

The 21st century has been dubbed the Asian decade. As the global economic centre shifts from the West to the East, Asia has undergone a dramatic transformation, powered by rapid urbanisation, rising income levels and disruptive technologies. This has changed the way Asians live. More wealth will be generated as a result of demographic changes, economic and infrastructure growth; and Asian consumerism is set to rise in the foreseeable future.

As a result, Asians are expected to spend significantly more. They will at least double their level of consumption to reach [US\\$8.6 trillion by 2020](#). This translates to a rough annual growth rate of 8% over the next 10 years, which is significantly higher than growth from the US at 2.5%, according to a [recent report](#) by Southeast's largest bank DBS.

Over the next decade, there will be tremendous opportunities in Asian agribusiness, food retailing, automobiles, housing, environmental solutions, and energy. But even as the region enjoys unprecedented economic growth, its headline stories mask the underlying fault lines of environmental degradation, resource scarcity, pollution, inefficiency and worsening climate change.

It is therefore absolutely critical that low-carbon solutions in Asia are supported and scaled to enable Asia to achieve a low-carbon, sustainable development path.

Companies looking for money to fund their low-carbon solutions, however, are hard pressed to find enough capital in a region that has a largely conservative banking sector. Traditional sources of funding like bank loans are expensive and are hard to obtain for most small and medium sized enterprises (SMEs).

While in the West, shares, bonds and bank loans are generally managed by a mix of public and private entities; in Asia, almost every way to raise capital is controlled by the government.

In recent years however, alternative sources of finance have emerged in the region, powered by new technological movements such as fintech and blockchain.

In 2016, more than US\$245 billion of funding was channelled through online alternative finance platforms across this vast region, providing credit for consumers, capital for start-ups and SMEs, donations for NGOs and third-sector organisations, according to a recent report by the [Cambridge Centre for Alternative Finance](#).

Although China still dominated the market with over US\$243 billion raised in 2016, many other countries such as Australia, South Korea, Malaysia and Thailand also saw considerable growth in the year. The online alternative finance industry is definitely taking roots and thriving in the world's most populous region.

Financing sustainable development is one of the greatest challenges at the moment and requires ambition, innovation, and commitment, underpinned by effective collaboration.

Here are some ways that innovative finance can be tapped to fund the solutions for low-carbon consumption in the region.

1. PUBLIC AND MULTILATERAL FINANCE

The financing required for an orderly transition to a low carbon economy will be in the trillions, not billions. Large investments in businesses providing services in public interest will be needed, particularly as many projects require economies of scale in order to reach profitability. In this respect, funding from governments and multilateral development banks such as the World Bank Group continue to make a strong contribution in this area.

Concessional climate finance is critical to supporting developing countries to build resilience to worsening climate impacts and to catalyzing private sector climate investment.

Collectively, the MDBs increased their climate financing in developing countries and emerging economies to \$35.2 billion in 2017 – including more than \$13 billion from the WBG.

From fiscal year 2013-2017, the International Development Association (IDA), the World Bank's fund for the poorest, provided on average \$2 billion a year in concessional finance to help countries adapt to the effects of climate change and \$1.7 billion a year to reduce emissions.

The \$8.3 billion Climate Investment Funds (CIF), now marking ten years of climate action, have helped 72 developing countries pilot low-emission and climate-resilient development through country-led programs and investments.

The International Finance Corporation (IFC) is also increasingly investing in businesses that have proven social and environment impact. A member of the World Bank, it invests in early and growth stage tech startups that focus on green tech, including communications, waste disposal/recycling, healthcare, education, and agriculture.

Chinese electronics recycling startup Aihuishou, for example, scored a US\$8 million series B round of funding week led IPC, followed by previous investor Morningside Ventures. The website allows people to sell or recycle old laptops, phones, handheld game consoles, and tablets. They can sell for cash or store credit, buy refurbished devices, or trade in an older model for a new one. Couriers will pick up and deliver devices to users' doorsteps in Shanghai and Beijing, but users in other cities are responsible for their own shipping. The company will use this latest investment to expand its recycling network and courier services to more cities.

