# Asian Council on Water, Energy and Environment

Confederation of Asia-Pacific Chambers of Commerce and Industry

March 2020, Edition 9

## Contents



# Message from the ACWEE Chairman

It is a pleasure to present to you the “Asian Council on Water, Energy and Environment (ACWEE)” newsletter, edition 9, 2020. This publication is a compendium of relevant news, reports, and analyses on recent developments in the water, clean energy and environment sector in Asia Pacific countries.

The reports show increased LNG production driving Azerbaijan’s exports to international markets, and construction of LNG pipelines in Turkey to feed European markets. While in East Asia, Japanese’s LNG investment across the region bolsters the LNG market in Asia. Unfortunately, PNG’s LNG plans are in limbo.

Concerning nuclear energy, Bangladesh’s nuclear energy production is establishing cyberdefenses to maintain its nuclear plant’s viability over time, and Russians are offering nuclear options to Sri Lanka; although Malaysia refused nuclear energy plans.

Cambodia’s energy sources are diversifying from hydro into renewables such as solar sources, as Vietnam invests in large solar plantations.

Nepal continues its drive towards becoming a hydropower’s regional source, and India is reforming investment regulations for the electricity sector while China’s energy grid enters into the IoT world.

Water remains one of the major Asia’s concerns in almost every country, from New Zealand to India.

This newsletter indicates that Asia is investing money in a variety of energy sources to further extend economic growth and enjoy a better environment.

**Mr. Gyanendra Lal Pradhan**
*Executive Chairman, Hydro Solutions*
*Vice President, Nepal German Chamber of Commerce and Industry (NGCCI)*
*Chairman, Asian Council on Water, Energy and Environment (ACWEE)*

# Giant water battery helps university cut energy costs by 40%

*The Sydney Morning Herald, Tony Moore, 3 November 2019*

A giant chilled water-battery is using the solar energy generated by 6000 solar panels on top of roofs at the University of the Sunshine Coast to chill water and save 40% of airconditioning costs.

The idea has been so successful it will cut the airconditioning costs of the entire university and save AU$100 million (US$65.5 million) within the next 25 years, while reducing emissions.

Now the Queensland and Australia-first achievement has been recognised by scientists internationally. The water battery – now in operation – won a category of the Global District Energy Awards for 'Out of the Box' ideas.

USC chief operating officer Dr. Scott Snyder said the award recognised the ingenuity of the system, which is the first of its kind for an Australian university.

"USC has a plan to be completely carbon-neutral by 2025, which is a challenge to any budget because it requires significant changes to the way energy is captured and consumed," Dr Snyder said.

University of the Sunshine Coast solar thermal plant is saving 40% of the university's air conditioning costs. Water is chilled using energy powered by the solar panels and stored in the circular water 'battery'.

The scheme was put in place at the University of the Sunshine Coast by French transnational company Veolia who specialise in water and energy management.

"So, we really did have to think out of the box, and by forming a partnership with Veolia, we were able to negotiate a 10-year plan that suited us both and delivered major energy savings to the University," he said.

"The system was switched on in September and is now delivering 2.1 megawatts of power. We estimate that we will save more than AU$100 million (US$65.5 million) in energy costs over the next 25 years," he added.

The solar thermal water battery was judged against entries from Spain, Lithuania, Sweden.

The award was received in Iceland by USC's award-winning manager Infrastructure and Energy, Dennis Frost. "Universities have a very large energy footprint and we wanted to tackle that and reduce that expense," Dr Frost said.

He said the work was a real-world example of using latest solar technology to reduce emissions and money. "I think it is exciting because we have the opportunity to teach the younger generation that the environmental challenges that are faced by the planet can be solved."

Veolia regional energy services manager Andrew Darr said the win was the culmination of nearly four years of hard work.

"The innovation displayed throughout this project is a testament to both organisations and could only be achieved through an open and collaborative partnership," he said.

His Veolia colleague Angela Cooney said the project was an Australia-first. "University of the Sunshine Coast is the first university in Australia to implement a thermal energy storage battery that is powered by renewables."

Queensland Energy Minister Anthony Lynham officially announced the project launch in August. In October 2019, Dr Lynham said solar panels in Queensland produced twice as much energy as the state's biggest power station.

Solar panels on households and businesses, plus the 30 solar farms now operating in Queensland produced 4000 megawatts of power. Queensland's largest power station is Gladstone, which produces 1680 megawatts.

# Azerbaijan boosts gas export to Turkey

*Azernews, Ofeliya Afandiyeva, 4 November 2019*

In January-August 2019, Azerbaijan exported 6,044,65 billion cubic meters of gas from the Shah Deniz field to Turkey, which is 35.5% higher than the figure of the same period in 2018, as the Republic of Turkey Energy Market Regulatory Council (EPDK) reports.

According to the Council, in August 2019, Azerbaijan accounted for 734.97 million cubic meters or 23.35% of the total gas supply to Turkey. In comparison with August in 2018, supply grew by 15.57%.

In general, in August gas export to Turkey reached to 3 billion 148.09 million cubic meters (3.74% growth compared with August 2018). Along with it, pipeline gas accounted for 2 billion 346.67 million cubic meters (74.5% of all supply), LNG - 801.42 million cubic meters (25.5%). In addition to Azerbaijan, pipeline gas export was implemented from Iran and Russia in the accounting period.

In 2018, Azerbaijani gas supply to Turkey accounted 7 billion 521.15 million cubic meters. Azerbaijani gas is supplied to Turkey from the Shah Deniz field as part of Stage 1 and Stage 2 of its development.

The Shah Deniz 1 field, discovered in 1999 is one of the world's largest gas-condensate fields. It is located on the deep water shelf of the Caspian Sea, 70 km south-east of Baku. It began to operate in 2006, owing to potential to produce approximately 10 billion cubic meters of gas per annum. In spite of complicated structure of the wells, constructing a platform and onshore terminal, the field was developed so rapidly. Contribution to the "South Caucasus pipeline" is the most significant feature of the Shah Deniz, as it conducts Azerbaijani gas to Georgia and Turkey and from 2006 and 2007 respectively.

Shah Deniz Stage 2 or Full Field Development (FFD) is a giant project tremendously aiming to keep balance global energy security in Europe and deliver Azerbaijani gas to the world market. It will add a further 16 billion cubic meters per annum of gas production to the nearly 10 cubic metres of gas produced by Shah Deniz Stage 1.

The Agreement on exploration, development and production of the Shah Deniz field in the Azerbaijani sector of the Caspian Sea was signed on June 4, 1996 and entered into force on 17 October of the same year. Shah Deniz is structured as an unincorporated Joint Venture (JV) partnership. BP is the operator of the Shah Deniz JV (28.8%).

Other participants in the Shah Deniz project are: Petronas (15.5%), SOCAR (16.7%), LUKOIL (10%), NICO (10%), and TPAO (19%).

# Azerbaijan and Bangladesh mull expansion of energy co-op

*Azer News, Leman Mammadova, 24 October 2019*

The Bangladeshi minister is visiting Azerbaijan to attend the International Energy Charter Forum held in Baku.

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The cooperation within the Energy Charter creates opportunities for the development of relations between Azerbaijan and Bangladesh, Minister of Energy Parviz Shahbazov said during the meeting with the visiting Bangladeshi Minister of Power, Energy and Mineral Resources Nasrul Hamid on October 23.

“Azerbaijan will chair the International Energy Charter Conference this year. The cooperation within the Energy Charter creates opportunities for the development of ties between the two countries,” Shahbazov said.

The sides hailed SOCAR’s significant role in energy cooperation. They noted the importance of using SOCAR's experience in the development of Bangladesh's oil and gas fields as well as continuation of supply of oil products to Bangladesh by SOCAR Trading S. A.

Shahbazov briefed the guest on Azerbaijan's oil and gas projects, development indicators in the electricity sector, potential and targets in the field of renewable energy.

Nasrul Hamid, in turn, stressed the rapid development of the Bnagladesh’s energy sector, the development of gas fields and the increase of generating capacity, especially due to the renewable energy.

He noted that Bangladesh is currently cooperating with Saudi Arabia's ACWA power, which also cooperates with Azerbaijan on renewable energy, on LNG infrastructure and solar energy projects.

Earlier, Azerbaijan's SOCAR AQS won a tender for drilling operations in Bangladesh. The contract, concluded in the 3+1 format, provides for the drilling of four wells. The cost of the work is estimated at $35 million.

As of February 2018, SOCAR AQS and Bangladesh Petroleum Exploration and Production Company Ltd (BAPEX) signed a memorandum of understanding on joint participation in new gas projects in Bangladesh.

The Energy Charter Treaty is an international agreement that establishes a multilateral framework for cross-border cooperation in the energy industry.

# Construction work of country's first electric vehicle plant starts

*The Daily Start, Star Online report, 11 October 2019*


**Construction work on Bangladesh's first automobile manufacturing industry start in Chattogram's Mirsarai upazila, October 11, 2019 (Photo: Jagaran Chakma)**

Construction work on Bangladesh's first automobile manufacturing industry started in Chattogram's Mirsarai upazila today with an initial investment of US$200 million.

Paban Chowdhury, executive chairman of Bangladesh Economic Zones Authority (Beza), laid the foundation stone of the plant in Mirsarai economic zone.

Local automobile company Bangladesh Auto Industries Ltd (BAIL) will for the first time bring electric vehicles manufactured locally at the country's market within July 2020, BAIL Chairman A Mannan Khan said while addressing the inauguration programme.

The facilities, civil work and utility connection of the proposed plant on a 100-acre of land at the Mirsarai economic zone will be completed by December this year, Bail's managing director Mir Masud Kabir told The Daily Star earlier.

BAIL will manufacture two-wheelers, three-wheelers, sedan, hatchback and sport utility vehicle (SUV) and has plans to produce pick-ups, mini-trucks and multipurpose vehicles.

The plant will manufacture almost 60% of the component of the vehicles, including lithium battery, motor, controller, software platform, chassis and body.

An electric vehicle (EV) uses chemical energy stored in efficient and environment-friendly rechargeable lithium ion battery packs instead of fossil fuel to propel it.

Internationally acclaimed designers have designed the initial Electric Vehicle for BAIL.

# Rooppur Nuclear Power Plant: Government not scrimping on security

*The Daily Star, Rejaul Karim Byron, 4 November 2019*

The project, which will be placed in today's meeting of the Executive Committee of the National Economic Council, will look to address Design Basis Threat (DBT) and beyond as well as cybersecurity and will be wrapped up by March 2023.

This comes on the back of yet another project involving Tk 1,710 crore (US$202.7 thousand) approved to monitor the security of the plant.

A DBT describes the capabilities of potential insider and external adversaries who might attempt unauthorised removal of nuclear and other radioactive material or sabotage. The operator's physical protection system is designed and evaluated on the basis of the DBT.

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The government is set to take up another project involving Tk 3,449 crore (US$409 thousand) to enhance the security of the country's first nuclear power plant in Rooppur.

A DBT describes the capabilities of potential insider and external adversaries who might attempt unauthorised removal of nuclear and other radioactive material or sabotage. The operator's physical protection system is designed and evaluated on the basis of the DBT.

Potential external adversaries include terrorists and other criminals who might seek to use nuclear or other radioactive material for malicious purposes, or to sabotage a facility.

Insiders are individuals with authorised access to facilities, activities or sensitive information who could commit malicious acts or help external adversaries to do so.

The issue of cybersecurity is also critical.

Cyberattacks on nuclear power plants could have physical effects, especially if the network that runs the machines and software controlling the nuclear reactor are compromised.

This can be used to facilitate sabotage, theft of nuclear materials, or -- in the worst-case scenario -- a reactor meltdown. In a densely populated country like Bangladesh, any radiation release from a nuclear facility would be a major disaster.

Earlier in September, the Kudankulam Nuclear Power Plant (KKNPP) in Tamil Nadu, India, became a target of cyberattack.

VirusTotal, a virus scanning website owned by Google's parent company Alphabet, has indicated that that a large amount of data from the KKNPP's administrative network has been stolen. If this is true, subsequent attacks on the nuclear power plant could target its critical systems more effectively.

One of the ambitious mega projects of the current Awami League-led government, construction on the $12.65 billion-power plant began in November 2017 in Rooppur in the Ishwardi upazila of Pabna district by the Russian Rosatom State Atomic Energy Corporation.

It is expected to be complete by 2023 and would generate 2,400 megawatt electricity through two units.

# Save water through sustainability

*The Independent, Independent Online Desk (source ANI/ Deccan Chronicle), 6 August 2019*

Like many other places, villages around the Thar Desert have also been pushed to extreme conditions due to lack of water and soaring temperatures. The severity has left people in rural areas disturbed, but not distracted, making Thar the only desert in the world with an abundant density of life.

In areas near the desert, salty water is extracted from beneath the earth and sweet waterfalls from the sky. However, the dense rainfall makes the desert a swamp with the entire area becoming prone to turning into a saline lake.

Luckily, people around the region have moulded their lives according to the available resources, by mutually cooperating with other species as well. They have created unique treasures of water storage for themselves, their animals (especially cattle) and for future generations in order to move ahead smoothly.

Surprisingly, in some parts of the country, even where there is more rainfall than the Thar Desert, people face scarcity of drinking water as they waste the source in abundance while people of the desert avoid the situation by judiciously utilising water.

