such as Timor-Leste (UN-OHRLLS, 2015).

Figure 1: PICs consequences of climate change by share of GDP, compared to world average (Source: UN-OHRLLS, 2015 p.9)
Yet despite the significant impact climate change is already having on their economies, several Pacific Island nations are already leading global ambition in addressing climate change. The Republic of the Marshall Islands heads up the High Ambition Coalition, which negotiated the inclusion of the 1.5 degrees goal in the Paris Agreement. And Fiji has a pivotal role to play in international climate negotiations in 2017/18, in its role as President of the 23rd United Nations Convention on Climate Change Conference of the Parties (COP23).

“The Paris Agreement marks a turning point towards a more prosperous and stable world. Acting on climate change is in all of our national interests - it is good for our environment, good for our economies, and good for our climate security. Our commitment to be climate leaders remains steadfast, as is our commitment to work with the whole international community, including the United States, to tackle one of the greatest challenges of our time.”

Joint Statement by a Group of High Ambition Coalition Ministers, November 2016

“We who are most vulnerable must be heard, whether we come from the Pacific or other Small Island Developing States, other low lying nations and states or threatened cities in the developed world like Miami, New York, Venice or Rotterdam. But together we must speak out for the whole world – every global citizen – because no-one, no matter who they are or where they live, will ultimately escape the impact of climate change.”

Fijian Prime Minister and incoming President of COP 23, Frank Bainimarama, UN Climate Change Conference, May 2017

Reducing dependency on imported fossil fuels is a critical component of decarbonising PICs and achieving aspirational goals of global net zero emissions, while also boosting energy security. Several Pacific Island Countries already have aggressive renewable energy targets of, in some cases, up to 100% by 2030\(^2\). Building on frameworks under the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and Paris Agreement, the international instrument would act as a pioneering global example of how to address climate change whilst promoting economic and social development.

If the Paris Agreement targets are to be achieved, developing countries - in particular those in Southeast Asia - must create alternative pathways to prosperity. The good news is that this global challenge presents an unprecedented local opportunity: The potential for developing countries to decouple their economic growth from carbon emissions, and in doing so, avoid many of the environmental, social and economic costs that are the hallmark of fossil fuel dependency.

\(^2\) The Cook Islands, Niue and Tuvalu have set a goal of 100% renewable energy by 2020, and Fiji, Vanuatu and Solomon Islands for 100% renewable energy by 2030. Tokelau already achieved the target by 2012/2013. Source: Partnership on Transparency URL: www.transparency-partnership.net/gpa/100-renewable-energy-targets-pacific-islands
Strong economic growth can be achieved without significant growth in greenhouse gas emissions

There is already substantial evidence that economic growth can be decoupled from emissions. At a global level, carbon dioxide emissions have remained flat for the last three years, even as the global economy grew (IEA, 2017). New data compiled by the World Resources Institute (Aden, 2017) shows that 21 countries have reduced annual emissions since 2000, while simultaneously growing their economies. This includes a number of Eastern European countries who experienced rapid economic growth over the period 2000-2014. Importantly, in Bulgaria and the Czech Republic, these emissions reductions were achieved without shrinking their industrial sectors.

These findings are also supported by PricewaterhouseCooper’s Low Carbon Index (PWC, 2016), which shows a number of G20 countries reduced the carbon intensity of their economies in 2014-15 while maintaining real GDP growth, including countries classified as ‘developing’ such as China, India, South Africa and Mexico. In fact, China’s CO2 emissions fell by 1% in 2016, while its economy grew by 6.7% (IEA, 2017) although it is too early to tell whether this is a trend or an anomaly. However, China does expect to achieve a 47% reduction in energy intensity per unit of GDP by 2030 and 73% by 2050. This demonstrates a significant decoupling of energy consumption from economic growth, driven by China’s focused efforts at improving energy efficiency (Teng et al., 2015).

These recent trends are consistent with the findings of The Deep Decarbonization Pathways Project (DDPP)3, convened in 2013 with an aim to address a gap in the climate policy dialogue by providing clear and tangible country-specific mid-century pathways to reduce emissions, consistent with limiting global warming to 2°C or less (DDPP, 2015). Research teams from both developed and developing economies participated in the DDPP. Each country demonstrated that deep decarbonisation of energy systems was possible and could be achieved in a manner consistent with economic growth. The project showed that average emissions per unit of GDP could be reduced by 87% relative to 2010, alongside a global average GDP growth rate of 3.1% per year to 2050 (DDPP, 2015), supporting the argument that economic growth can be achieved without an increase in greenhouse gas emissions.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>+62%</td>
<td>-5%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>+40%</td>
<td>-14%</td>
</tr>
<tr>
<td>România</td>
<td>+65%</td>
<td>-22%</td>
</tr>
<tr>
<td>Slovakia</td>
<td>+75%</td>
<td>-22%</td>
</tr>
<tr>
<td>Ukraine</td>
<td>+49%</td>
<td>-29%</td>
</tr>
</tbody>
</table>

3 A global collaboration of research teams from 16 countries, representing 74% of current global GHG emissions: Australia, Brazil, Canada, China, France; Germany; India, Indonesia, Italy, Japan, Mexico, Russia, South Africa, South Korea, the United Kingdom and the United States. ClimateWorks Australia co-led the Australian analysis with the Australian National University. The DDPP was convened by The Institute for Sustainable Development and International Relations (IDDRI) and the Sustainable Development Solutions Network (SDSN).
2015 was a watershed year for multilateral agreements, with both the Paris Agreement and the 2030 Agenda for Sustainable Development forged in that year. These agreements clearly acknowledge the interlinkage between climate change and sustainable development, through the inclusion of a climate goal (SDG 13) in the 2030 Agenda for Sustainable Development, and explicit language in the Paris Agreement that recognises the sustainable development needs and contributions of climate action, as well as the greater challenges developing countries face in achieving sustainable development and addressing climate change (Harmeling & Fuller, 2016). In fact, sustainable development cannot be achieved without tackling climate change, and vice versa (Harmeling and Fuller, 2016).