The Sustainable Finance Collective Asia (SFC Asia) is another initiative featuring an innovative and collaborative funding platform formed by a select number of financial institutions, and technical, social and environmental impact, and legal experts. It supports funding proposals in three broad sustainability themes – Circular Economy, Sustainable Energy and Social Impact – in Asia by providing expert feedback to eligible proposals and to fund some of them.

UN Environment and other institutions can also provide funds to support low-carbon solutions. In 2018, the Asia Pacific Low Carbon Lifestyles Challenge granted US\$160,000 to start-ups offering such solutions in the region.

1. FINTECH

FinTech is a crucial new industry that uses technology to improve activities in finance. It is enabling crowdsourcing platforms to help start-ups that need funding in the early stages. Fintech-enabled alternative finance has triggered diverse policy and entrepreneurial responses, which are shaping the future of the financial services sector.

The innovative digitisation of services these platforms offer can lower transaction costs and enhance the convenience for end users. It also increases access to credit and investments for underserved segments of the population and businesses. While the industry is undergoing regulation and there are potential challenges that might impede the long-term viability of the sector, it remains a bright spot for many organisations looking for access to funding.

Government support: Governments across Southeast Asia are supporting the growth of their fintech industries. Singapore, for example, has announced S\$225 million to develop and support local fintech companies, rules regarding unsecured loans have been eased, and innovation is being supported. Singapore FinTechs such as MoolahSense (for P2B) and Funding Society (for crowdfunding) have been granted Capital Services Markets licenses.

Malaysia and Thailand have introduced financial guidelines for peer to peer lending. The Korean Financial Services Commission and the Monetary Authority of Singapore and the UK's Financial Conduct Authority have signed agreements regarding cooperation in the FinTech space.

Crowd-funding: Crowdfunding is an alternative for start-ups and SMEs to raise funds through online portals that do not involve traditional banking. Businesses or projects have to invite people to pledge or invest small amounts by providing information on business plans, financial statements and returns on the website while the "crowd" are potential investors (institutions or individuals) who are interested in investing in an innovative idea or an unlisted company by providing a fund pool via a crowdfunding site to help turn ideas into real businesses.

The crowd can provide financial support, product and service ideation or access to their social networks in return for nothing, which is called a "donation model." This type of crowd is normally associated with philanthropy or social sponsorship.

Three other types of crowd or "model" are "reward model" (supporters receive non-financial rewards for their contributions), "lending model" (peer-to-peer lending or peer-to-business lending at attractive rates), and "equity model" (supporters receive equity stake in a company such as common stock in return). The usual size of the fund being pooled via crowdfunding is usually less than the size of a venture capital fund.

Equity-based crowdfunding has remained strong in SE Asia, growing from \$7.5 million to \$56 million in 2016, most of it in Singapore. Singapore equity-crowdfunding platform FundedHere, for example, helped start-up EcoWorth Tech raise funds for their low cost and eco-friendly waste treatment solution.

Innovative apps: In 2017, the UN Environment and Ant Financial Services Group launched a ground-breaking initiative, the 'Green Digital Finance Alliance,' to align the global fintech system with sustainable development. The companies do so by leveraging mobile Internet, cloud computing and big data.

One such innovation is Ant Financial's app, which provides users with a carbon account, in addition to their credit and saving accounts. Ant's 450 million users in China are now able to benchmark their carbon footprint and to earn "green energy" credits for reducing their footprint.

Ant Financial has also integrated this function into a social media experience, as well as committing to a complementary, tree-planting carbon offset programme. As of today, 72 million users are participating in the app.