***By combining manpower and hydropower, society has the opportunity to revive the traditional water sources (Photo: Collected)***

For instance, people from other areas pull underground water from heavy capacity-powered pumps developing the culture of tap water and ultimately forgetting the value of water. Whereas, residents of villages around the Thar Desert walk miles and miles just to fetch a jar of water.

Who is to be blamed for the wastage? People or the government, who in the last five to six decades provided water to the people, making them forget the traditional water sources as well as making them eyewitnesses to their own methods of wasting water.

Other than wasting water at homes, people also ruined natural or traditional water sources. In cities of Rajasthan such as Barmer, Jaisalmer, Bikaner, Churu, Nagaur, Jodhpur, Pali and Jalore traditionally harvested rainwater storage, ponds, rivers, streams, Kunds (small ponds), Baavdis (stepwell), pure artistic ponds made of lime and stone had been all destroyed by the villagers by filling them with soil and garbage.

Unfortunately, they have now become places of illegal mining. The courtyard of the house well known for its cleanliness is now used to get rid of dead animals and trash. An eyewitness, who saw the construction process of ponds, other water sources and the wastage caused due to it, took to his book 'Aaj Bhi Khare Hai Talaab' to share some of his experiences.

"Hundreds and thousands of ponds did not appear from oblivion. There were some who commissioned work for these ponds and there were many who actually constructed hundreds and thousands of them. But in the last two hundred years, they have been turned into zero by those who have learned a little from the new education," wrote late Anupam Mishra.

Perhaps this is a time shift. The new generation that measures the world with a snap of a finger has seen these water sources being turned into garbage dumps in villages; they have seen water only out of taps or in bottles. They are least concerned about these water sources, nor do they drink water from them. Due to the lack of communication between the two generations in regard to knowledge and culture, the gap between them has widened

Time has changed; nature is changing and weather patterns are changing too. In the desert, there is no crisis of water. The method of harvesting rainwater is in the doldrums. There could be a crisis of water when there is disruption in the supply of water through canals and pipelines.

There is no reason why old water sources can't be restored; it is only a lack of will. Lately, the government, civil society organisations, and media establishments have started taking care of traditional old water sources, harvesting rainwater, organising the society to spread awareness on water issues and are driving a campaign to build a unit, ten units, hundreds of thousands of units of these water sources.

The government has created the Ministry of Water Resources. By combining manpower and hydropower, society has the opportunity to revive the traditional water sources. To rejuvenate these sources, to hand over these priceless treasures into the hands of the future generation, there is a need to raise thousands of hands again so that the coming seven generations can live with four million species of living beings.

*The views expressed in the above article are that of Dilip Bidawat of Charkha Development Communication Network.*

# China counts the environmental cost of its construction boom, as 1.5 billion tonnes of waste created every year, report says

*South China Morning Post, Frank Tang, 14 Oct, 2019*

- Only 100 million tonnes are properly processed and even household rubbish gets more attention from local governments

- In comparison, developed nations like the US and Japan recycle between 90 and 95% of their construction waste, magazine report says


***China's massive urbanisation programme has also produced a mountain of unwanted construction waste (Photo: AFP)***

China's rapid urbanisation has created a mountain of construction waste and an environmental headache for policymakers, according to a report published by a magazine with links to state media.

Every year, construction, demolition and renovation projects produce more than 1.5 billion tonnes of waste, yet only 100 million tonnes can be properly processed through disposal or recycling, said China Comment, which is affiliated to Xinhua and overseen by the Communist Party's propaganda department.

"There is going to be a concentration of construction waste problems in some cities. It is a pressing problem that must be tackled," the report said.

In major urban centres like Beijing and Shanghai, construction activity produces up to 30 million tonnes of waste a year, while across the country the sector accounts for about 40% of all urban waste, it said.

At the same time, more than 7,000 hectares of arable land are being damaged every year as a result of construction activity, it said.

***Construction activity is said to account for 40% of China's urban waste (Photo: AFP)***

The report comes as Beijing is looking to the construction industry to help drive economic growth, which fell to a 27-year low of 6.2% in the second quarter and is forecast to slow further.

But any increase in the creation of construction waste is unlikely to help local officials meet their targets on pollution control, which along with reducing risk in the financial sector and alleviating poverty, is one of the key tasks set by China's leaders for the 2018-20 period.

To make matters worse, most governments, especially those in industrial northern provinces like Hebei, which surrounds Beijing, have focused their environmental efforts on tackling air pollution.

Construction waste is even lower on the priority list than household rubbish, for which the central government has set a deadline of the end of 2020 for the introduction of a classification system in 46 major cities.

The magazine report said that even if China has achieved some success in dealing with air pollution and is waging war on household waste, the construction waste problem still requires urgent attention.

While developed nations like the United States, South Korea, Japan and others in Europe recycled between 90 and 95% of their construction waste, the figure in China was just 5 to 10%, it said.

***Even household garbage ranks higher than construction waste on most governments' priority lists (Photo: Reuters)***

Although the country has 70 disposal facilities capable of handling upwards of 1 million tonnes of construction waste a year, most of them are working at only about 50% capacity.

"There is no unified plan for managing the long-term process of recycling construction waste," Liu Jingjiang, an official at China's Ministry of Housing and Urban-Rural Development, was quoted as saying.

And the problem, especially in major cities, is only set to get worse, the report said.

Despite suggestions that China's property market has been slowing, in the first eight months of the year new construction starts by floor area rose 8.9% from the equivalent period of 2018 to almost 1.1 billion square meters, according to figures from the National Bureau of Statistics.

Meanwhile, the value of the construction waste disposal market rose 6.1% year on year in 2017 to 83.3 billion yuan (US$11.75 billion) and is forecast to grow to 100 billion yuan (US$14.2 billion) in 2020, according to Qianzhan Research Institute.

**RENEWABLE ENERGY**

# Cambodia is looking on the bright side

*Globe, Paul Millar, 31 October 2019*

When it comes to quick, clean and scalable solutions to Cambodia's energy dreams, a recent surge in investment in solar power is promising a pathway to prosperity

**WHY WE WROTE THIS: Because cheap, renewable energy is within our grasp.**

The Kingdom's dry season provides almost six hours of peak sunlight every day

This article is part of our coverage of Clean Energy Week in Cambodia. You can read the full programme here.

Cambodia has more to fear than most nations from the impending climate crisis. A 2015 United Nations report predicted that Cambodia would be the world's ninth-most vulnerable nation for natural disasters brought on by rising temperatures – mainly in the form of the droughts and floods that have become an all-too-common occurrence in the Kingdom, costing lives and livelihoods every year.

And even when it's not a matter of life and death, the stakes are still high. Last dry season, Cambodia was rocked by rolling blackouts brought on by low water in the hydrodam reservoirs and higher than expected electricity demands from new developments. In total, Cambodia was short 400MW. For the countless small business owners as well as larger manufacturers driving Cambodia's booming economy, the losses were incalculable.

Cambodia certainly seems to be betting on a bright future. In the past year, the total amount of installed solar rose to 120MW.

But while the government has moved to secure a series of power purchase agreements with neighbouring countries, much of the energy generated by these negotiations will not come online for as long as five years. Instead, the Kingdom is increasingly looking at shorter-term solutions to its energy needs – ones that can power Cambodia's development without driving further climate collapse that could haunt the nation for decades to come.

And Cambodia certainly seems to be betting on a bright future. In the past year, the total amount of installed solar rose to 120MW, at least 30MW of which came in the form of rooftop solar systems. Chief among this push has been the installation of a massive

30,000 grid-tied panels from Chip Mong Insee Cement ranging from curved rooftop panels to those designed to float on water.

***Cambodia is doubling down on its investment in solar power***

Perhaps even more significant than this infrastructure development has been the progress towards clarifying a regulatory framework for solar generation. In January 2018, the Electricity Authority of Cambodia (EAC) enacted a set of regulations allowing consumers to install their own solar power systems. Medium- and high-voltage consumers will be able to install systems while still being connected to the national grid – provided that they generate less than 50% of the capacity they have agreed to buy from the national provider.

The EAC has announced new tariffs to start in 2021 for industrial and commercial customers that set monthly peak demand charges and kWh price. This will improve the case for rooftop solar projects. As far as next steps go, a future development that could help significantly would be regulation around a feed-in-tariff – that is, a price on electricity supplied back into the grid. Here, Cambodia would be building on the success that such guarantee in other ASEAN countries including Thailand, Vietnam and the Philippines.

Indeed, solar power is fast taking off in the Kingdom. Recently, four solar projects with a combined capacity of 140 MW were approved by the Council of Ministers across Pursat, Battambang, Banteay Meanchey and Svay Rieng. This brings the total amount of large scale solar projects that are either built, under construction or approved to 410MW. By comparison the total generation capacity in Cambodia in 2018 was 2,208MW.

The arguments for solar power as a solution to Cambodia's energy woes are strong. Above all is price – Cambodia's first solar auction set an electricity price at $0.03877/kWh – according to the Asian Development Bank (ADB), a record low for Southeast Asia, and less than half the cost of coal power.

ADB office of public-private partnerships director Siddharta Shah said that the tender's success showed the sheer power of competition.

"This is a new era for renewable energy development in Cambodia and the region, and particularly for solar power generation," he said. "This is good news for EDC and the people of Cambodia. We believe more governments in the region will adopt auctions as a strategy to procure renewable energy generation capacity and this structure and tariff will serve as a benchmark for future projects."

***Tonle Sap River Dam spillway overflowed on a rainy day (Photo: Shutterstock)***

"This is a new era for renewable energy development in Cambodia and the region, and particularly for solar power generation"

And it's not just cheaper – it's cleaner. Renewable energy such as solar power releases no direct carbon emissions, while coal and fossil fuels contribute significantly to sulphur-oxide and nitrogen-oxide pollution linked to more than 7,000 deaths every year.

As good as clean energy is for the planet, it's good news as well for workers. A renewables-led pathway proposed by McKinsey and Company for neighbouring Vietnam was projected to create more than twice as many jobs as the current emphasis.

And for a nation like Cambodia that has struggled to meet the energy demands of its citizens, the speed with which solar panels can be installed and scaled up makes it a quick fix for the dry-season blackouts have struck the Kingdom in past years.

***Experts say that solar power can offset the dry-season limitations of the nation's hydropower dams***

Not that solar power doesn't come with its own challenges – as you might guess, it tends to falter when the sun stops shining. Fortunately, Cambodia is in a uniquely strong position to pair its burgeoning solar power capacity with its existing hydropower infrastructure.

During the dry season, solar reigns supreme: Cambodia has almost six peak sunlight hours a day and an average solar irradiation of 5.0 kWh/$m^2$ per day, placing it among the world's top solar resources. When the water level runs low in dry season, solar power can run during the day, with hydropower taking over at night. Here, even more efficiencies can be made: when floating solar panels are installed directly on the reservoir, no storage is needed, as the energy from them can be fed directly into the dam's system and on into the grid.

"Mini-grids are now one of the core solutions for closing the energy access gap… we are working with countries to mobilise public and private investment"

For remote areas without access to the national grid, renewable energy mini-grids using batteries have proved a viable option – namely, small renewable energy systems that do not need to be connected to the rest of the country. These are typically composed of a source of renewable energy – such as solar, wind, biomass or hydropower – combined with batteries, a diesel generator or both.

Ricardo Puliti, a senior director of energy and extractives at the World Bank, said that these self-contained systems were ideal for nations such as Cambodia that still fell short of providing equal access to energy regardless of location.

“Mini-grids are now one of the core solutions for closing the energy access gap… we are working with countries to actively mobilise public and private investment,” he said.

***Cambodia’s enormous Lower Sesan II dam project in the northern province of Steung Treng (Photo: Ly Lay / AFP)***

While Cambodia’s recent foray into wind and solar power to shore up its long-running reliance on hydropower dams is promising, there is no single solution to the challenges brought on by a warming world. Institute for Energy Economics and Financial Analysis energy finance analyst told the ASEAN Post that renewable energy solutions were giving government’s across the region the power to take their energy needs into their own hands.

“Solar, wind, run-of-river hydro, geothermal, biogas, and storage are competitive, viable domestic options that can be combined to create a cheaper, more diverse and secure energy system,” she said.

# Cambodia seeking private partner for new waste to energy plant

*New Straits Times, 29 October 2019*


***Electricity prices from a waste-burning plant will be in the range of US$0.14-US$0.15 per kWh, according to studies (NSTP/File)***

THE CAMBODIAN government is seeking a private partner to invest in a waste to energy plant to be developed in Phnom Penh.

Reports in Phnom Penh Post said the government had asked the Ministry of Mines and Energy to look into this.

The city generates more than 3,000 tonnes of rubbish daily and is currently faced with a waste management crisis.

A spokesman from the ministry, Victor Jona said they were currently preparing the relevant procedures for companies that want to participate in the auction for waste disposal rights in Phnom Penh.

The government revoked the business licence of Cintri (Cambodia) Ltd, Phnom Penh's only waste disposal contractor, and will temporarily take over its services before putting waste disposal rights for auction.

In the past, the ministry issued up to six licences to foreign investment companies to assess the construction of a waste-to-energy plant.

However, after completion of the studies, only two companies sent documents to the ministry for review.

Apparently, the cost of the electricity generated from waste-burning was a major obstacle and the problem at the time was the high price.

Citing studies, Jona said electricity prices from a waste-burning plant would be in the range of US$0.14-US$0.15 per kWh.

The price of electricity from local hydropower plants currently stands at US$0.11.

However, Jona said producing electricity from rubbish is a must.