“The adoption of these two major international policy frameworks in 2015 provided a key opportunity for tackling the interlinked twin challenges of sustainable development and poverty eradication, and climate change.”

CARE International and WWF (in Harmeling and Fuller, 2016)

Further, the SDGs include many actions that directly affect efforts to address climate change. There are SDGs focused specifically on changing patterns of consumption and production, on energy generation and use, and on economic growth, with each of these challenges also acknowledged in the Paris Agreement. Both Agreements also signpost the need to adapt and build resilience to climate change impacts, and include social development goals such as gender equality and human rights (Harmeling and Fuller, 2016). While the two Agreements are designed to be complementary, further work is needed to fully map the interactions (both synergies and tradeoffs) of strong climate action consistent with the Paris Agreement (included in SDG 13: Climate Action, along with climate adaptation and resilience) with the other 16 SDGs. Understanding the interlinkages among the SDG goals and between targets is considered to be crucial for policy coherence for implementing the SDGs. Actions or measures taken for one goal may be mutually reinforcing or contradictory with another goal. Understanding the inter-linkages enables policy makers to maximise synergies and alleviate trade-offs.

However, there are several obvious interactions: in particular SDG 7: Affordable and Clean Energy (a shift to clean energy provides a key means for tackling climate change), SDG 11: Sustainable Cities and Communities (cities drive the majority of global energy demand), SDG 12: Responsible Consumption and Production (reducing organic waste reduces greenhouse gas emissions, reducing consumption reduces energy use associated with manufacturing and transporting goods, and reducing fossil fuel subsidies helps to reduce fossil fuel use), and SDG 15: Life On Land (protecting and restoring biodiverse landscapes helps sequester carbon dioxide from the atmosphere, while also boosting the resilience of natural landscapes to extreme weather events). In addition, the interactions between climate change and health (SDG 3: Good Health and Wellbeing) are well understood, even though there are no targets that explicitly draw that link. Similarly, enabling global financial flows, technology transfer and capacity building - all targets in SDG 17: Partnerships for the Goals - are critical to addressing climate change, particularly in the developing world.

Climate change and sustainable development are inextricably linked. Efforts to limit global temperature rise to well below 2 degrees and aiming for 1.5 degrees must be considered within the context of the achievement of the Sustainable Development Goals, if both the Paris Agreement and the Global Goals are to be achieved.
Goals which directly or partly interact with SDG 13 - Climate Action via their indicators:

- Key direct interaction
- At least one SDG indicator
- No specific indicator, but well understood interaction
Rapid decarbonisation can be achieved in a way that enables the other SDGs

UN Economic and Social Commission for Asia and the Pacific (ESCAP) has highlighted that sustainable development projects can be adapted to include climate change considerations, while at the same time mitigation and adaptation measures can derive sustainable development benefits (Carrozza, 2015), overcoming the perceived trade-offs between investing in climate finance and investments in sustainable development (Carrozza, 2015). And at the 5th and 6th Ministerial Conference on Environment and Development in Asia and the Pacific, member States identified low-carbon green growth as one of the key strategies to pursue sustainable development (UN ESCAP, 2011).

This is supported by the work of several country teams that participated in the DDPP, which suggests that emissions reductions consistent with a net zero emissions trajectory can be achieved in a way that also enables other sustainable development outcomes.

South Africa looked at the correlation between decarbonisation, poverty alleviation and jobs growth

The South African DDPP team explored deep decarbonisation pathways that focused on the achievement of development and climate goals, with equal emphasis. South Africa has extreme and persistent poverty and high unemployment rates, and reducing carbon emissions is but one of many national goals, and not necessarily their highest priority. Demonstrating the positive correlation between decarbonisation and other objectives (such as employment and income growth) was therefore a key focus of the research (Altieri et. al., 2015).

The South African DDPP team compared two different decarbonisation scenarios. The Economic Structure Scenario considered ways to decrease unemployment by growing sectors with low-carbon emissions and high potential for unskilled labour absorption. The High Skills Scenario assumes significant improvements in education and training in order to fundamentally change the labour force through the injection of high skilled labour into the economy. In both scenarios, per capita GDP increases by 170 percent between 2010 and 2050 while annual greenhouse gas emissions reduced by 39.4 percent (Altieri et al., 2015). The proportion of the population living below the poverty line decreases from 50% to around 18% by 2050 in both scenarios. And the Economic Structure Scenario shows potential to halve the official unemployment rate of 25% to 12% by 2050. The High Skills Scenario suggests that while improving the education system is key to South Africa’s future, it delivers a slower rate of improvement to unemployment, reducing it to 18% by mid-century (Altieri et. al., 2015).

China looked at the impact of improving air pollution on health outcomes and economic productivity

China is the world’s largest emitter, accounting for about 27% of world greenhouse gas emissions. However, by most indicators, China remains a developing country, with per capita income well below that of developed countries (Teng et al., 2015). With almost 13% of China’s population still living below the poverty line, economic growth remains a key priority to address this disadvantage (Teng et al., 2015).

---

4 The Sustainable Development Goals, or SDGs
5 Each Sustainable Development Goal includes a number of targets, or indicators, against which progress is measured.
Decision makers in China are facing multiple challenges including growing the economy to high income stage, securing energy systems to enable increasing urbanisation and industrialisation, improving air quality to address significant public health issues and curbing emissions to reduce the country’s contribution to climate change (Teng et al., 2015).

The work of the Chinese DDPP team reflects this complexity, considering the interaction of decarbonisation pathways with priority development goals - namely economic growth, air quality and public health outcomes.