Ant Financial-run MYbank also provides preferential credit for users who purchase fuel-efficient vehicles in rural areas and partners of Cainiao Logistics who switch to environment-friendly electric vehicles. For example, Changzhou Eversafe Public Bicycle System Co., Ltd. launched its barcode-enabled, deposit-free bicycle rental service through cooperation with Alipay and Zhima Credit. From its launch in September 2015 to the end of April 2016, the system had provided convenient green transportation services for 30 million people, which reduced carbon emissions by 20,000 tons. At present, over 200,000 people use deposit-free Eversafe public bicycles every day, which is equivalent to planting 20,000 trees in the city.

2. BLOCKCHAIN and ICOs

Blockchain technologies are emerging as a crucial way to drive sustainable lifestyles. This emerging technology is making it easier for consumers to assess the social and environmental impacts of the products they buy. Simply put, blockchain is a public chain of records in which each new transaction is logged. All parties who have access to the blockchain will have the same copy of the record, which is updated each time a new transaction is made and collectively verified.

Blockchains are used as an open database or a distributed ledger system for its most obvious and appealing qualities: transparency, immutability, consensus-building and traceability.

Initial Coin Offerings (ICOs) are an example of blockchain application, representing a new way for organisations to raise capital, and emerging as an alternative to the traditional models of start-up investment and e-commerce growth.

Like an Initial Public Offering (IPO), an ICO can be used to raise funds, but unlike an IPO, it is subject to less regulations thanks to it being a relatively new concept. In an ICO, blockchain technology enables the issuance of virtual coins – or tokens in exchange for a cryptocurrency payment.

ICOs are gaining increasing attention from investors, businesses, media and regulators, and have become popular due to the ease with which they can be used by businesses to obtain new, more global and democratic public funding, with less complexity and greater speed than traditional methods. However, like all pioneering new fields, they are not without risks and ethical issues to consider.

Ethereum, for example, is a popular platform used to create an ICO and getting tokens to investors. Over 80% of the ICOs are happening on Ethereum, so it might be the platform to finance the startups of the future.

Copenhagen start-up Ekofolio, for example, develops and operates platform that uses blockchain technology to trade forest and timber to fight climate change. Tokens are issued for each forest that they list on the platform and each token is coded with essential information about that forest, which includes the types of trees being grown, geolocation data and sometimes special features such as visiting or fishing rights.

Improving supply chain transparency and consumer choices: Blockchain technologies are helping consumers make better, more sustainable lifestyle choices. For example, imagine you're shopping for a pair of denim jeans at a store. By scanning a QR code on the clothing's tag with a smartphone, you can see exactly when the cotton was harvested, the amount of water used to produce it, and where the denim was cut and sewn. Blockchain can offer customers a remarkable level of insight into a product's manufacturing and supply chain.

Another big potential use for blockchain is in the carbon markets emerging around the world, where the sheer volume of trades and complex network of players—including producers, certifying bodies, middlemen and traders—creates room for manipulation and fraud.

"Carbon markets today are opaque because people do not have visibility as to where the carbon credits come from or go, which has led to double counting and fraud," says Jeffery Liu Xun, co-founder of Xarbon Sustainability.

To address this, the Hong Kong-based blockchain company has created a cryptocurrency from carbon credits generated through the environmentally friendly projects it runs, such as forest conservation in Papua New Guinea. These digitised carbon units, called OCO, are sold to companies and individuals who want to either trade in global carbon markets or offset their carbon footprint, adds Liu.

Because the cryptocurrency sits on blockchain's open ledger technology, buyers can see how many hands each unit has passed through, and trace it all the way back to the source. This gives companies and individuals the confidence that the credits they acquire are genuine.

From the Papua New Guinea rainforest conservation project, Xarbon has been able to accumulate 200 million tonnes in carbon credits that will eventually be sold on the carbon market, and is equivalent to conserving of 500,000 hectares of rainforest area.

Another benefit of blockchain technology is that large units of carbon can be broken down into smaller units for offsetting, says Laszlo Giricz, founder and chief executive officer of Poseidon.