"An auction is needed to select a company to transform rubbish into electricity. We will run out of space for rubbish if we leave it unattended."

Ham Oudom, a freelance consultant on natural resources governance, welcomes the investment in waste-to-energy electrical production as a renewable source.

Such investments not only address waste management but also reduce pollution.

# ADB to provide US$89 million to Cambodia for water supply and financial sector

*XinHua, Mu Xuequan, 30 October 2019*

PHNOM PENH - The Asian Development Bank (ADB) signed two agreements to provide US$89 million to Cambodia for improving rural areas' water supply and the country's financial sector development, said an ADB statement.

The deals were inked here by ADB country director for Cambodia Sunniya Durrani-Jamal and Cambodian Deputy Prime

Minister and Minister for Economy and Finance Aun Pornmoniroth, the statement said.

"The two programs support all four priority areas of the Rectangular strategy IV, which are human resource development through the improvement of public health care and nutrition; economic diversification by promoting financial and banking sector development; private sector development and employment by supporting small and medium-sized enterprises (SMEs); and inclusive and sustainable development through the promotion of agricultural and rural development." Durrani-Jamal said.

She added that over 400,000 people will benefit from the Rural Water Supply and Sanitation Services Sector Development Program through the construction and rehabilitation of 2,500 water supply and sanitation facilities, as well as the implementation of awareness campaigns in at least 400 villages across 10 Cambodian provinces.

Sustainable and reliable water supply and sanitation services remain scarce in Cambodia's rural areas, where about 77% of the country's total population of 16.4 million live, the statement said.

It added that in 2017, while 73% of rural households had access to improved water supply, only 11% of those had piped water supply. Meanwhile, 56% of rural residents had access to improved sanitation, and about 41% of rural residents still practice open defecation, which can cause diarrhea and other public health problems.

For the Inclusive Financial Sector Development Program, it will support the government's efforts to develop an efficient and stable financial sector that promotes greater financial inclusion and sustainable development, the statement said.

Key interventions will include improving access to finance, particularly for the poor, rural households, and SMEs, it said.

"The program will also enhance the stability of Cambodia's financial sector and upgrade financial infrastructure to support the introduction of new financial services and products," the statement said.

Financial sector in the Southeast Asian nation is in its early stages of development and is dominated by the banking and microfinance subsectors, it said, adding that while much has been achieved, access to finance remains limited, especially in rural areas.

"Almost one-third of the population is completely excluded, having no access to any form of financial services. Efforts to improve access to finance have been constrained by low levels of financial literacy," the statement said.

# ASEAN ministers gather in Cambodia to discuss environmental cooperation, haze pollution

*Bernama.com, 10 September 2019*

SIEM REAP (Cambodia), Oct 9 -- Environment ministers from the Association of Southeast Asian Nations (ASEAN) met here to discuss a number of environmental related issues and transboundary haze pollution, Xinhua news agency reported.

Speaking at the opening ceremony of the 15th ASEAN Ministerial Meeting on the Environment (15th AMME) and related meetings, Cambodian Deputy Prime Minister Aun Pornmoniroth said ASEAN could be considered as one of the most disaster-prone regions in the world.

"This year, many ASEAN countries experienced droughts, severe storms, floods and forest fires. Therefore, climate change and environmental related issues are not a responsibility of any single country, but it is, of course, our problem, our responsibility," he said.

"Thus, today's meeting is an important and historic event for ASEAN and partners to review the progress, and to put forward future strategic actions to achieve environmentally sustainable development for our region as well as the world," said Pornmoniroth, who is also a minister of economy and finance.

Cambodian Environment Minister Say Samal said the world has been facing increasing environmental challenges such as climate change and natural disasters.

"More frequent occurrences of severe droughts, forest fires, storms, and landslides are major manifestations. Therefore, more concerted efforts are needed to ensure environmental protection and sustainable development in our region," he said.

During the two-day gathering, the ASEAN ministers would continue to further discuss, exchange ideas and review regional cooperation on numbers of environmental issues, Samal said, adding that they would also seek for new initiatives to further promote environmental cooperation in the region.

He said they would also talk about transboundary haze pollution which affects several countries in the region.

The minister added that the biennial meeting is expected to adopt an ASEAN Joint Statement on Climate Change, the nomination of ASEAN Heritage Parks, and ASEAN Strategic Plan on Environment.

According to the minister, the ASEAN ministers will also interact with ministers from dialogue partners China, Japan and South Korea in the 16th ASEAN Plus Three Environment Ministers Meeting.

ASEAN Secretary-General Lim Jock Hoi said the meeting was crucial to discuss the progress and to set future directions of ASEAN's cooperation on environment and transboundary haze pollution.

He said ASEAN recognised the importance of protecting and supporting ecosystems and biodiversity in the region.

"The region's biodiversity and ecosystems are essential to the economic, social and environmental wellbeing of the ASEAN people, contributing to agriculture, food security and livelihoods, and the preservation of indigenous cultures," he said.

Meanwhile, Lim said that to date, ASEAN has listed 44 protected areas as ASEAN Heritage Parks through the ASEAN Centre for Biodiversity.

"We look forward to adding five new ASEAN Heritage Parks at this 15th AMME," he said. Talking about recent smoke haze affecting various ASEAN countries, Lim said ASEAN, more than ever, needs to work closely to consolidate existing initiatives to combat the haze.

He said it was important to address the "root causes of the transboundary haze pollution" and ASEAN must do more to strengthen regional cooperation measures that could be taken to prevent the haze. ASEAN groups Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam.

# Reacting to reform: Cambodia's environment

*Asia and The Pacific Policy Society, Sarah Milne, 20 September 2019*

**Triumph or tyranny?**

Cambodia's new environmental policies are promising, but they also signal a government agenda to consolidate power over the country's forests, Sarah Milne writes.

In 2016, Cambodia's Prime Minister Hun Sen announced a dramatic suite of jurisdictional and policy reforms that will affect how land and forests are governed in Cambodia for decades to come.

Implementation of the reforms is still partial, but we must be aware of their potential effects for people and nature. Close attention must especially be paid to the rights of indigenous people and peasant farmers as the reforms proceed.

A key winner from the recent reforms is the newly empowered Ministry of the Environment, now controlled by a young Australian-educated Excellency, Mr Say Samal.

Mr Samal is a representative of the ruling Cambodian People's Party, hand-picked by the Prime Minister to lead Cambodia's new environmental portfolio, which includes the drafting of an 'environmental code' to harmonise legislation, alongside expansive new protections for ecosystems and biodiversity.

The most conspicuous aspect of the reforms is jurisdictional. Vast swathes of Forest Estate, which were originally controlled by the Forestry Administration, have been converted into 'protected areas' and 'biodiversity conservation corridors' to be managed by the Ministry of the Environment, in addition to an already substantial set of conservation areas. As a result, Cambodia's protected area system now covers a remarkable 39% of the country's surface area or 7.4 million hectares.

The only country in the world that has a greater proportion of its territory protected for the purposes of nature conservation is Bhutan. So, does this mean that Prime Minister Hun Sen has become an environmental leader? Can Cambodia now reclaim its title of being the forested jewel in the crown of mainland Southeast Asia?

Given the recent history of protected areas in Cambodia, it is wise to be wary of such environmental success claims.

Scholars have long shown that a key aspect of protected area management in Cambodia is the assertion of state control over territory and resources.

Map-making, boundary demarcation, zoning, and the promulgation of rules are all aspects of what is often termed 'state territorialisation'. The results of this process typically include enhanced government power and a state monopoly over resources.

In the Cambodian case, this increased governmental activity in the name of nature protection has been highly problematic for two key reasons.

First, protected areas have generally inhibited formal recognition of local people's land and resource rights. Tens of thousands of rural and indigenous people who now live within Cambodia's protected areas are therefore living in a state of uncertainty.

By law, so-called 'sustainable use zones' and 'community zones' should be allocated to local residents, but livelihood safeguards in these yet-to-mapped zones are likely to be limited, while prospects for formal property rights remain distant.

Second, with the alienation of local communities within protected areas, the government has been able to assert control over forested land for its own benefit. For example, the government's modus operandi in protected areas to date has seen the establishment of illegal logging rackets by tycoons and elites, with the tacit blessing of the ruling party.

Much of this illicit logging activity has occurred alongside formal investments including the construction of hydropower dams in forested areas, and the establishment of industrial plantations through economic land concessions, which either overlap or

border with protected areas. In 2012, 70% of new land concessions overlapped with conservation areas.

Over the last decade, the impact of this activity upon forests has been devastating: Cambodia was the country with the third-highest national deforestation rate in the world over the period 2000-2012. This is remarkable when we consider that the country has no official logging industry and a formal logging ban.

Furthermore, the proceeds from Cambodia's illicit logging have served Hun Sen's regime nicely, with profits going into the hands of elites and party coffers.

Cambodia's protected areas must, therefore, be considered partly as a form of regime-bolstering, territorial control over resources. New protected areas, while promising for the environment, must, therefore, be scrutinised carefully as they play out in practice.

As development partners now engage with Hun Sen's green interventions, they must look to the recent past. Cambodia's track-record in environmental management over the last decade is exemplary of state predation and the authoritarian perversion of green ideals. This should serve as a cautionary tale for sustainability policy in the region.

Going forward, Cambodia must be supported in its environmental ambitions, but development partners should also push for the rights of local and indigenous people to be recognised in the process. Otherwise, Cambodia's green ideals will ring hollow.

# Australia launches water scheme

*The Phnom Penh Post, Ry Sochan, 18 July 2019*

The Australian embassy launched the Cambodia-Australia Water Utility Improvement Programme (WUIP) which aims to support the Kingdom's water operators and improve water service delivery throughout the country.

In a press release, the embassy said the WUIP, which was launched on July 8, would connect South East Water, a major water utility based in Melbourne, Australia, with three Cambodian private water utilities through a two-year knowledge sharing programme to improve access to safe and reliable water for thousands of Cambodians.

It said the partnership would provide Cambodian utilities with exposure to the high-quality technology and management practices of Australian water utilities.

***The Australian embassy says the project aims to support the Kingdom's water operators and improve water service delivery throughout the country (Photo supplied)***

"This programme will create long-term relationships and knowledge exchange between Cambodian and Australian institutions."

"This is part of our commitment to supporting Cambodia to develop the quality infrastructure and services it needs to transition to a more resilient, inclusive and prosperous country," Australian ambassador Angella Corcoran said.

The WUIP is being facilitated by the Australian Water Association (AWA) in partnership with the Cambodian Water Supply Association (CWA).

CWA relationships manager Sang Bernadin told The Post that this was the first scheme to partner with the AWA and it was being conducted with the assistance of the Australian government.

"The scheme is of the utmost importance to help Cambodian operators produce better quality water by exchanging knowledge, new technologies and expertise. It will allow operators to expand their networks in their service areas," she said.

Bernadin said Melbourne's South East Water visited Cambodia to study the country's clean water situation and learn about the different production techniques.

“The company also advised the three water supply operators who have seen the difficulties of using clean water technology, such as non-standard and excessive use of electricity and loss of profit through leaks."

“Now the Australian company has seen the situation here, the three water supply operators have been invited to Australia so they can formulate a joint plan. There will be training courses and a study tour at South East Water,” she said.

The Australian embassy said in its press release: “Building on this work, the AWA and the CWA will be arranging an Australian delegation to the Cambodian Water Conference and Exhibition in October, creating further opportunities for collaboration and exchange of knowledge and technology.”

Bernadin said the forum would help Cambodian water supply operators extend their licensed networks and provide another chance to learn how their Australian development partners could help with Cambodia’s water supply system.

# China’s largest utility plans a national power grid integrating IoT technologies

*South China Morning Post, Laurie Chen, 26 October 2019*

State Grid, which provides about 90% of China’s electricity, intends to use the technologies to advance construction of ‘smart cities’

The first phase of the project is slated for completion in 2021, with the second phase to be finished in 2024

China has unveiled an ambitious plan to establish a nationwide smart power grid employing internet technologies such as 5G and artificial intelligence, with the first phase to be completed within two years.

The scheme was outlined in a recent white paper by the State Grid Corporation, China’s largest utility company, which operates roughly 90% of the country’s electricity grids. The state-owned monopoly is also one of the biggest utility companies in the world, making US$9.5 billion in profits in 2018.

Named the “Ubiquitous Power Internet of Things”, the project promises to create an interconnected digital ecosystem linking the internet with the nation’s electricity supply which would “serve the construction of smart cities”, according to the white paper.

China is home to roughly half of the world’s 1,000 pilot smart cities, which use 5G and AI technology to improve urban management.

***A technician examines the transmission line on an ultra-high voltage system in Huaian, Jiangsu province, in 2015. State Grid's internet technologies project is another part of its plan to upgrade China's power infrastructure (Photo: Xinhua)***

Named the "Ubiquitous Power Internet of Things", the project promises to create an interconnected digital ecosystem linking the internet with the nation's electricity supply which would "serve the construction of smart cities", according to the white paper. China is home to roughly half of the world's 1,000 pilot smart cities, which use 5G and AI technology to improve urban management.

"The Ubiquitous Power Internet of Things will comprehensively apply modern information technology and advanced communication technologies such as mobile internet and artificial intelligence … to realise the interconnection of all things and human-computer interaction in all aspects of the power grid," the document said.

The first phase of the project is slated for completion in 2021, with the second phase to be finished in 2024. So far this year, State Grid has outlined 57 construction tasks and 25 demonstration projects to advance the plan.