The research identified that a number of measures to reduce carbon dioxide emissions included in China’s decarbonisation pathway lead to significant improvements in air quality (DDPP, 2015), a key driver of improving health outcomes, reducing premature deaths and reducing other environmental impacts. Further, these substantial improvements in air quality and health outcomes will occur at a time of significant economic growth for China which is pitched to be the largest economy by 2050.

India found that decarbonisation could be achieved in a way that was broadly compatible with sustainable development

The ‘Sustainable’ scenario modelled by the Indian DDPP team (Shukla et al., 2015) takes an integrated view of social, economic and environmental goals as per the World Bank’s ‘inclusive green growth’ paradigm (World Bank, 2012). It seeks to decouple India’s economic growth from a highly resource intensive and environmentally inferior conventional path. While both the ‘Conventional’ and ‘Sustainable’ scenarios demonstrate the potential to reduce end-use demand, shift consumption to cleaner modes and technologies and increase clean energy in the energy supply mix, the ‘Sustainable’ scenario also factors in a range of other actions that deliver broader sustainability benefits. For example, it assumes measures such as higher investments in education and health, a focus on technology innovation and deployment, improving governance and promoting sustainable consumption and behavior. In the ‘Sustainable’ scenario, urbanisation continues at the same rate as in the ‘Conventional’ scenario, however, policies aimed at supporting small cities, towns and large rural centers enable more evenly distributed urban population in small and medium cities. This facilitates better implementation of low carbon mobility plans, providing new infrastructure and improving green cover, all of which delivers improved quality of life.

While a decarbonisation pathway that also seeks to maximise other sustainable development outcomes is more complex to both design and implement, the work of the Indian DDPP team clearly demonstrates the benefits this approach can deliver.
Mid-century pathways are vital to ensure a smooth and just transition

Addressing climate change is a long game. Regardless of whether global temperatures are stabilised at 1.5 degrees, 2 degrees or 3 degrees, this will require balancing greenhouse gas emissions with biological and geological sequestration. In other words, achieving net zero emissions. The key determinant of whether we achieve a 1.5 degree target or overshoot and stabilise temperature rise at 3 degrees, is how quickly and how ambitiously we act.

While most of the world’s countries have submitted their first Nationally Determined Contributions (NDCs) to the Paris Agreement, and many have begun planning how they will implement their NDC, few countries have designed their NDC in the context of a long-term emissions reduction pathway consistent with net zero emissions.

In addition to NDCs, the Paris Agreement also invites countries to submit long-term low emissions development strategies (LT-LEDS) (UNFCCC, 2017). LT-LEDS are intended to outline emissions reduction pathways to 2050, and should interrelate with NDCs, providing clear guidance on where ambition can and should be improved over time. To date, six countries have submitted their long term strategies - France, Benin, United States, Mexico, Germany and Canada (UNFCCC, 2017).

While LT-LEDS are optional under the Paris Agreement, they are in fact, critically important. Without a view to the long term, countries risk choosing low cost opportunities that are compatible with 2030 NDC targets but may be incompatible with the longer term trajectory required for net zero emissions. For example, bringing new high efficiency coal-fired power generation capacity online in the next 10 years may not affect Indonesia or Viet Nam’s ability to achieve their 2030 NDCs, but may be incompatible with the emissions reductions these countries will need to achieve by mid-century. Therefore these investments risk becoming stranded assets, increasing the cost of the transition.

Further, without a long term strategy to guide short and medium term decision-making, countries may not identify and prioritise capacity needs that are essential to achieving the long term transition. Policy changes and infrastructure investments required to enable the deployment of low emissions technologies may not happen in the timeframe required. Most importantly, for developing countries whose NDC focuses on sectoral emissions reductions rather than taking a whole of economy view, opportunities to avoid emissions growth in other areas of the economy may be missed, and unable to be recaptured later on. For example, new buildings constructed with a weak energy efficiency rating represent a missed opportunity to avoid emissions growth and increasing energy demand.
Additionally, NDCs are often developed ‘bottom up’, based on how much a country estimates it can reduce its emissions by 2030. This can be predicated on a range of factors such as national priorities and ambition, current policy settings, technology familiarity, availability of financing and capacity. However, for many countries, a failure to significantly increase the ambition of their NDCs over coming years will require much stronger action post-2030, which is likely to significantly increase the cost of the transition. Mid-century strategies typically start with a clear end goal consistent with net zero emissions, and ‘backcast’ from there, providing clear signposts showing where emissions reductions efforts need to be focused over given time horizons.

In addition to climate change, countries are also seeking to address many other pressing policy issues. Without improved long-term integration, these issues and their respective policy responses risk undermining efforts to address climate change (Pathak, 2017). This risk is particularly stark in the developing world, where efforts to boost economic growth and address poverty and hunger can lead to significant emissions growth, environmental impacts and health impacts. For example, Jakarta, which generates 17% of Indonesia’s GDP (DDPP, 2017), and is growing at more than 5% per year (Indonesia Central Bank, 2016; World Bank, 2017) is also experiencing significant economic losses due to extreme traffic congestion and associated air pollution. According to the Jakarta Transportation Agency, congestion costs the city $5.4 billion annually (Wharton University, 2012). In 2010, Jakarta’s outdoor air pollution levels, which far exceed the World Health Organisation’s guidelines, caused almost 60% of its residents to suffer various air pollution-related illness and diseases (National Bureau of Asian Research, 2016).

There are many long term structural and social changes that countries will need to undertake to achieve a pathway consistent with net zero emissions alongside other sustainable development outcomes. For many rapidly growing economies in Southeast Asia, this will include shifting focus away from fossil fuel extraction and the unsustainable forestry industries that are currently powering their economies, towards new industries that can deliver equivalent economic uplift over time. This requires long term investment in infrastructure, education and capacity building.