The company collaborates with retailers to get consumers to offset their purchases with its OCEAN tokens, each of which represent a small amount of carbon.

In May this year, it ran a pilot programme at a Ben & Jerry's ice cream store in London, where customers had the option to offset the carbon footprint of their dessert. Within three weeks, the company had raised enough funds to protect forest area equivalent to 77 tennis courts.

In the energy sector, blockchains are enabling peer-to-peer transactions with the help of smart contracts. Shanghai-based Energo Labs uses this combination to create a community-based clean energy trading system. Households with solar panels and smart meters can sell excess energy as Watt tokens by putting up a sales order through the company's mobile app.

The system's smart contract, which operates on blockchain technology, automatically matches the sales order to purchase orders created by other users, and completes the transaction without the need for human intervention.

The company last year established a successful pilot microgrid system at the De La Salle University in the Philippines. Combined with other energy conservation initiatives on campus, the project is set to save the university 1.2 million Philippines pesos (US\$22,254) over the course of its 20-year lifespan.

3. PRIVATE FINANCE

The world's private money is flowing into Asia, buoyed by the region's economic growth and rising middle class. Private equity (PE) and venture capital (VC) investments into Southeast Asia hit a record US\$23.5 billion in 2017 – where investment levels surpassed those in Europe for the first time, according to the latest [Southeast Asia PE & VC: Investment Activity](#) report.

Venture capital financing – where investors provide funding to startup companies and small businesses that are believed to have long-term growth potential – remain a key source of capital for emerging companies.

Funding for start-ups in Asia have been notably made in Industry 4.0 technologies, the automotive sector as well as in both ride sharing and e-commerce platforms, signaling an appetite for disruptive ideas that can accelerate the low-carbon transition.

Simultaneously, green finance is emerging as one of the hottest topics in private finance in the region. Simply put, green finance covers the financing of investments that generate environmental benefits as part of the broader strategy to achieve inclusive, resilient and sustainable development.

Venture capital: The largest deals were in Singapore and Indonesia, with China, India and Japan also taking considerable shares of the venture capital (VC) investment space. While investments into startups more than doubled to US\$8 billion, the main driver was corporate investments that grew more than 2.5 times co-investing or even leading investments into several notable deals.

Corporate investment participated in 7 of the top 10 deals by size in Southeast Asia in 2017 such as the investment into Grab Holdings by Didi Chuxing and Softbank, the Go-Jek deal by investors including KKR, Warburg Pincus, Google, Temasek Holdings, Meituan-Dianping, Tencent and JD.com, and the investment into PT Tokopedia by Alibaba.

Grab is Southeast Asia's biggest ride-hailing app, food delivery service, and cashless payment solution; while Go-Jek is a similar technology startup and Indonesia's first unicorn company. Both provides services that increase the efficiency in private transportation. In 2018, Grab and the National University of Singapore (NUS) announced an artificial intelligence (AI) laboratory in Singapore aimed at finding ways to alleviate traffic congestion and other urban transportation issues.

The lab will use data from Grab's platform – said to have facilitated more than two billion rides – to solve “[complex, real-world challenges in Southeast Asia](#)” such as mapping out traffic patterns and identifying ways to improve mobility and liveability in the region.

GREEN BONDS: This is an emerging finance mechanism growing in Asia to enable companies to raise the funds to finance low-carbon projects.

When sustainability considerations are included in how financial institutions lend, underwrite and invest, they will have a major influence on how financial capital is allocated to the economic activities with environmental benefits.

In 2016, G20 heads of state for the first time recognised the need to ‘scale up green finance’ and set out a plan to make it happen. Key countries issued strategies for greening their financial systems, with China in the vanguard launching a 35-point programme. Leading insurance regulators also decided to work together on how to respond to sustainability challenges. The UN Environment estimates that the number of policy measures to green the financial system has more than doubled to over 200 measures across 60 countries.