According to Tim Buckley, director of energy finance studies at the Institute for Energy Economics and Financial Analysis in Sydney, Australia, State Grid's latest efforts to modernise the electric grid with renewable energy and IoT technology is a continuation and expansion of the company's existing strategy.

"Smart meters have been around for a decade. A lot of countries including Australia have toyed with them but China State Grid has been very much systematic in their roll-out and investment in them," he said.

“It’s not like this white paper is in isolation – this is a programme of investment and development that’s been well underway for a decade. China State Grid has consistently been at the forefront of technology in doing so.”

***Workers walk near a power plant during a polluted day in Beijing in December 2018. One goal of the Ubiquitous Power Internet of Things project is to draw on multiple sources of renewable clean energy for power (Photo: EPA-EFE)***

According to a 2016 report by the market intelligence firm Northeast Group, China is predicted to spend US$77.6 billion on smart grid infrastructure over the next decade.

A smart grid system is a digitally automated electricity network that supplies electricity to consumers via two-way communication. They are more reliable and efficient than traditional power grids since they respond faster to fluctuations in electricity supply and demand and can automatically detect and restore power after outages.

In addition, they are more environmentally friendly since they can draw on multiple sources of renewable energy for power. Smart grids can also incorporate IoT technology such as intelligent appliances and smart meters.

“The grid has traditionally been a one-way directional flow of power – power goes from the big centralised power plants through the grid to the customer,” explained Buckley.

But with the new two-way advanced metering infrastructure (AMI) smart meters that State Grid plans to install, customers who produce surplus energy through sources like solar panels, for example, can sell it back to the grid.

“[It] allows that two-way monitoring and metering of power flows, so the consumer is rewarded when they are a producer and charged when they are a consumer,” he said.

According to the white paper, State Grid has been aggressive in incorporating a larger share of electricity from renewable energy sources into the grid.

From January to August 2019, the amount of “clean” electricity generated and fed into the grid grew 15.9% year-on-year, to 394.4 billion kilowatt-hours.

“There are no grids in the world outside of China that have seen that level of variable renewable energies being incorporated into the grid at this speed,” Buckley said.

State Grid recently put the “Ubiquitous Power Internet of Things” into practice at the newly opened Beijing Daxing International Airport, which now uses an “100% green power supply”, according to a company release.

The company installed an “International Airport Smart Energy Service System” comprehensive data platform which integrates power grid, airport and customer information. The release said that the system is capable of reacting to airport users’ demand for electricity.

State Grid has already used mobile Internet and AI in smart power grids in some parts of China including the northern industrial port city of Tianjin, according to Xinhua. Tianjin is also home to China’s first ultra-high voltage power grid, which uses wind, solar and geothermal energy.

The project also promises to improve energy efficiency by integrating and using different types of clean energy sources, State Grid official Wang Feng was quoted as saying by Xinhua.

In recent years, State Grid has advocated for a number of ultra-high voltage technology projects to boost the national energy infrastructure, partly in a bid to ease China’s reliance on fossil fuel sources responsible for greenhouse gas emissions and pollution. Reducing air pollution has been a key environmental objective of the Chinese government.

“The ultra-high voltage grid is the key to building a global energy Internet,” Liu Zhenya, a former head of State Grid, said at a lecture in Moscow in 2018, according to Xinhua.

The “global energy internet” is essentially a “smart grid connected to an UHV grid that could potentially deliver clean energy worldwide,” according to a 2018 report by the London-based LEK Consulting.

# India needs $30 billion yearly investment in renewables'

*The Hindu Business Line, PTI Singapore, 4 November 2019*

India ideally needs $30 billion investment per year in the renewable sector, backed by a strong regulation to preserve contract sanctity, according to a research organisation.

"Today, we are averaging about $11 billion a year in renewable investments, we ideally should be getting $30 billion per year in India," Arunabha Ghosh, Chief Executive Officer of Council on Energy, Environment and Water, said.

He was speaking at Singapore International Energy Week where a series on energy conferences were concluded over the weekend. It was held between October 29 and November 1.

Enforce regulation, make transparent bidding process at tendering stage and preserve the sanctity of contract, Ghosh said, acknowledging that some sectors have done well in this area while others are not that up to the mark.

Once such a system is in place, India will attract international investments from leading pension funds, especially those in the US which according to their own constitution were restricted and allowed to commit to projects with high credit ratings.

He said the sanctity of contracts means the authority cannot change terms and conditions of the contract and if done so, the investor or project operator is compensated as per original contract.

He elaborated on the need to de-risk projects, calling for de-risking on currency fluctuations, policies and off-takers. "Once you achieve all of these, you will realize the cost will come down."

He also highlighted the council's study on financing of de-risked project, which showed that 60-75% of the cost of tariff of electricity is the cost of finance. It is not the cost of solar panels or turbines.

**Opinion**

# India must pay attention to water use by industries

*The Hindu Business Line, Louis Jude Selvadoray, 6 November 2019*

***Apart from being major consumers, industries pollute through waste-water discharge. Technologies that have helped industrial economies responsibly use water remain underutilised in India***

Chennai's recent water scarcity received wide media attention. In one respect, however, the coverage was wholly wanting. Though the city is an industrial hub, issues concerning industrial water rarely gained focus. Locally and globally, the conversation coalesced around water sourcing, conservation and reuse — but usually only with reference to the supply side and domestic consumers on the demand side.

## Why is industrial water important?

Industries account for a fifth of the water the world consumes. According to the UN's World Water Assessment Programme, "industry creates marked pressure on water resources from the impacts of waste-water discharges…than by the quantity used in actual production". In India, every litre of waste-water industries discharge pollutes a further 5-8 litres on average, suggesting the share of industrial water could be as high as 50%, according an Indian environment research organisation.

The elision of industrial water in public discourse has serious consequences for India and other nations facing acute water stress. First, it fuels misgivings in local communities, as continuing incidents of conflict illustrate. Second, technologies that

have helped industrial economies responsibly use water remain underutilised in emerging economies. This weakens global efforts to mitigate water stress. Most significantly, the silence on this issue conceals the opportunity industries have, especially in an arid global economic climate, to considerably reduce costs by focussing on water-savings.

## Episodes of conflict

Water is already an incendiary issue in the arc of the Global South, spanning Latin America, Africa and South Asia. At the turn of the century, Bolivia witnessed this era's first "water war", when protests over the privatisation of water convulsed the city of Cochabamba. The Andean nation's economy leans heavily on the water-intensive mining industry. Spasmodically, other countries in the neighbourhood have experienced similar social tensions over water.

In India, readers will recall the wave of public protests that swept Tamil Nadu two years ago. Inadequate water allocations for farmers, and the perceived water largesse beverage companies enjoyed, was a grievance which found deep resonance with the protesters.

The Pacific Institute, a non-profit research organisation, records numerous episodes of conflict. In the last decade, tensions relating to water are on the ascendant rather than on the decline.

## What governments can do

Governments seeking industrial growth to battle poverty are caught in a bind when allocating scarce water resources. This is because the policies they ply are brittle inheritances from a past with a vastly different socio-economic air. Governments urgently need to invest in data.

It will improve diagnostics and interventions, as also help re-imagine policies for emerging social orders. In fact, a data-driven approach will help governments harness natural resources equitably while pursuing industrial growth. Most importantly, it will inform debate rather than stoke conflict.

## What industries can do

Investors and enterprises with an etherised view of water stress need to register the enormity of the gathering crisis. Experts warn that more than half the world will face 'severe' water stress by 2030. Businesses will particularly suffer shortages because water for agriculture and domestic consumption is always accorded priority. Moreover, enterprise sustainability and corporate social responsibility will hinge ever more heavily on the responsible use of water. Green regulations too are turning less forgiving, globally.

Industry associations do promote the responsible use of water amongst members. Laggards abound, nonetheless. Enterprises lax about water are usually so because they account for it with the tariff they pay at intake. But the true cost of water for an industry can be 100 times the intake tariff, if preparation, pumping, cooling, heating and discharge costs are included. Systematically adopting efficiency measures, studies show, can reduce water consumption by 30-50% on average, and even up to 90% in some industries.

Water efficiency is helping several businesses reduce costs and improve margins. Some of this is achieved by re-engineering processes or adopting technologies for smarter use of water. Such measures may be capital intensive. However, simple measures that do not require heavy investments, such as plugging leaks, fixing water meters and benchmarking consumption, are also yielding substantial gains.

For wider uptake, these success stories need spirited evangelisation, especially in India and across the Global South. While the region is the most vulnerable flank in the combat against the looming water crisis, it is a vast greenfield of opportunity for entrepreneurs developing water-efficient technologies. The time is well in joint for industry, governments and activists to transform the field. But if narratives relating to the water scarcity in Chennai are an indication, though the harvest is plentiful the labourers are yet few.

The writer is Communications Consultant at the World Bank Group. Views expressed are personal.

# Reforms in place to attract investment in energy sector, says Pradhan

*The Hindu Business Line, 7 November 2019*

***Oil Minister Dharmendra PradhanKamal Kishore***

Minister for Petroleum and Natural Gas Dharmendra Pradhan said that India has aligned its policy regime to attract global investment in the oil and gas sector.

Speaking at the ENRich 2019 - KPMG in India's Annual Energy Conclave, Pradhan said, "India is developing energy infrastructure worth US$100 billion. The major investments are in pipelines, refineries, terminals, new marketing plans, upstream and others. We have made policy reforms to make it conducive for foreign players to invest in this development," he said.

India wants to build a de-carbonised energy pathway, he added.

Responding to a query on the 10% crude oil import reduction target by 2022, Pradhan said, “We are very much focused on that and with a derived timeline we would achieve this target.”

Pradhan said that India wants to be a leader in energy transformation happening across the globe.

“For that we will secure world class technology, capital business model and effect whatever domestic policy reforms are required. India wants to be the new destination for global energy players,” he said.

# Iran & Armenia discuss energy exports

*Iran Daily, 3 November 2019*

Iranian Minister of Oil Bijan Namdar Zanganeh discussed with Armenian Minister of Territorial Administration and Infrastructure Suren Papikyan on export of gas to Armenia and receiving electricity from the country.

During the meeting in Tehran, Zanganeh described the energy sector as the most important part of Iran-Armenia relations, adding that bartering gas for electricity with Armenia is one of the areas of cooperation between the two countries, Shana reported.

Iran and Armenia signed a gas-for-electricity barter deal in 2004 for 20 years.

According to the contract, Iran's exported gas is consumed by power plants in Armenia and Iran imports electricity from Armenia in return. Papikyan voiced his country’s

readiness to broaden cooperation with Iran, especially in the field of energy and electricity.

“Armenian companies welcome participating in the 20th Iran International Electricity Exhibition,” Papkiyan said. The minister said that Armenia as importer of electricity has always been after finding new ways for finding energy sources and boosting cooperation.

He, meantime, pointed to synchronization of Iran-Iraq electricity network, and said that Armenia has also suitable economic relations with Iraq and which will be developed further. Papkiyan said that like Armenia which is a bridge for connecting Iran to Georgia and Eurasian Economic Union states, Iran is also regarded as a bridge for more relations between Armenia, Iraq and other regional countries.

# 32 European SMEs ready to enter Iran’s oil industry

*Tehran Daily, November 4, 2019*

TEHRAN - Head of Tehran Chamber of Commerce, Industries, Mines and Agriculture (TCCIMA)’s energy committee says 32 European small and medium-sized enterprises (SMEs) have expressed readiness for participation in Iran’s oil and gas projects.

“These companies are demanding guarantees from the Oil Ministry for cooperation with Iranian companies,” Reza Padidar told IRNA. According to the official, the companies are from Italy, Spain, Greece, Poland, Britain, Germany, the Netherlands and Romania.

As reported, TCCIMA's energy committee has been negotiating with foreign delegations visiting the country in the past 18 months, which has resulted to a listing of 114 capable companies which could collaborate with Iranian counterparts in oil and gas projects. "Finally [of the mentioned 114 companies] 32 companies have announced their readiness for cooperation with us in the country's oil and gas projects and also for transferring technical knowledge as well as providing investment," he said.

Mentioning the companies' request for the Oil Ministry' guarantees, Padidar said that the issue has been raised with the Oil Minister Bijan Namdar Zanganeh and the Oil Ministry's Engineering, Research and Technology Department is to review the Iranian companies which are going to form partnerships with the mentioned European SMEs so that their activity could be guaranteed after approval.

The official further noted that the payment for the companies' services will be done through Instrument in Support of Trade Exchanges (INSTEX) and most of the SMEs have also agreed on being paid in the form of bartering deals.

# Iran, Armenia discuss boosting energy trade

*Tehran Daily, November 4, 2019*

TEHRAN - Iranian Oil Minister Bijan Namdar Zanganeh met with Armenian Minister of Territorial Administration and Infrastructure Suren Papikyan to discuss boosting gas exports to the country in return for importing more electricity, Shana reported.

In the meeting, Zanganeh underlined the energy sector as the most important aspect of the Iran-Armenia's economic relations, saying that "exporting Iranian gas to Armenia in exchange for receiving electricity (bartering gas with electricity) is part of the cooperation between the two countries."

Iran and Armenia signed a gas-for-electricity barter deal in 2004, based on which, for a 20-year period, Iran would export gas to Armenia to be consumed by the country's power plants, and in return, Iran imports electricity from Armenia.

Armenia started importing gas from Iran since mid-2009.