A long-term net zero pathway provides a clear roadmap from where a country is at today, to where it needs to be by mid-century. In addition to mapping an emissions reduction pathway to net zero emissions, these transformative pathways need to integrate necessary institutional, economic, technological and social changes, as well as the steps to deliver them (Pathak, 2017). Pathways can then inform the improvement and implementation of a country’s NDC, as well as outline clear milestones for policy change, capacity building and infrastructure investment (Pathak, 2017).

Further, a well designed long term pathway can also ensure that actions towards achieving climate goals also maximise the achievement of other sustainable development outcomes, by identifying key areas of interaction and prioritising investments that best achieve multiple positive outcomes.
While there are significant costs associated with strong climate action consistent with the Paris Climate Agreement, the costs of inaction are even greater. For Southeast Asia, estimates of climate impacts under business-as-usual are as high as 11 percent of GDP by 2100. For the Pacific Islands, costs are even higher; 2.2–3.5% of the region’s annual GDP by 2050, and as much as 12.7% by 2100 (ADB, 2013).

There is already significant finance available to support the transition towards net zero emissions. The Climate Policy Initiative found that total global climate financing in 2014 reached an all time high of US$392 billion, with 61% coming from private sources and 39% from public (of which 34% is from development finance institutions) (Climate Policy Initiative, 2017).

However, these current international finance flows fall well short of the levels required to meet current needs and future targets and the gap continues grow. In order to leverage the public and private funds required to transition to a low carbon economy, a range of new innovative scalable strategies and investment vehicles are needed (Samana, 2017). Considerable progress has been made globally in transitioning to green growth, with renewable energy and energy efficiency investments between 2011-2014 reaching $1.195 trillion globally. However, a massive $13.5 trillion investment in energy efficiency and low-carbon technologies will be required over the next 15 years to support and implement countries’ Paris Agreement NDC pledges (Climate Policy Initiative, 2017). For the world to be on track towards maintaining global temperature rise at 2 degrees, the International Energy Agency estimates that an unprecedented $53 trillion cumulative investment in energy supply and efficiency is needed (based on IEA 450 scenario 2014-2035) (Climate Bonds Initiative, 2015).

Though developed countries have now committed $100 billion per annum in climate financing by 2020 to support climate mitigation and adaptation activities in developing countries, the World Resources Institute (WRI) has stated this is grossly inadequate (WRI, 2017). While a range of estimates of the cost of mitigation and adaptation in developing countries exist, they are all significantly higher than current commitments from the developed world. Projections of the cost of new investments needed to support adaptation and mitigation in the developing world reach as high as US$1,000 billion per annum by 2030 (Carrozza, 2015), ten times current commitments.

Public finance is crucial and expected to form a significant proportion of the US$100 billion committed by Developed countries to support the Paris Agreement and plays a key role in de-risking investment, however the private sector also has a key role to play. While there is some uncertainty over current flows of private financing to developing countries, the OECD and the Climate Policy Initiative (CPI) estimated private co-finance mobilised by developed countries at US$16.7 billion in 2014. These figures include private finance mobilised from international sources as well as private finance mobilised domestically in developing countries (UN, 2016). While this is a good start, much greater mobilisation of private sector finance is required to support the significant action necessary for developing countries to mitigate rapidly growing emissions and adapt to climate change impacts.
To unlock the level of investment required to achieve climate action goals, new sources of innovative climate funding, particularly those that mobilise private sector financing, are urgently required (Norton Rose Fulbright, 2017). Private sector investors (including individual investors, private equity and venture capitalists, institutional investors such as pension funds, insurance companies, or sovereign wealth funds) hold assets that represent trillions of dollars which can be leveraged to provide capital and financial services to finance mitigation and adaptation in developing countries (WRI, 2017). Balancing risk and exposure, along with reducing transaction costs and measuring success are integral to garnering private sector participation (DFAT, 2016).

There has been extensive international discussion and debate around potential new funding mechanisms and how the complex challenges posed by the current funding environment can be overcome. A range of barriers currently inhibit private sector financial flows for climate mitigation and adaptation projects, which are consistent with those also preventing private sector investment in other sustainable development outcomes. The Green Climate Fund (GCF, 2017) summarises key barriers as follows:

1. **Policy and regulatory barriers**
   Including a lack of an appropriate strategic and regulatory framework, inconsistent policy support, and a lack of long-term commitment by governments to support climate-related industries and markets.

2. **Access to climate finance and local markets barriers**
   Which include limited capital market capabilities within countries (where capital markets may be nascent, credit and equity markets are shallow and liquidity is thin), a mismatch between capital demand and supply (caused, for example, by knowledge and capacity limitations in both investment institutions and project proponents, a high degree of fragmentation and inefficiency of projects, a lack of a sizeable pipeline of projects, and higher risk given the immaturity of these markets), currency fluctuation risk (which adds to the asset-liability mismatch), and the limited number of financial instruments on offer.

3. **Affordability and technology barriers**
   Including limited technology transfer to developing countries and technology unfamiliarity, knowledge limitations around climate change adaptation risks and the investments needed to address them, and upfront costs of setting up projects (which includes technology costs, and costs of capital).

4. **Knowledge and education barriers**
   Including limited understanding in some countries of the risks of climate change and the benefits of opportunities through addressing these risks. Across business, government and the financial sector, there is limited inability to incorporate climate change risks into investment decisions, and a lack of proper training in climate mitigation and adaptation and climate finance.

5. **Region and country-related barriers**
   In addition to the above barriers, there are often context-specific barriers at a country or regional level.