The Monetary Authority of Singapore (MAS) and IFC, a member of the World Bank Group, for example, announced an initiative in 2018 to boost the growth of the green bond market in Asia.

They will encourage green bond issuances by financial institutions in Asia by raising awareness and knowledge of finance professionals on green finance issues, and also have plans to promote the use of internationally recognised green bond standards and frameworks.

The MAS has been providing funding support through the MAS Green Bond Grant Scheme and various financial training schemes.

There is significant potential for private capital to play a significantly larger role to meet Asean's green investment needs. It is estimated that Asean will need US\$200 billion in green investment annually from 2016 to 2030.

Multilateral institutes also have a role to play in mobilising private finance. Through ADB's private sector operations last year, an additional \$5.8 billion in commercial co-financing was mobilized.

ADB helps to make projects viable through its participation, improve the risk profiles of projects via credit enhancement products such as guarantees; and pilot new approaches and technologies.

ADB is expanding political risk and partial risk guarantees and supporting local currency project bond issuances by the private sector through credit enhancement.

It is also supporting and promoting the growth of public-private partnerships (PPPs). When well designed and delivered, PPPs can tap the significant funding and management expertise of the private sector for infrastructure and social services.

ADB is supporting PPPs by helping countries enact laws and establish PPP offices, better preparing projects for the market including through its Asia Pacific Project Preparation Facility, and by providing transaction advisory services. ADB also finances private sector participants in PPPs.

One example of ADB's support for PPPs is the Mactan-Cebu International Airport in the Philippines, where we helped the government to prepare a PPP deal to expand terminal services. Our private sector operations provided commercial financing of \$75 million to the operator which was co-financed by a syndicate of seven Philippine banks for \$450 million.

ADB's PPP office is providing transaction advisory services for the Port Moresby International Airport in Papua New Guinea, a teaching hospital in Kazakhstan, a solar park in Cambodia, among others.

MITIGATING DEBT

As people get richer, they are more likely to be in debt, and the size of their loans grows too. According to the University of the Thai Chamber of Commerce, household debt tripled since 2005. In 2005, household debt amounted to 3.4 trillion baht. By 2016, the amount has more than tripled, outpacing GDP growth. From 2005-14, household debt rose by 13.4% per year, almost double the nominal GDP growth rate. Thailand is currently reaching the highest rate of household debts in 8 years, reaching 81% of GDP, and "mostly to buy cars and consumption goods" according to Thailand Business News.

And even more worrying, loan sharks, not banks, are getting the lion share of households debt in Thailand : around 60%. Thailand is not alone – access to finance has led to debt-funded consumption in South Korea too.

Debt is also shifting from well regulated traditional finance institutions (banks) to unscrupulous lenders, which combined with poor financial literacy rates leads to lifelong debt and risks exacerbating poverty and crime rates. This household debt not only fuels unsustainable consumption, it also destabilizes economies. There is an opportunity to kill three birds (social, environment, economy) with one stone by actively mitigating this.

CONCLUSION

To achieve a low carbon economy will take the efforts of the entire financial industry. Traditional banking and the MDBs will continue to play a critical role to finance the large-scale infrastructure, low-carbon projects. But they are also increasingly aligning their efforts with that of the private sector, seeding new public-private partnerships that have the potential to dramatically change the way we consume resources.

As the financial services industry undergo unprecedented disruption, the opportunities to tap on new vehicles of funding to fund low-carbon, innovative solutions are also tremendous. But they are not without its risks as these new technologies and concepts such as blockchain and ICOs are relatively nascent and will undergo further scrutiny and regulation to find its new place in the finance world.

Still, these new financial services can shape consumer behaviours in ways that positively impact the environment and deliver a low-carbon future. Governments, financial institutions and businesses will need to collaborate in a concerted fashion to ensure the right regulatory environment is implemented for these services to thrive.

One thing is clear: The shift to climate conscious, green, and more sustainable finance now looks inevitable.