Suren Papikyan visited Tehran on top of a delegation to attend the 19th Iran International Electricity Exhibition (IEE 2019). Earlier, Papikyan had said that Iran could act as an electricity hub in the region to connect Armenia to other nations like Iraq.

"Just as Armenia is a gateway for Iran's relations with Georgia and the Eurasian Union countries, naturally, Iran could also be a gateway for Armenia's greater connection with Iraq and other countries in the region," he said.

***Iranian Oil Minister Bijan Namdar Zanganeh (R) shakes hand with Armenian Minister of Territorial Administration and Infrastructure Suren Papikyan on the sidelines of a meeting in Tehran on November 3rd 2019***

Iran and Armenia have been cooperating for years in gas and electricity swap, and two-way economic and political ties have grown in tandem with an increase in trade.

# It's time to stop releasing sewage water into rivers

*Hindustan Times, Manoj R Nair, 9 February 2020*

The Supreme Court (SC) pulled up the Kalyan-Dombivli Municipal Corporation (KDMC) for failing to meet its commitment to stop sending untreated sewage into the Ulhas River and its tributary, the Waldhuni. The court was hearing a petition filed by an environmental group.

Data submitted before the court reveals that the KDMC, with a population of 1.2 million – according to the 2011 census – produces 126 million litres of sewage daily (MLD), but treats only 30% of it. The rest pours into the Ulhas, which is the major river in the Mumbai Metropolitan Region. Other cities along the Ulhas have improved their sewage treatment facilities, but still send untreated waste into the river. Ambernath, a city with

Thane district public health laboratory has found the water of the Ulhas river to be unpotable, odorous and contaminated with industrial pigments and chemicals like chlorides major industrial units, has told the court that it was treating 97% of its waste. Kulgaon-Badlapur, a fast growing suburb, treats 90% its waste and Ulhasnagar 80%.

***Data reveals that the KDMC produces 126 million litres of sewage daily, but treats only 30% of it. The rest pours into the Ulhas river (HT Photo)***

KDMC has told the court that it is augmenting its sewage treatment facilities by adding five sewage treatment plants (STP) to its current three. STPs use techniques like sedimentation, filtration, aeration, disinfection and dilution to make sewage safe enough to be released into the natural environment.

This newspaper has reported about a study by the Thane district public health laboratory that found the water of the Ulhas unpotable, odorous and contaminated with industrial pigments and chemicals like chlorides. The river is a source of drinking water for cities like Kalyan-Dombivli, Thane and Ulhasnagar though the water is tapped from the upper reaches of the river where lower rates of urbanisation mean that the water is cleaner.

But as suburbs like Badlapur expand into the upper stretches of the Ulhas future water supply to these cities could be in peril. Data submitted to the Lok Sabha says that Maharashtra's cities generated 8143 mld of sewage in 2018, with only 5160 mld (63%) getting any kind of treatment before it is released into natural water bodies.

Untreated domestic and industrial waste has harmful consequences on public health. The World Health Organisation says that sewage spreads diseases and causes over 2 million deaths annually. The Economic Survey 2018-19 has said that scientific disposal of waste can have a positive impact on social development, but most Indian cities, including Mumbai, has been indifferent to the issue.

Mumbai, managed by one of the richest municipal corporations in the country, sends millions of litres of untreated sewage into the sea every day.

The Bombay high court, in response to a Public Interest Litigation (PIL) filed in 2017 by Citizen Circle for Social Welfare and Education, asked Maharashtra's pollution monitoring agency to ensure that Mumbai stops sending untreated sewage into the sea.

According to the Maharashtra Pollution Control Board (MPCB), Mumbai produces 2,671 million litres per day (MLD) of sewage daily of which only 2,016 MLD is treated at STPs. The rest is poured into creeks and storm water drains – meant to carry only rain run-off.

Recently, citizen's group Watchdog Foundation complained to the BMC that slurry from construction of the Sahar station on the SEEPZ-Colaba underground railway line is being dumped into a storm water drain. The drain flows in to the Mithi River and the silt from the slurry can have disastrous consequences in the rainy season when silt deposits can reduce the carrying capacity of the river and cause floods.

A study done by the Maharashtra Pollution Control Board (MPCB) in 2018 found that faecal coliform content - indication of human and animal excreta — in Mithi was almost 15 times the safe limit while the level of biochemical oxygen demand (BOD) - oxygen levels need for survival of aquatic life - was almost five times the safe limit. The situation has not improved as sewage drains still empty into the river though the BMC has said it will divert untreated domestic and industrial wastes to STPs.

# Indonesia to stop gas exports to Singapore in 2023

*The Jakarta Post, Eisya A. Eloksari, 8 February 2020*

The Energy and Mineral Resources Ministry has decided to stop gas shipments to Singapore in the next three years to cater to domestic demand.

"Gas exports to Singapore will stop in 2023 and we will use the gas for the domestic market," Downstream Oil and Gas Regulatory Agency (BPH Migas) head Fanshurullah Asa said as quoted from the ministry's press release.

The decision is in line with a statement made by Energy and Mineral Resources Minister Arifin Tasrif during a hearing with House of Representatives lawmakers in November that he planned to stop supplying gas to the city-state.

Fanshurullah expressed hope the decision would create added value for the nation's natural gas and reduce its trade balance deficit, as the use of gas could shift to oil fuel.

***A worker inspects a gas pipeline. (Antara Foto/Moch Asim)***

Indonesia's gas exports to Singapore come from the Corridor Block managed by ConocoPhillips, which has a supply of 300 million standard cubic feet per day (mmscfd).

The gas supply will be channeled into the Dumai Duri transmission pipeline to be distributed to industrial estates in Sumatra, namely the Sei Mangkei Special Economic Zone in North Sumatra, among other destinations.

The country's oil and gas exports totaled US$167.5 billion last year, a 6.94% decline year-on-year (yoy), Statistics Indonesia data show. (eyc)

# Thailand shelves China-led plans to dredge Mekong riverbed

*The Standard, 5 Feb 2020*

Thailand has halted Chinese-led plans to open up a key stretch of the Mekong river, in a rare victory for activists fighting to preserve Southeast Asia's most important waterway, AFP reports.

Beijing has long wanted to blast 97 kilometers of rocks and dredge the riverbed in northern Thailand to open up a passage for massive cargo ships.

The vision is to create a river trade link from China's Yunnan province thousands of kilometers south through the Mekong countries -- Myanmar, Laos, Thailand, Cambodia

and Vietnam. But environmentalists warn the river -- the world's most biodiverse after the Amazon -- would be ruined by dredging, while Thailand's sovereignty and security could also be compromised.

The Thai cabinet announced it had decided "to stop the project" after Beijing failed to stump up the money for further surveys of the area to
be dredged.

"This is a bold decision made by a downstream country," said Pianporn Deetes of advocacy group International Rivers, which has backed a near 20-year grassroots campaign to preserve the key stretch of water.

"This small part of the Mekong river will also save the lower part of the basin from destruction, despite large pressures from a regional actor."

# World biggest importer Japan to invest in LNG terminals across Asia

*Nikkei Asian Review, Takeuchi, February 2022*

- Government to expand funding to downstream infrastructure projects


***An LNG carrier off the coast of Japan. Demand for fuel is growing throughout Asia (Reuters)***

TOKYO -- Japan will support the construction of liquefied natural gas terminals across Asia, aiming to take a leading presence in the expanding market before its position as world's largest buyer is overtaken by China in the near future.

Japan currently supports companies involved in LNG projects through investment and loan guarantees via a government-backed natural resource company -- Japan Oil, Gas and Metals National Corp., or Jogmec.

However, Jogmec is limited to aiding upstream operations, such as natural gas exploration and liquefaction plant construction.

New legislation would allow Jogmec to support investment in projects further downstream, such as LNG terminals in other countries so that they can import the fuel. Transporting the fuel over long distance efficiently also requires LNG to be reloaded at transshipment facilities, the development of which will also be aided under the plan.

As a relatively clean carbon-based fuel, global LNG demand is projected to double by 2040, according to the International Energy Agency. Japan is currently the biggest importer, but consumption is forecast to grow rapidly in Asian countries, with China seen as the biggest importer in 2040.

The easing of Jogmec's aid of the construction of LNG terminals is expected to help corporate Japan expand trade with other consuming countries. By helping top producers, such as the U.S., expand sales destinations before Japan's position as the leading buyer declines, Tokyo hopes to take a central role in the growing market.

The variety of LNG sources also allows users to cut dependence on Middle East oil, an area under significant political risk. The Middle East is responsible for 60% of net exports of crude oil, but just 20% for LNG.

A stronger focus on transshipment facilities will also make it easier for Japan's private sector to take part in the rapid transport of Russian LNG via the Arctic Ocean.

# First offshore commercial wind power farm planned in Akita

*The Asahi himbun, Rintaro Sakurai, 4 February 2020*

Trading house Marubeni Corp. and 12 other companies said they will build Japan’s first large commercial sea-based wind farm in Akita Prefecture and aim to start operations in 2022.

The total cost of the project is estimated at about 100 billion yen ($920 million), and 70 to 80% of the funds will be invested by financial institutions in Japan and overseas, they said.

According to the investment agreement signed, the wind farm will operate in waters off Akita Port in Akita city and Noshiro Port in Noshiro and have a total capacity of about 140 megawatts.

Other companies involved in the project include: construction giant Obayashi Corp; a subsidiary of Tohoku Electric Power Co.; Kansai Electric Power Co.; Chubu Electric Power Co.; and Akita Bank.

Sources familiar with the project said 33 windmills with a capacity of 4.2 megawatts each will be installed in the sea, providing enough electricity to supply 130,000 households.

Based on the feed-in tariff system, the generated electricity will be sold to Tohoku Electric Power over 20 years at a price of 36 yen per kilowatt-hour.

The open ocean provides more favorable wind power conditions than on land. Overseas, the number of large wind power projects has increased while costs have declined.

***An offshore wind farm will be built near the outer seawall off Noshiro Port in Akita Prefecture (Yoichi Masuda)***

But such projects have been delayed in Japan. Demonstration projects around the country currently have a total capacity of only several tens of megawatts. However, the Japanese government has recently been pushing for more favorable conditions for renewable energy projects.

A law designating promotional sea areas for renewal energy projects took effect in April 2019. The law allows publicly chosen wind-power operators to use such areas for a maximum 30 years.

In December, a sea area off Goto city in Nagasaki Prefecture became the first to receive the designation under the law. In addition, the number of environmental impact

studies have also increased, paving the way for the future commercialization of offshore wind farm projects.

As of August 2019, such projects across Japan were expected to eventually have a total capacity of 13 gigawatts. Leading general contractors plan to build ships that can assemble windmills at sea. But they have faced opposition from local groups, including fishery operators.

# Ocean viewed as the best place to dump water from Fukushima plant

*The Asahi Shimbun, 1 February 2020*

A government panel wound up three years of discussions by effectively suggesting that releasing more than 1 million tons of water contaminated with radioactive substances at the Fukushima No. 1 nuclear power plant represented the most feasible option.

While a final decision on disposal of the water will be left to the government, the subcommittee under the Ministry of Economy, Trade and Industry said releasing diluted water in the ocean is a better option than discharging it into the atmosphere after boiling and further processing to remove radioactive substances as much as possible.

The issue is taking on heightened urgency in light of the fact that the storage capability at the crippled Fukushima No. 1 nuclear power plant is rapidly reaching its limit.

***Thousands of storage tanks on the grounds of the Fukushima No. 1 nuclear power plant hold radiation-contaminated water (Asahi Shimbun file photo)***

About 1.2 million tons of contaminated water are already in storage there, and Tokyo Electric Power Co., operator of the complex, only has plans to increase the tank capacity to about 1.37 million tons.

That capacity is expected to be reached in summer 2022 as water still has to be pumped into the nuclear reactors to cool the melted nuclear fuel produced by a triple meltdown triggered by the 2011 earthquake and tsunami disaster.

Other options looked at by the subcommittee included finding other locations to install storage tanks. But in the end, only two "realistic" options remain: dumping the water into the Pacific Ocean or releasing it into the atmosphere.

In the final recommendation released by the subcommittee, releasing the water into the ocean was considered to be more feasible from a technical standpoint, such as the ease in monitoring radioactive substances after a release.

All the contaminated water has been treated using equipment called advanced liquid processing systems, or ALPS, but the process does not remove tritium, a mildly radioactive isotope of hydrogen.

Water containing tritium has been released into the ocean at other nuclear plants both in Japan and overseas with the proviso that concentration levels are controlled. Under the proposal considered by the subcommittee, the water would be treated a second time to dilute tritium levels to below current safety standards before releasing it into the ocean.

Although contaminated water is also stored at other plants, the situation at the Fukushima plant is quite different as the problem is a direct result of the triple meltdown and thus long considered a primary factor in the negative publicity that has affected farm and marine produce harvested in Fukushima Prefecture.

Fishermen in the prefecture vigorously oppose the release of even processed contaminated water following years of restrictions on catches and ensuing negative publicity to get to where they are today.

While fishing has been allowed for species found to have radiation levels under established standards, Fukushima fishermen still are only able to haul in about 20% of catches recorded before the 2011 nuclear accident.

The subcommittee conceded there was a possibility the release of processed water could lead to further negative publicity. At the same time, the panel said releasing the water into the ocean would allow for easier monitoring of the radioactive substances in comparison to evaporating the water into the atmosphere.