The Green Climate Fund notes that most of these barriers are common to private sector investment generally in developing countries, however they may be exacerbated by several factors specific to climate-related investments, including new technologies, policies, financial instruments and lack of knowledge about climate risks and opportunities, and technical or capacity constraints (GCF, 2017).

While these challenges are complex, addressing them is critical to unlocking the private sector finance needed to support climate action and sustainable development in Southeast Asia and the Pacific Islands.
Countries who continue to increase emissions may face continued economic disadvantage

Before the Paris Agreement, there was a common argument that countries who acted strongly to reduce their contribution to climate change risked competitive disadvantage if other trade partners or competitors did not also act strongly. For developing countries, most of whom had contributed little to climate change, it was considered reasonable that they should therefore be able to substantially increase their emissions in order to grow their economies, and lift large proportions of their populations out of poverty.

However, the Paris Agreement changed the global context in which development is taking place. Development pathways are connected to domestic economic and social structures, as well as global trade, prices, financial flows and international agreements (Altieri et al., 2015). In a global context where all countries who have ratified the Paris Agreement have committed to rapid decarbonisation, countries who continue to increase emissions in order to achieve other development outcomes may inadvertently position themselves in a way that imposes continued economic disadvantage. This can happen in several ways.

As carbon pricing mechanisms are implemented and ratcheted up to support developed countries to achieve their Nationally Determined Contributions (NDCs) to the Paris Agreement, emissions-intensive industries will feel the impact most acutely (e.g. steel, aluminium and cement manufacturing, and fossil fuel electricity generation). These industries then become less competitive, compared to imports from other countries without a carbon price. This can cause these industries to decline, require significant investment in emissions reductions to reduce the carbon price burden, or relocate to countries without similar carbon pricing policies.

In the short-term this can provide an opportunity for economic growth for developing countries, where production costs are typically much lower. However, there is a risk that countries who are rapidly decarbonising may impose tariffs on emissions-intensive goods and services, to either subsidise domestic emissions-intensive industries to enable them to transition more smoothly, or to put pressure on countries who continue to grow their emissions, to do more.

For example, in China, where export goods have a relatively high emissions footprint, it was found that a carbon tariff introduced by its major export markets in Japan, US and the EU, would put China’s foreign trade at a disadvantage (Chen & Guo, 2017). The World Bank found that a carbon tariff could cause China’s exports to decrease by 21%, causing 20 million jobs to be lost (WB, 2014). The EU, US and Japan have all discussed possible future carbon tariffs and imposing fiscal pressure on developing countries to discourage emissions growth (Chen & Guo, 2017).

Further, countries who fail to position themselves on a pathway towards decarbonisation today risk making substantial investments in long-lived fossil fuel assets that may not be able to operate for their full technical lifespan, if those countries are to honour their commitments to the Paris Agreement.

To avoid stranding these assets, countries need to take account of future global carbon constraints in their decision-making. Yet, the rate at which emissions intensive assets are being added to the energy system is inconsistent with the goal of limiting global temperature rise to well below 2 degrees (Kriegler et al., 2014 & Pfeiffer et al., 2016, cited in Frankenhaus & Jotzo, 2017).
Nowhere is this more apparent than in Asia, where the rate of new coal-fired power generation is growing faster than in any other region of the world (Shearer et al., 2017). Over the next decade, the region will experience a 50% increase in energy demand (IRENA and ACE, 2016). With this growth comes challenges, as the region strives to supply energy affordably, sustainably and securely.

As Table 2 below illustrates, there is more coal-fired power generation in the construction pipeline than is currently operational across all of Southeast Asia. While not all capacity in the pipeline will become operational, it still represents a significant risk for either climate action or stranding assets. The expected lifespan of a coal-fired power plant is between 30 and 40 years (DRET, 2010), however it is not uncommon for coal-fired power stations to be upgraded to extend operating life well beyond this, to avoid or delay the cost of replacement. It is estimated that to limit global temperature rise to 1.5 degrees, all coal-fired power generation must be retired by 2050, or limiting temperature rise to two degrees, this would need to occur by 2060 (Shearer et al., 2017).

Under business as usual, emissions from fossil fuel energy sources in ASEAN countries are expected to increase by 60% between 2015 and 2025 (IRENA and ACE, 2016). This in turn will drive up air pollution, which comes at an economic cost. In fact, the International Renewable Energy Agency and the ASEAN Centre for Energy estimate that external costs related to air pollution from the combustion of fossil fuels will increase by 35% by 2025 (from US $167 billion p.a. in 2014 to US $225 billion in 2025), or around around 5% of Southeast Asia’s GDP in 2025 (IRENA and ACE, 2016).

Another key driver of economic growth in several Southeast Asian countries that is facing significant risk, is agriculture and forestry. Land use (e.g. agriculture and livestock farming), land use change (e.g. deforestation for agriculture) and forestry activities represent significant sources of greenhouse gas emissions globally6. Land conversion for agriculture also represents a key opportunity to increase livelihoods for rural populations and lift people out of poverty in developing countries. Overall, food production and land use systems have a disproportionate impact on the world’s ability to achieve the Sustainable Development Goals and the Paris Climate Agreement, and also on our ability to achieve the Aichi Biodiversity Targets (Foley et al., 2005). These competing tensions reflect the complex challenge of addressing climate change while also ensuring sustainable development outcomes for developing countries.