Addressing the possible social effects of the two options, the panel accepted that vaporized water in the atmosphere would greatly expand the geographic and industrial range of businesses possibly affected by negative publicity. However, the subcommittee

stopped short of conducting a quantitative assessment of the possible negative publicity.

The recommendation said being able to monitor radioactive substances after the water was released was the main reason for leaning toward the ocean option.

Subcommittee chairman Ichiro Yamamoto, professor emeritus at Nagoya University who is well-versed in issues involving tritium, said the panel only included options in its recommendation that members felt would be doable.

*(This article was compiled from reports by Yu Kotsubo, Naoya Kon and Masahito Iinuma.)*

# Papua New Guinea LNG expansion plans in limbo after talks collapse

*The Sun Daily, Reuters, 3 February 2020*


MELBOURNE - Plans to double gas exports from Papua New Guinea within the next four years are in doubt after the government walked away from talks with Exxon Mobil Corp on a key gas project needed for the $13 billion expansion.

Papua New Guinea Prime Minister James Marape called off negotiations with Exxon on the P'nyang field, blaming the energy giant for failing to budge on a proposed deal that was "out of the money".

The expansion of liquefied natural gas exports is crucial for the impoverished Pacific nation, but is vying with several proposed LNG projects in Australia, Mozambique, Qatar, Russia and the United States.

One of Exxon's partners in the PNG project, Oil Search Ltd, said the terms the government had sought would have made the project unprofitable.

"Under the terms proposed by the State, the joint venture partners were unable to obtain a return on their investment that made the project investable and bankable," Oil Search said in a statement to the Australian stock exchange.

Shares in Oil Search fell as much as 11.5% early in their first session since the collapse of the talks, on track for their worst one-day fall in more than four years.

The P'nyang agreement was one of two agreements needed for Exxon and its partners to go ahead with a $13 billion plan to double LNG exports from the Pacific nation. The other agreement, the Papua LNG pact, was sealed with France's Total SA in September.

The government was seeking terms on P'nyang that would give the state more than the 45%-50% take that PNG is set to reap on the returns from the Papua LNG project, and well above the terms Exxon negotiated in 2008 for its PNG LNG project, a person close to the negotiations said.

P'nyang and Total's Papua LNG project were designed to feed three new processing units, called trains, at Exxon's PNG LNG plant, with the two projects sharing infrastructure in order to save $2 billion to $3 billion dollars on construction costs.

Oil Search said it would now focus its attention on the Papua LNG project, which will feed two new trains, adding 5.5 million tonnes per annum (mtpa) to the plant's 8 mtpa capacity. Joint venture partners are set to meet "in the short term" to plan their next steps, it said.

Bank of America analysts estimated that separating the projects would pare the cost savings by a third and delay first production from Papua LNG by 18 months to 2026.

"The two projects are rather entwined. There's a bit of uncertainty now. Everything's going to be delayed for quite a period of time," said Andy Forster, senior investment officer at Argo Investments, which owns Oil Search shares.

Exxon Chief Executive Darren Woods said the company hoped to revive talks on P'nyang to get to a "win-win proposition" but flagged that the company was in no hurry as it had other projects it could advance elsewhere.

"But I also think we've got some time given all the other opportunities in front of us and, frankly, given where we're at today in the supply-demand balance of LNG," Woods told analysts on the company's quarterly earnings call. A global glut of LNG has driven spot LNG prices to more than 10-year lows below $4 per million BTUs (mmBTU), posing challenges for projects looking to line up long-term customers.

PNG Prime minister James Marape, who came to power last May on a pledge to reap more benefits from the country's abundant mineral and energy resources, said he was comfortable with the hard line he had taken.

"I am sorry but if you show litte respect to our motive to gain extra for the country, you will lose my support," Marape said in a post on Facebook. Total has made no comment on the collapse of the P'nyang talks.

# Put water security first

*The Sun Daily, Kurniawati Kamarundin, Bernama, 5 February 2020*

WATER security is the most important aspect in the management of water resources and the time has come for the government to give it top priority.

The UN defines water security as the capacity of a population to safeguard “sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human wellbeing and socio-economic development”.

Water quality expert Dr Zaki Zainudin says when there is water security there will be no interruptions to supply even when contamination occurs.

He said although the authorities have taken measures to reduce pollution in rivers, which constitute a source of raw water, interruptions in supply are yet to be fully addressed.

***Water catchment areas need to be gazetted as protected zones. Sungai Pandan Falls is 14km from Kuantan (Bernamapix)***

Zaki blames weak management of river basins for water disruptions.

“We don’t have a support plan in the event of a disruption in water supply due to the presence of pollutants in river water,” he said.

Due to the vast expanse of river basins, it is imperative the government formulate strategies to ensure sustainable water supply.

Strategies that can be considered are off river storage facilities, protecting water catchment areas and introducing a more sophisticated water treatment system.

## Off river storage

While there is a need to have more stringent environmental laws and streamline enforcement, in the short term, however, water security is key to ensuring uninterrupted supply.

Zaki, who was a member of the team that investigated the cause of pollution in Sungai Kim Kim in Pasir Gudang, Johor last year, said water security should not be the focus of just the federal and state governments but also water concessionaires.

One measure states could implement as part of their water security plan is set up storage ponds for emergencies.

He praised Selangor, which through Selangor Water Management Authority (LUAS), has implemented the Hybrid Off-River Augmentation System (HORAS) to use abandoned mining pools as an alternative source of raw water.

“They serve as backup ponds and if contamination occurs in the main raw water supply, water from the ponds can be used.

“The Selangor authorities used HORAS water when contamination occurred in Sungai Semenyih late last year although it (water) was not sufficient,” he said. “However, the water disruption in the Klang Valley would have been worse if not for the backup ponds.”

He said a proposal made some years ago to tap Putrajaya Lake should be given due consideration as it would help to support the Sungai Semenyih water treatment plant (WTP) in an emergency.

## Protect water catchment areas

The basin of a river stretches from upstream to downstream and it is the norm to build the WTP downstream due to the higher quantity of water available there.

“The problem is over the years, the upstream areas become increasingly polluted due to rapid development and pollutants flow downstream.

“Let’s take Sungai Semenyih. The area where raw water is pumped into the WTP is downstream (before it meets Sungai Langat). Hence, not surprisingly, the area is prone to pollution due to development that has taken place upstream,” Zaki said.

To guarantee water security, the authorities should gazette water catchment areas as protected zones to prevent activities that can harm rivers, he said.

Zaki called for implementation of a more efficient water treatment system that allows contaminated water to be treated directly without having to shut down the WTP.

The conventional treatment used by Malaysia is also used by the United States, the Netherlands and England, but the system has limitations and is only suitable for treating water that is “not too dirty”.

In the US, the conventional treatment works well because the quality of its water is relatively good as it practises sound river basin management.

“The situation is different in Malaysia due to pollution. Maybe the time has come to consider a more sophisticated treatment system such as used by Singapore, where sewage is treated and recycled into drinking water,” he said.

## Carrying capacity of rivers

Zaki, who has done numerous studies on water quality, said rivers have the natural capacity to carry pollutants but their carrying capacity levels depend on their water volume.

If a river is endowed with a high volume of water, its carrying capacity is also high. Likewise, rivers with low water volume have low carrying capacities.

“During a drought, there’s less water flowing in a river. The pollutants that are discharged into the river may be permissible under the law, but it will worsen the pollution level due to the river’s reduced carrying capacity,” he said.

Suggesting that relevant laws in Malaysia be reviewed to take into consideration the carrying capacities of rivers, Zaki said in the US, its laws not only consider the concentration of pollutants in rivers but also their carrying capacities.

Malaysian rivers are categorised into five classes – I, II, III, IV and V – based on the descending order of water quality, with Class I considered good and Class V the most polluted.

However, the water quality will differ from segment to segment depending on the level of pollution. For example, the downriver segments will be more polluted than the upstream portions due to the higher level of human activities.

Zaki proposed that state governments, which have jurisdiction over the rivers in their states, ascertain and fix the water quality of each segment.

“The river must be mapped to indicate the water quality for each segment. Before approving any development project in an area, the authorities must ensure that it will not worsen the water quality in the segment concerned,” he said.

According to Zaki, it is “immensely difficult” to improve the water quality of a polluted river. However, he said, steps can be taken to “maintain” the existing quality and prevent it from getting worse.

“Let’s take a Class II river as an example. The authorities must make sure that in five years’ time, it remains in Class II and does not get downgraded to Class III. Believe me, in five years, a river can get downgraded if new development projects crop up and more pollutants are discharged.

“This is why I am stressing that the authorities should ascertain and fix the water quality (in various segments of the river) and ensure that the quality is maintained.” – Bernama

The article was translated from Bahasa Malaysia into English by Rema Nambiar.

# Malaysia not ready for nuclear energy: Mahathir

*The Sun Daily, 10 February 2020*

CYBERJAYA - Prime Minister Tun Dr Mahathir Mohamad said Malaysia will not build nuclear power plants until there is a safe way to dispose of the radioactive waste that would be generated. He pointed out that Malaysia did not have adequate knowledge in that field.


***Prime Minister Tun Dr Mahathir Mohamad (seated, center) attends a dialogue session with the French business community in Malaysia in Cyberjaya today (Bernama)***

“If you have a nuclear power plant, you will accumulate nuclear waste which is radioactive and until now they do not know how to reverse the process. That is why we cannot use nuclear material because it stays on for millions of years.

“We don’t want this country to be full of such waste thrown all over the place and affecting people,“ he told reporters after holding a dialogue with the French business community in Malaysia, here today.

During the dialogue Dr. Mahathir was asked about Malaysia’s vision on renewable energy sources, after a pledge by Energy, Science, Technology, Environment and Climate Change Minister Yeo Bee Yin to have Malaysia increase its renewable energy use to 20% by 2025.

Stressing the need for non-polluting renewable energy sources, he said Malaysia was working on reducing the usage of traditional energy sources such as oil, gas and coal to lessen the amount of pollution in the air.

“We are trying to generate more power through solar panels. Also there is possibility for us to export clean energy to our neighbours. “We have a lot of space, we can even use the sea to install more (solar) panels, so the trend is towards that,“ he added. - Bernama

# Can Nepal be the powerhouse of Asia?

*Nepali Times, Anil Chitrakar. 22 October 2019*

Yes, by creating an environment for investment in renewable energy to meet domestic and regional demand.

The Independent Power Producers Association of Nepal (IPPAN) hosted the Nepal Power Summit from 21-22 November in Kathmandu. The event drew over 700 energy experts from Nepal and globally.

Past Hydropower Summits and Energy Conclaves have yielded little results, and there was mental fatigue among Nepalis about seminars, conferences, workshops and summits because they are usually talk shops with no follow up action and real tangible impact.

The 2019 Nepal Power Summit was based on Nepal’s achievements in the sector in the recent past, and will focus on regional energy trade, transmission lines infrastructure, enabling regulations and financing. The key breakthrough in mobilising investment in energy will depend on breaking monopolies and opening up new markets. No one will invest in power unless there is somewhere to sell it.

Which is why Nepal needs to create greater demand at home. The summit will look into all possibilities including energy for transport, which presently is almost solely dependent on imported fossil fuels. The idea is that we must use as much energy for productive domestic end uses before we plan to export.

The theme for this year's summit is Powering the Asian Century, and this is a recognition of the region becoming an engine of global economic growth. Rising living standards of Asians need goods and services that are produced with clean, renewable energy that do not exacerbate the climate crisis and contribute to air pollution.

While some people cursed the darkness during the years of power cuts, the private sector stepped up and took the lead. The public and the government began to engage, and then came the investors. Nepal was still addicted to foreign aid and pleaded at donor meetings to get other countries to build power plants for us, free of cost.

Nepal can and should position itself as the source of clean hydropower for the Asian century. We need to grab this opportunity, it could our chance to bring really big change to Nepal.

The idea of investment replacing aid is now catching on, however old habits die hard and the dependency syndrome is still deeply rooted. The Chinese president just reminded us that only Nepalis can develop Nepal. Others can help mobilise resources, give us access to technology and finance, but at the end of the day, Nepalis will have to do the heavy lifting.

Nearly one in four Nepalis are now working, earning and sending money home from all parts of the globe. The spending power of Nepalis can be felt during these weeks of festivities. Gold and land are still the preferred investments for people who still do not trust the market, the businesses and the government.

Hydropower is perhaps the one sector that is now able to draw public investment. We have to remind people that investing in hydropower is a good idea and protect the money small and big investors put into energy by expanding domestic and regional demand for the electricity generated.

Nepalis then need to wean themselves from imported LPG, petrol and diesel. The energy sector in Nepal can create hundreds of thousands of new jobs and help keep our young professionals at home. Along the way, we have to learn how to better negotiate with our neighbours and respond to their market needs.

We are not fooling anyone by lining our streets with flower pots and cloth banners to cover our dirty rivers for a couple of days. Ensuring the prosperity of 30 million people is hard work, but powering the Asian century is our historic opportunity.

*Anil Chitrakar is President of Siddharthinc.*

# Aucklanders urged to cut water use as demand soars

*The New Zealand Herald, Jamie Morton, 10 February 2020*

**Aucklanders urged to cut water use as demand soars.**

Aucklanders are being called upon to limit their shower time to four minutes, as part of a new campaign to counter record demand for water.

But, in spite of unprecedented consumption fuelled by the heat, and widespread dryness, city officials have no plans to follow other councils in bringing in water restrictions.

Those were now in force in many places, including Whangarei, Coromandel, Hamilton, Napier, Hastings, New Plymouth, Masterton, Wellington, Porirua and the Hutt Valley.

The situation had become especially severe in the Far North, where angry Kaikohe residents have accused their council of not doing enough to avert a water crisis that could mean the town may soon run dry.

Currently, Auckland's total water storage is sitting at 72%, compared with a historical average of around 83% for this time of year.

While Watercare was keeping a close watch on levels, the agency said there was no concern at this stage.

However, it was compelling Aucklanders to cut back on their use, after the city smashed its consumption record two times since the start of this month.

"In summer, people use more water than in winter - and on hot days, water use can skyrocket and put a strain on the city's infrastructure," Watercare's head of water value, Roseline Klein, said.

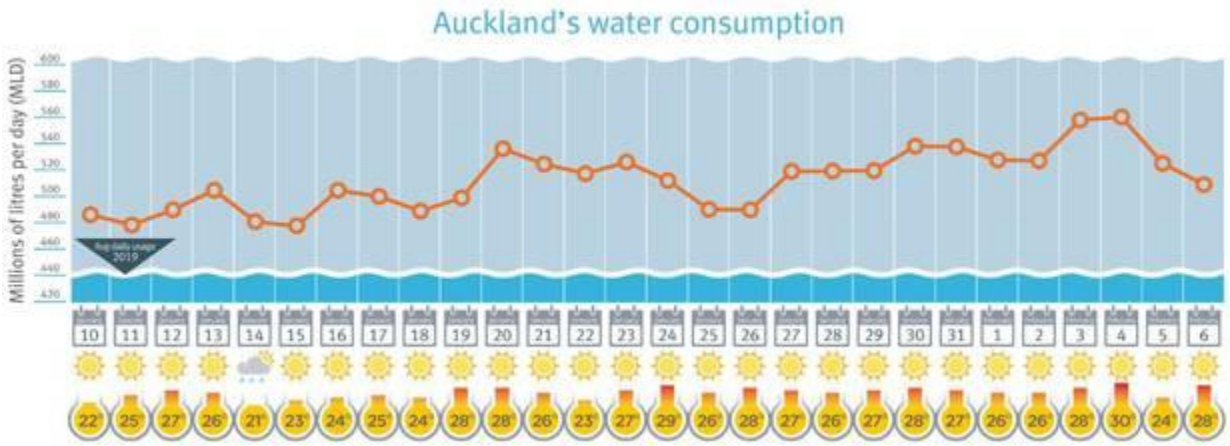
"We call this peak demand."

On February 4, Aucklanders used a record-breaking 561 million litres of water - that was in stark contrast to the average daily usage of 440 million litres in 2019.

And the overall demand for tap water in Auckland was rising, with a growing population, expanding businesses and high tourist numbers all having an impact.

That means that, over the past 20 years, the city's consumption had increased by 100 million litres a day – or over 36%.

"We want to ensure that our existing assets are being well used before building new infrastructure," Klein said.




***Graphic / Watercare***

"That's why we're running a campaign called 'Water is precious' and are asking people to be mindful of their water use – particularly on hot days when some people let their hose pipes run wild.

"It's not about saving water or going without; it's about using water wisely so we make the most of our existing infrastructure."

One of the calls to action for Aucklanders is to take the four-minute shower challenge. "If everyone in Auckland cut their showers from eight minutes to four minutes, the region would reduce its water use by 80 million litres a day."

***Currently, Auckland's total water storage is sitting at 72%, compared with a historical average of around 83% for this time of year (Photo / Watercare)***

Auckland Mayor Phil Goff said he'd be doing his bit by filling a bucket to wash his car, rather than using the hose.

Klein said Auckland was fortunate to have a range of water sources in Auckland – dams, rivers and aquifers. "At the moment, we're drawing more water from the Waikato River and Onehunga aquifer to reduce demand on our southern dams," she said.

"This means we're fairly comfortable in terms of the availability of water and there are no water restrictions. However, we do need people to use water wisely, especially when it's warm."

# New Zealand's lack of data risks 'irreversible damage' to the environment

*Stuff, Amber-Leigh Woolf, 7 Noviember 2019*

Our drinking water's safe – for now

Environment Canterbury chief scientist Dr Tim Davie says Christchurch's drinking water is "definitely" safe and will "continue to be so", but will not be as pristine. (Video first published in December 2017)

A stark lack of information about New Zealand's environment means the country is "flying blind" when it comes to the future, a new report says.

Parliamentary Commissioner for the Environment Simon Upton, who released the report, has recommended an independent panel patch up the country's "inadequate" environmental reporting system.

"When we try to find out what's happening on our land or what's happening to our water, there are huge gaps," Upton said.

"To say we have designed a national reporting system would be to overstate its coherence," he said.

Soil an important tool in climate change fight. Soil is an important tool in the fight against climate change.

Environment commissioner Simon Upton said New Zealand has "huge gaps" when it comes to environmental knowledge.

"Ours has been a passive system that has harvested whatever data is there and done the best it can to navigate what's missing." At the launch of the report Upton said it's been a case of "cobbling together what we have to hand".

The extent of what the country didn't know stood out in recent reports, he said.

Upton provided the example of the last survey of land cover in New Zealand, undertaken in the summer of 2012-13.

"I don't think anyone would seriously argue that investors or policymakers should take decisions on the basis of seven-year-old data," he said.

"This is a land-based economy, you would think we would be interested in knowing about that stuff in a well-moderated, consistent way."

Blindspots could be causing poorly-designed policies or "irreversible damage", Upton warned. "How can we make economically efficient or socially fair rules if we can't measure, authoritatively, what's happening?"

University of Waikato professor Troy Baisden said the commissioner's report showed the current system couldn't be relied on.

"[Our system] has been designed to avoid paying to create the information it needs." Instead, it was grappling to make sense of information which already existed, he said.

Biological Heritage National Science Challenge co-director Dr Andrea Byrom said she hoped the report would empower the Ministry for the Environment to get off the "current treadmill".

The call for an independent science panel to address the concerns was long overdue, Byrom said.

'Significant' data and knowledge gaps exist relating to the state of the country's ecosystems and biodiversity, despite our national identity as ‘Kiwis’, the report says.

She hoped the report would be a watershed moment to find a future-focused system, "before it's too late".

***Supplied/John Elliot***

Niwa chief scientist Dr Scott Larned said Niwa agreed there were persistent shortages of environmental data, and said some were severe.

"Approximately 150 of the thousands of lakes in New Zealand are currently monitored, and less than half of the 150 lakes had sufficient water-quality data for state and trend analysis in the 2019 Niwa report."

The current deficiencies are causing knowledge gaps, the report says.

Current data and knowledge gaps relating to the marine environment make it difficult to assess the impact of activities such as fishing, the report says.

In New Zealand, 22,000 arthropod species have been described, but at least that number is still awaiting identification.

The report says the purpose of the Environmental Reporting Act 2015 is "unhelpful".

"It simply states: 'The purpose of this Act is to require regular reports on New Zealand's environment'. "

***Ross Giblin/Stuff***

One of Niwa's sites for monitoring water quality is the Hutt River, Te Awakairangi.

Environmental data came from a "fragmented system" - a wide range of organisations, including local government, government agencies, Crown Research Institutes, consultants and industry.

"Tenuous funding arrangements" have affected several databases, the report says.

For example, Niwa used to monitor the river quality of 35 rivers from 77 sites, but about 10 years ago, a re-allocation of resources meant some of the 77 sites were handed to regional councils.

The auditor-general's recent report Managing Freshwater Quality noted the lack of information. The inconsistencies made understanding freshwater difficult, the report said.

Secretary for the Environment Vicky Robertson agreed an improved system was crucial. "Good environmental monitoring depends on good data ... a strong economy relies on a healthy environment."

"Environmental reporting helps New Zealand businesses understand the physical and financial risks of climate change – and act upon them – and that will assist New Zealand's long-term transition to a low-emissions country."

# Oil rigs leave Russia's arctic waters as drilling season winds down

*The Moscow Times, The Barents Observer, 7 November 2019*

**This year, three rigs have drilled in the Kara Sea and the Gulf of Ob.**

***Rosmorport***

Ice covers Russia's Arctic waters once more, and in a few weeks the vast region will become inaccessible to everyone without a powerful icebreaker. The three oil rigs that have been operating in the area for most of the summer and fall are now either out of the region or closed down for the winter season.

The Nan Hai Ba Hao rig, owned and operated by the China Oilfield Service, in mid-October completed its drilling at the Leningradskoye gas field in the Kara Sea. On Oct. 24 it arrived in Murmansk and now is being transported out of the region by the heavy lift ship Red Zed 1, according to data from MarineTraffic service.

It is the third year in a row that the Chinese oil rig has drilled in Russian Arctic waters. In 2017, it drilled at the Leningradskoye field and in 2018 at the Rusanovskoye field. As a result of the work, more than 1.2 trillion cubic meters of natural gas were discovered.

Along with the Chinese, Russian oilmen drilled with the rig Arcticheskaya at the nearby Skuratovskoye field.

The Arcticheskaya has returned to its home port of Murmansk and Gazprom Fleet, the rig owner, confirms in its corporate newspaper that the drilling was successfully completed.

Several Norwegian support ships, including the Sea Spear, the Sea Surfer and the Siem Emerald, accompanied the Nan Hai Ba Hao and the Arcticheskaya all summer.

Both the Leningradskoye and Skuratovskoye fields are owned by the state natural gas company Gazprom.

This summer, drilling was also carried out in the Gulf of Ob, where the Amazon rig operated at the Geophysical field. The drilling rig, owned by Gazprom Fleet, has been located in a remote shallow bay in the past years and in 2018 drilled wells at the Severo-Obskoye field for Novatek, a natural gas company. This year's drilling was also conducted for Novatek.

The Geofysicheskoye is located partly on land on the Gydan Peninsula, partly offshore in the Gulf of Ob. It is located about 160 kilometers south of Sabetta, the new terminal in Yamal.

In 2011, Novatek obtained a license for the Geofysicheskoye, as well as three other local licenses: the Utrenneye, Severo-Obskoye and the Vostochno-Tambeyskoye. These licenses are now a key to Novatek’s rapid expansion in the Arctic and will become a resource base for the Arctic LNG 1 and Arctic LNG 3 projects.

Novatek has earlier estimated the total resource potential of the Geofysicheskoye and Utrenneye field to 978 billion cubic meters of natural gas. The fields are also believed to contain major volumes of gas condensate and oil.

# Climate Change threatens Russia's economic growth, watchdog warns

*The Moscow Times, Jack Cordell, 14 February 2020*

Audit Chamber warns Russia will not hit targets to increase life expectancy and boost economy unless country addresses climate change.

Russia's failure to address the damage caused by climate change could undermine President Vladimir Putin's flagship National Projects program, a government body has warned.

In a new report, Russia's Audit Chamber said that climate change could knock up to 3% per year off Russia's GDP by 2030, and that without solving its myriad environmental and ecological problems, Russia will fall short of its ambitious targets to increase life expectancy, improve demographics and boost the economy. The chamber is led by former Finance Minister Alexei Kudrin, who is seen as being in the liberal wing of the Russian government.

***The Russian Government has been a lukewarm supporter of international efforts to reduce emissions (Vladimir Smirnov / TASS)***

The stark warning comes in the Audit Chamber's first interim assessment of the government's US$400 billion National Projects program — an ambitious set of targets, policies and investments that form the backbone of Putin's domestic policy for his final

term. Around half the budget is directed to infrastructure spending, but the program also covers healthcare, living standards, education, innovation and culture.

The projects have got off to a slow start, with government departments failing to hit spending plans for the first full year of the initiative. A number of economists and analysts, including those at state-backed bank VTB, have highlighted how the projects are not on track to hit their targets.

The Audit Chamber, which is responsible for monitoring the Russian budget and analyzing government spending, has now added fuel to those concerns, stating that 100 billion rubles of planned spending in 2019 was not executed. In total, the spending shortfall last year amounted to 12% of the program's budget, the Audit Chamber confirmed.

Spending on the "digital economy" and "ecology" tracks of the National Projects was most behind schedule, with only 54% and 62% of the annual plan executed as of Dec. 28 last year. Though Russian daily Vedomosti reported that a frantic flurry of spending in the final hours of the year had nudged those figures higher.

The failure to prioritize spending on environmental projects, in particular, seems to have worried the Audit Chamber, which cited a host of statistics about the state of Russia's environment. It said 56 million Russians are exposed to polluted air in more than 140 cities; nearly every river has been contaminated by untreated sewage; 300,000 hectares of forest are lost every year; and Russia's bulging landfills will run out of space for municipal waste within the next six years.

"Climate change … is leading to shrinking sea ice in the Arctic, increased frequency and intensity of extreme weather events, and droughts that affect much of Russia's agricultural areas," the new report added.

Across the country, damage from events related to climate change could hit 2-3% of GDP per year by the end of the decade, the government body assessed, rising to as much as 6% of economic output in the worst-hit regions.

The assessment echoes some of the worst case scenarios included in the government's climate action plan, published at the start of the year and seen as one of the first clear acknowledgments by the government that climate change is a serious problem.

However, Russia has so far been slow to develop concrete plans to tackle, mitigate or reverse the effects of climate change, only ratifying the 2015 Paris Climate Accords last year. The January 2020 plan gives government departments more than 18 months to come up with a preliminary approach to dealing with climate change in their sector.