Table 2: Existing and new coal-fired electricity capacity in Southeast Asia (SOURCE: Summary of SEA countries from Table 3: Coal Power Pipeline, Top 30 Countries, January 2017 (MW), in BOOM AND BUST 2017, CoalSwarm, Greenpeace USA, and Sierra Club

<table>
<thead>
<tr>
<th>Country</th>
<th>Pre-construction</th>
<th>Construction</th>
<th>All active development</th>
<th>On hold</th>
<th>Operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>38,450</td>
<td>7,820</td>
<td>46,270</td>
<td>8,385</td>
<td>27,399</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>29,580</td>
<td>15,177</td>
<td>44,757</td>
<td>2,800</td>
<td>13,394</td>
</tr>
<tr>
<td>South Korea</td>
<td>8,760</td>
<td>5,917</td>
<td>14,677</td>
<td>1,160</td>
<td>33,417</td>
</tr>
<tr>
<td>Philippines</td>
<td>9,293</td>
<td>4,476</td>
<td>13,769</td>
<td>926</td>
<td>7,282</td>
</tr>
<tr>
<td>Thailand</td>
<td>7,306</td>
<td>600</td>
<td>7,906</td>
<td>600</td>
<td>5,457</td>
</tr>
<tr>
<td>Myanmar</td>
<td>5,130</td>
<td>0</td>
<td>5,130</td>
<td>6,455</td>
<td>160</td>
</tr>
<tr>
<td>Taiwan</td>
<td>800</td>
<td>4,000</td>
<td>4,800</td>
<td>7,600</td>
<td>17,407</td>
</tr>
<tr>
<td>Malaysia</td>
<td>0</td>
<td>3,600</td>
<td>3,600</td>
<td>0</td>
<td>10,008</td>
</tr>
<tr>
<td>Cambodia</td>
<td>3,040</td>
<td>135</td>
<td>3,175</td>
<td>1,200</td>
<td>370</td>
</tr>
<tr>
<td><strong>Total MW</strong></td>
<td><strong>102,359</strong></td>
<td><strong>41,725</strong></td>
<td><strong>144,084</strong></td>
<td><strong>29,126</strong></td>
<td><strong>114,894</strong></td>
</tr>
</tbody>
</table>

*but also a key opportunity for removing carbon emissions from the atmosphere, through reforestation, avoided deforestation and landscape restoration.*
But while increasing agricultural output provides a key means for addressing poverty goals across the developing world, many of the practices are unsustainable in the longer term. For example, many common agricultural practices that boost agricultural productivity in the short term (e.g. overuse of fertilisers, slash and burn agriculture and monoculture cropping) can lead to land degradation, and air and water pollution in the long term (Jouanjean et. al., 2014). These factors, in turn, can reduce productivity and increase food and water scarcity, undermining the sustainable development outcomes they originally achieved (Jouanjean et. al., 2014). As a result, smallholder farmers may be forced to plunder the natural resource base (often illegally) to derive their livelihoods, creating a ‘race to the bottom’ scenario. This can be seen in recent shifts in Southeast Asia from subsistence to industrialised agriculture, driven by rapid urbanisation and increasing incomes and food demand from cities. Combined with subsidising of agricultural outputs, this has lead to an increased dependence on high yielding monocrops and cash crops that are vulnerable to climate change (ABD, 2014). Cash cropping, particularly for palm oil and paper, is decreasing food security and driving rapid deforestation. For example, Indonesia exported US $17.6 billion in palm oil in 2012 (Sequiño & Avenido, 2017), making it the third largest export earner and employing 3.7 million farmers, or nearly 3% of the workforce (Levin, 2012). On the one hand, the palm oil industry is driving economic development, yet on the other, it is increasing Indonesia’s vulnerability to climate and food security risks.

Finally, developing countries whose economic growth is currently being driven by the extraction and export of fossil fuel reserves are particularly heavily exposed to the risk of stranded assets. As global demand for fossil fuels declines, fossil fuel rich countries stand to lose the economic value of their resource base. This is particularly relevant for a number of Southeast Asian countries such as Indonesia, Viet Nam, Thailand and Malaysia. With fossil fuels expected to lose their economic value as the world decarbonises, countries whose economic growth is currently dependent on these exports will need to employ strategies to diversify their economies. This particularly needs to focus on efforts to strengthen non-fossil fuel sectors - for example other resources sectors, or manufacturing and services (Fankhauser & Jotzo, 2017).
Rapid urbanisation in Southeast Asia presents a number of climate challenges

Nowhere is the complexity of the interaction between climate change and sustainable development more apparent than in Southeast Asia’s rapidly growing cities. Rapid urbanisation is underpinning Southeast Asia’s economic transformation. ADB estimates that approximately 80% of Asia’s GDP is generated in urban areas, signalling the key role that cities will play in determining the region’s long-term productivity and overall stability (ADB, 2017). Half of Southeast Asia’s population is predicted to live in urban areas by 2050 (Sheng, 2012).

Four of the world’s 39 megacities are in Southeast Asia - Jakarta, Bangkok, Manila and Seoul, with Ho Chi Minh City projected to become a megacity between 2016-2030 (UN, 2014). While most Southeast Asian cities won’t reach megacity status for many decades, the rapid urbanisation they are experiencing will continue to deliver many similar challenges. 63% of the world’s 440 fastest emerging cities are in Asia (Dobbs et al., 2012). By 2030, the urban population in Southeast Asia is projected to reach 373 million (Florida & Fasche, 2017). These cities are driving rapid economic growth in their home countries, and lifting millions of people out of poverty and into the ‘consumer class’. They are also a hotbed of inequality, with extreme wealth and extreme poverty living side by side.

Rapid urbanisation is placing enormous stress on urban infrastructure and services. Traffic congestion, air pollution, brownouts, environmental degradation and informal settlements provide evidence that many of Southeast Asia’s major cities have not managed to stay ahead of their increasing demand for infrastructure and services.

The investment needed to meet demand for infrastructure and services presents a key opportunity to choose lowest emissions options that can also reduce air pollution, improve energy security, improve livability and reduce environmental impacts. However this also creates an immediate challenge: A failure to capture these opportunities will lock in carbon-intensive infrastructure and its many consequences, yet often, investment is needed to upgrade existing infrastructure to enable low or zero emissions technologies. The tension between the need to invest to meet rapidly growing demand vs the need to upgrade existing infrastructure to enable cleaner choices represents a key challenge for decarbonising Southeast Asia’s cities.

Currently urban areas make up 67% of energy-related emissions with an expected increase to 74% by 2030 (World Bank, 2010). Efforts to include more renewables in the energy mix for cities is often hampered by uncertainties over energy policies, financing and market structure (Kwang, 2015), and overstretched energy infrastructure that cannot tolerate a greater proportion of intermittent renewable energy supply without significant upgrade. Upgrading this infrastructure requires more than money: It also requires good long-term planning and institutional change (Yap, 2013).

According to the International Panel on Climate Change (IPCC), cities in the developing world often lack the institutional, financial and technical capacities needed to switch to low emission development paths (Gouldson et al., 2016). National governments in Southeast Asia have often relied on centralised decision-making, yet good urban planning often works best when local government has the power to manage urban areas more effectively and efficiently, and to mobilise funds for development (Yap, 2013).

Southeast Asia’s cities hold the key to the region’s future, and the choices made over the next decade will determine whether that future is economically resilient, socially inclusive and climate safe. Urban planning decisions – or, as is often the case in currently unplanned or ungoverned urban development, urban planning ‘non-decisions’ – and investments made during this period are therefore critically important (Crenson cited in Yap, 2013).
Fossil fuel dependency remains a major barrier to economic development in the Pacific Islands

Pacific Island countries (PICs) are the most dependent on imported fossil fuels in the world, importing more than 95 percent of fuels (99 percent if PNG and Fiji are excluded) (Newell et al., 2017). Such dependency can debilitate national budgets and revenues and negatively impact key productive sectors in the region (Newell et. al., 2017). Imported fuel for transportation and power generation accounts for an average of 40% of the region’s total GDP (Holland et al., 2014) and a significant proportion of its greenhouse gas emissions. In 2011 alone, 1.3 billion litres of fossil fuels were imported into the Pacific at a cost of US$873 million (Holland et al., 2014). Overall, the oil imports of PICs significantly outweigh their goods exports, negatively affecting economic growth through large balances of payment deficits (Fairbairn, 1994) and driving a need to develop higher levels of energy security.

The region’s increasing demand for imported fossil fuels will further exacerbate the already wide range of sustainable development challenges most PICs are experiencing, notably: energy poverty, vulnerability to price shocks, high living, food and transportation costs and revenue loss across agriculture, water resources, forestry, tourism and industry-related sectors (Sem, 2017).

Smaller, more remote PICs and poor households are most vulnerable to these challenges. Energy poverty is a major development challenge in PICs. Estimates of the number of households without access to electricity range from 70% (Dornan, 2014) to 80 percent (World Bank, quoted in Daily Mail, 2016), however there is significant variability across PICs. In addition, electricity costs are amongst the highest in the world (Dornan, 2014).

Why is this important? Quite simply, electricity is the vehicle for economic activity and the provider of a range of basic services. With access to modern, reliable and affordable energy, children can study in the evening, small businesses can thrive, women can walk safely under street lights and hospitals can function. Food and vaccines can be kept refrigerated and internet becomes a reality, bringing with it enhanced communication and information flows. Coupled with televisions, radios and mobile phone networks, people are able to make better, more informed choices rather than rely purely on word of mouth. In areas that are newly electrified, this provision is enabling households to access formal financial services and build their economies, and it is also helping to attract better teachers and healthcare workers to rural areas.

In terms of financial advantages and better environmental outcomes, electricity replaces expensive traditional fuels such as kerosene for lighting and the use of batteries to power radios and other small appliances. Households with access to electricity will therefore spend less time and money on energy than comparable households without access to power, although upfront costs associated with electricity connections are often out of reach for rural households. In Fiji for instance, research demonstrates that un-electrified households spend more on energy for lighting than electrified households and are more vulnerable to increases in the price of fuel (Dornan, 2014).
The most cost and time efficient way to deliver electricity access is through renewables. Technologies such as solar PV are quick and reasonably simple to install, have no ongoing operating costs, require very little maintenance and can deliver substantial benefits without any additional infrastructure. Delivering the same level of welfare improvement through traditional electricity sources is significantly more complex and expensive (IRENA, 2016).

While a focus on renewables is critical to increasing access to electricity and reducing electricity costs, the largest source of greenhouse gas emissions across the PIC region is in fact, transport. When inter-island transport is also factored in, transport (land, air and marine) accounts for at least 70 per cent of all Pacific island countries’ fuel use, driven primarily by sea transport (Nuttall, 2014). Given how heavily reliant PICs are on sea transport, reducing reliance on fossil fuel imports is also vital to improving energy security, economic growth and even food security (UN FAO, 2008).

There are several characteristics of Pacific island sea transport that make it more complex to resolve than for many other countries: long routes, minute economies, imbalance in inward and outward loadings, financing barriers, high risk, and high infrastructure costs (Holland et. al., cited in Nuttall, 2014). However, research by the Oceania Centre for Sustainable Transport (OCST) has found that for a modest investment, renewable energy powered vessels could potentially be a major fuel and cost-saving adaptation, decreasing fuel dependency and cost effectively increasing connectivity between islands (Nuttall, 2014). As such, energy policy measures that reduce reliance on imported fuels will contribute to macroeconomic growth, stability and improve poverty reduction.
The process must be country driven (but many existing challenges inhibit this)

A country-driven planning process is vital to ensure the national appropriateness and ownership of mitigation actions and related plans. National stakeholders need to have sufficient technical expertise in sectors prioritised for intervention, and the capability to create an enabling environment that encourages the private sector participation required to achieve scale and innovation.

Evidence suggests that in many countries, there are significant gaps in the abilities of national stakeholders to understand, identify and implement mitigation actions, requiring external expertise to strengthen capacity and understanding. Specific gaps identified include: the need for an understanding of change and transformation processes; experience in workable business models; knowledge of international financing and its requirements; technical and financial knowledge of best available technological solutions; knowledge on integrating private sector participation; an holistic understanding of the enabling mechanisms which will support the implementation and operation of mitigation actions; and, experience in integrating monitoring & evaluation and/or international standards for measurement, reporting, and verification into mitigation actions (Basu et. al., 2017).

Inconsistent energy statistical data at all levels is also a major barrier to setting reasonable but ambitious emissions control targets (Teng et. al., 2015). Data challenges are particularly associated with financial costing, cost-benefit analysis, project monitoring and the ability to demonstrate project bankability. Affecting all stages of the project management cycle, poor data impedes the project’s ability to attract investment, carry out feasibility studies to calculate the returns on investment or monitor project performance of proposed interventions. As a result, only 12% of climate finance from multilateral agencies has been accessed to date. It is hoped that the Green Climate Fund’s Readiness funding may address some of these issues by supporting capacity-building, awareness-creation and public-good investments.

Further, many countries face the challenge of increasing strong cross-ministerial collaboration, which is key to avoiding silo’ed implementation and the risk of cancelling out progress and success by individual ministries (Teng et al., 2015).

Finally, incumbency remains a key barrier to emissions reductions. In all countries where incumbent fossil fuel electricity remains the dominant form of supply, relevant decision-making is highly politicised. A lack of transparency and power struggles in the policy sphere are key challenges to decarbonisation in South Africa (Baker et. al., 2015), and in China coal remains the cheapest form of energy, making it difficult to diversify its energy supply (Teng et. al., 2015). These challenges hold true in Southeast Asian countries where existing policies and financial incentives often favour incumbents.
Pathways to Prosperity: A coherent, interdisciplinary approach

Solving this complex problem demands a fundamental shift. In response, ClimateWorks Australia has developed the Pathways to Prosperity program which will support developing countries in achieving lowest emissions development alongside Sustainable Development Goals. The program is designed to:

- Strengthen capacity for developing countries to design and implement long term, lowest emissions development strategies that maximise the potential of those countries to achieve prosperity in a rapidly decarbonising world.
- Support implementation by identifying risks, analysing and addressing barriers, and outlining the ‘easy wins’ to demonstrate early momentum.
- Improve strategic access to climate finance, through development of a long-term pipeline of projects, and improved ‘bundling up’ of projects.
- Provide a framework to ‘join the dots’ between the work of the key actors in each sector, and identify any gaps where further mitigation opportunity could be captured.

Through a partnership approach, ClimateWorks aims to work in up to 10 countries across Southeast Asia and the Pacific Islands. Our approach builds on our experience working within the global Deep Decarbonization Pathways Project (DDPP), led by The Institute for Sustainable Development and International Relations (IDDRI) and the Sustainable Development Solutions Network (SDSN). ClimateWorks Australia will draw on a wide network of affiliates for this collaboration, in addition to seeking new funding, partners and affiliates.
Conclusion

Not only is rapid decarbonisation possible in developing economies in Southeast Asia and the Pacific Islands, it is essential. These regions are at the forefront of global emissions growth, and also at greatest risk from climate impacts. Strong action on climate is therefore in the best interests of these economies.

Importantly, addressing climate change (both mitigation and adaptation) is also critical to the achievement of other sustainable development goals. Conversely, actions taken to achieve sustainable development will have consequences for climate change, both positive and negative. It is therefore essential to consider these outcomes as inextricably linked, and focus on considering how to maximise positive outcomes in both climate action and other sustainable development goals, while making considered decisions about trade-offs. This approach should be central to future planning in developing countries, in order to ensure sustainable and equitable prosperity.

Achieving these parallel and complementary global agreements requires long-term planning. By considering key development indicators over the long term, in parallel to climate mitigation action consistent with net zero global emissions, developing countries can set clear end goals and ‘backcast’ to understand the most feasible and cost-effective pathway to achieving those end goals. As the examples in this paper demonstrate, long-term lowest emissions development pathways are a proven tool supporting this process.

Importantly, long-term pathways can provide clear guidance on policy and investment choices over the short to medium term, to identify where risks around stranded assets may exist, and to ensure that enabling policies support a smooth and rapid transition to low carbon infrastructure. Currently, most countries in Southeast Asia and the Pacific Islands are not on a trajectory consistent with the net zero emissions goal of the Paris Agreement.

Significant effort will be required to support countries in Southeast Asia and the Pacific Islands to address the many barriers, and this work needs to start now. There is no shortage of capital available to both solve climate change and enable strong outcomes in sustainable development. Addressing these barriers is a key step to unlocking the financial flows that are critical for the transition to a just, equitable, and environmentally-responsible net zero emissions future for us all.
References


Climate Policy Initiative, 2017. Climate Finance Landscape. URL: www.climatefinancelandscape.org


DDPP (Deep Decarbonization Pathways Project), 2015. Pathways to deep decarbonization 2015 report, SDSN - IDDRI, p.3-6

DDPP (Deep Decarbonization Pathways Project), 2015. Supplementary Material to 2015 Synthesis Report, SDSN - IDDRI, p.36


DFAT (Department of Foreign Affairs and Trade), 2016. Australian Climate Finance Round Table: Options Paper. Australian Government.


Shearer, C. et. al., 2017. Boom or Bust 2017: Tracking the global coal plant pipeline. © 2017 CoalSwarm, Greenpeace USA, and Sierra Club

Shukla, P.R. et al., 2015. Pathways to Deep Decarbonization in India. SDSN - IDDRI


UN, 2016. Biennial Assessment and Overview of Climate Finance Flows