"The National Projects do not cover issues related to climate change," the Audit Chamber said. Moreover, the body warned that the government's plans under the National Projects to boost economic growth and infrastructure projects could further aggravate Russia's climate problems.

“The growth of economic activity will increase the negative impact on the environment and may lead to a deterioration in the environmental situation in Russia,” the report stated. Plans under the “housing and urban development” stream, for instance, would boost construction and living space in major cities, but do not adequately provide plans for recycling, waste management or new landfill sites, Vedomosti reported.

The Audit Chamber concluded: “It is difficult to imagine achieving the national development goals, especially increasing life expectancy and reaching a steady natural growth in population, without solutions to these environmental problems.”

# Temasek, EQT to invest US$500m in India renewable energy projects

*The Business Times, Ng Ren Jye, 24 January 2020*


Singapore state investment firm Temasek Holdings and Sweden-based asset manager EQT will invest a total of US$500 million to develop utility-scale renewable projects in India, both companies said.

***Photo: St. file***

# Power crisis: Special committee appointed

*Ceylon Today, 11 February 2020*

A six-member special committee has been appointed to look into the current power crisis and provide immediate solutions. The committee has been appointed under the directives of the Minister of Power and Energy Mahinda Amaraweera.

It has been decided to appoint two Members from the Ceylon Petroleum Corporation (CEYPETCO), two from Ceylon Electricity Board (CEB) and an officer from the Ministry of Power and Energy for the committee.

The committee has been given the task of reporting daily after reviewing operations at all institutions that contribute to the power generation process including the CEB and CEYPETCO.

# 'Russia could build nuclear power plant in SL', Russian envoy

*Ceylon Today, 12 February 2020*

Considering the growing energy demand within the country, Russia could build a nuclear power plant in Sri Lanka someday, Russian Ambassador to Colombo Yury Materiy said in an interview with Sputnik, a Russian new agency.

He stated that the Sri Lankan Government favours pollution-free energy and aims at gradually replacing coal and oil with gas and alternative energy sources. Therefore, the use of nuclear energy is possible in a long-term perspective and the relevant effort is already made.

"The nuclear power plant would the final result of the intergovernmental cooperation on the peaceful atom. Considering the shown interest and Sri Lanka's progressive economical development, the energy consumption is increasing significantly. In this context, the idea to build an NPP may well be discussed and may be implemented in the long-term perspective", Materiy stated.

He also recalled that Russia's nuclear corporation Rosatom and relevant Sri Lankan entities held consultations on the Russia-initiated intergovernmental agreement on cooperating on the peaceful use of the nuclear energy in 2017.

# Pipeline gas passes through Turkey into Europe

*Daily Sabah, Maria Beat, 6 February 2020*

With the TurkStream pipeline inaugurated, a southern export route to Europe has been opened for gas to travel from Russia. A high-profile ceremony on the occasion took place in Istanbul on January 8, 2020, and was attended by the leaders of Turkey, Russia, Bulgaria and Serbia – the immediate project runners and beneficiaries. The TurkStream official commissioning was a historic event for Turkey, Russia and the countries of southern and southeastern Europe, and eventually, it will be a historic event for the whole European continent.

Besides supplying the Turkish consumer with additional volumes of natural gas, the pipeline has laid down the route for Russian gas deliveries through Turkey to the European markets. Incidentally or not, to the energy markets of the countries where the Trans-Anatolian Natural Gas Pipeline (TANAP) and Trans Adriatic Pipeline (TAP) are due, to

bring the natural gas from Azerbaijan and the planned East Med Pipeline is to head. The TurkStream and TANAP-TAP pipelines pass through Turkey, an emerging regional energy hub, while the projected EastMed aims to pass from Israel through Greek Cyprus and Greece, ultimately sidelining Turkey.

Commenting on this, President Recep Tayyip Erdoğan has said that "there is no chance of realizing any project in the Eastern Mediterranean that excludes our country."

Regarding Turkey's efforts in the region, he added that "the only aim of our hydrocarbon exploration activities in the Eastern Mediterranean is to protect the interests of our country and the Turkish Republic of Northern Cyprus (TRNC)."

## Russian gas travels south

The TurkStream pipeline's launch is anticipated to increase the stability of Russian gas exports to Europe, strengthen EU energy security and further establish Turkey's position as a regional energy hub. The pipeline's successful commissioning is certainly a "remarkable outcome of the Turkish-Russian strategic partnership," as Russian President Vladimir Putin mentioned in the January 8 inauguration ceremony.

The successful commissioning is timely considering the U.S. sanctions imposed last December directly against the corporations engaged with the construction of the TurkStream and Nord Stream-2 gas pipelines. The sanctions failed to affect TurkStream since the construction of its two submerged lines had been completed in November 2018 and were both filled with gas by the end of November 2019.

Nevertheless, they delivered a blow to the scheduled commissioning of the Nord Stream-2 pipeline and, as President Putin announced after his meeting with German Chancellor Angela Merkel on January 11, the pipeline will become operational at least a year later than originally envisaged. Certain analysts believe that its delivery capacity may need to be reduced as well in order to meet the EU legislation provisions.

This alone makes the TurkStream pipeline a viable element of Russian gas stability for its deliveries to its consumers, and particularly to the southeastern European countries, namely, Bulgaria, Greece, North Macedonia, Serbia, Hungary, eventually Austria, and potentially Italy as well.

Beginning January 1, 2020, due to TurkStream, Russian gas began to go to Bulgaria and further to Greece and North Macedonia. With the construction of the Balkan Stream through Bulgaria set to be completed later this year and the planned expansion of the local distribution network, TurkStream will reach the Serbian consumers who today continue receiving Russian gas from the Trans-Balkan main pipeline, an old connector passing through Ukraine.

Russia's Gazprom is TurkStream's immediate owner and in return, it is saving costs by pumping the gas directly to Turkey instead of transiting through Ukraine, which has positively affected the gas prices in Turkey and Bulgaria since the beginning of the year. According to Gazprom, TurkStream's

subtotal cost amounts to US$7 billion, compared to the originally envisaged EU$11.4 billion when four lines of supply were planned to be laid. The company expects to fully reimburse the construction expenses in five years.

## Turkey, the regional energy hub

TurkStream's launch strengthens Turkey's position as the regional energy hub by adding another important element to its currently available gas infrastructure. The connector operates two supply lines of close to 16 billion cubic meters (bcm) capacity each and coming ashore in the vicinity of Kıyıköy on the Black Sea. TurkStream's submerged section runs more than 900 kilometers to cross the bottom of the Black Sea from Russia to Turkey at a record depth of 2,000 meters.

While TurkStream's first line was laid down to supply the Turkish consumer, the second one, operated by the Gazprom-BOTAŞ joint venture, runs by land to the Turkish-European border in the Thrace region to connect with the Balkan Stream. The Bulgarian gas distribution network currently is in the process of expansion.

When commissioned later this year, the Balkan Stream will pump to Serbia the gas coming from Turkey through TurkStream, which may reduce the Russian gas transit through Ukraine by close to 32 bcm annually once TurkStream reaches full operational capacity by the end of the year.

The Balkan Stream commissioning is no less pivotal for the Azeri gas deliveries to southeastern Europe through Turkey via the TANAP-TAP pipeline, as Bulgarian Prime Minister Borisov mentioned during the TurkStream inauguration ceremony. With both the Russian and Azeri pipeline gas passing through Bulgaria on to Europe, the country both anticipates a price reduction and a handsome surplus to the budget from the transit fee.

A vital link of the Southern Gas Corridor (SGC) sponsored by the EU, the TANAP-TAP pipeline is due to provide a route of supply for the natural gas from the Caspian to the countries of southern and southeastern Europe to reduce their gas dependence on the Russian sources. With the TAP construction completed, consumers will start to annually receive some 10 bcm of Azeri gas reaching them from Turkey by means of TANAP.

As such, both the TurkStream and the TANAP-TAP are expected to add an important operational component to the Turkish energy distribution network. With the floating PLG storage units and the land storage facilities connected to the local pipelines network, Turkey is now receiving stable access to the main regional connectors of TurkStream and TANAP-TAP. This contributes to Turkey becoming the most developed energy market in its region, ranking fourth in Europe. To further its bid to become the regional trading hub, Turkeyalso launched a gas trading market in September 2018 under the Energy Stock Exchange (EPİAŞ).

## Route for Mediterranean gas

On January 2, Greece, Israel and the Greek Cypriot administration signed an agreement on the construction of the EastMed pipeline to bring to southern

Europe the natural gas from the Leviathan mega offshore reserve on the Mediterranean. The 1,900-kilometer connector is planned to pump 12 bcm of gas annually from Israel through Greek Cyprus, Crete and Greece to Italy and the countries of southeastern Europe, the final recipients of the gas to be delivered by the TurkStream and TANAP-TAP pipelines.

Planned for commissioning by 2025-2026, the EastMed pipeline is due to become the longest submerged connector in the world and will enjoy EU support as it is granted the status of its Project of Common Interest (PCI). Having funded the EastMed's feasibility study, which cost 2 million euros, the EU is currently in the process of deciding whether or not to cover half of the construction cost of the project, which is estimated at 7 billion euros. The Greek DEPA and Italian IGI Poseidon corporations have already pledged to fund at least 50% of the pipeline construction costs.

As of today, the project doesn't envisage the involvement of Turkey, and its planned route clearly bypasses Turkish waters. Nevertheless, Turkey has the longest shoreline in the Eastern Mediterranean and "will, of course, have a say in any project related to this region," President Erdoğan said.

Turkey has assumed the status of a guarantor nation for the TRNC and contested more than once the Greek Cypriot administration's unilateral drilling activities on the Eastern Mediterranean shelf in support of the TRNC rights to the resources in the area.

Turkey's active position in regional matters was further grounded November 27, 2019, when it signed a memorandum on an exclusive economic zone (EEZ) with the Libyan Government of National Accord (GNA).

The Turkey-Libya agreement has established a bilateral maritime delimitation regime between the countries to secure the Turkish rights in the Mediterranean and protect them from acts of infringement of the third parties. Meanwhile, Turkey's signing of a memorandum with the internationally recognized government of Libya has generated the vehement criticism of Greece and Egypt, who filed a petition with the U.N.

## The gas race never stops

These developments are prone to increase tensions in the Eastern Mediterranean. Gas deposits exploration sharpens the competition for control of their development and transportation. Considering the region is a zone of interest for the energy market, the market's traditional players are reluctant to accept Turkey – the very country that is energy dependent and whose involvement in energy matters has been limited to pipeline gas imports until recently – as a new regional energy hub.

** Freelance journalist living in Istanbul*

# Turkey to weigh on using domestic tech in drilling, exploration in East Med

*Daily Sabah, 7 February 2020*

***Turkey's drillships Fatih and Yavuz in the Eastern Mediterrenean along with Turkish navy vessels ( IHA File Photo)***

In a bid to locally develop oil and natural gas drilling and exploration technologies, Turkish Petroleum (TPAO) will host business people from different sectors at a workshop in Istanbul on February 10.

The National Technologies in Turkish Petroleum Industry Workshop (PEMT) will be held as part of a project initiated by the country's Energy and Natural Resources Ministry.

It aims to bring together businessmen from related sectors to establish an environment of cooperation and domestically produce technologies that may be used in the exploration and production process of petroleum.

The project will be carried out as part of the ministry's broader policy of maintaining supply security, nationalization and a predictable market.

It will also address issues like supplying domestic technology to Turkey's seismic vessels Yavuz and Fatih, which are used in exploration and drilling activities within the country's maritime borders in the Eastern Mediterranean.

The two seismic vessels have completed five deep-water drilling activities in 2019, while the Ministry recently announced five more within early this year. Turkey has also carried out land drilling activities with 34 drilling rigs in 121 boreholes.

Turkey initially sent its first drilling vessel Fatih to search for gas and oil in the waters located in Turkey's continental shelf, some 40 nautical miles off the western Paphos city of Cyprus. The area is claimed by the Greek Cypriot Administration within its unilaterally declared exclusive economic zone (EEZ) although it is not among the areas unilaterally licensed by Nicosia for hydrocarbon activities. Currently, the Fatih drilling vessel is located in Taşucu port in southern Turkey's Mersin.

Turkey than sent its second ultra-deep-water drillship Yavuz on June 20, 2019, which, starting this year, will continue the exploration activities towards the Lefkosa-1 line hydrocarbon field offshore northern Cyprus in the Eastern Mediterranean Sea.

Along with the Fatih and Yavuz drilling vessels, the Barbaros Hayreddin Paşa seismic vessel also conducts exploration activities on behalf of the country. It was previously revealed by the ministry that Turkey has plans to send a fourth ship, the Oruç Reis seismic vessel, to the Eastern Mediterranean region to continue exploration and drilling.

Turkey also plans further drilling and exploration activities in the region this year, particularly after the designation of blocks in Libya's EEZ in consideration of the latest maritime delimitation agreement between Ankara and Libya's U.N.-recognized Government of National Accord (GNA) which was signed on November 27, 2019, and ratified by the Turkish Parliament on January 2, 2020.

The maritime delimitation agreement, which secured both countries' western border in the sea, was a response to the attempt to sideline Turkey and the Turkish Republic of Northern Cyprus in the Eastern Mediterranean.

# New regional energy strategy maps path to secure energy future for CAREC region

*Tashkent Times, 15 November 2019*

Ministers from the 11 members of the Central Asia Regional Economic Cooperation (CAREC) Program have endorsed a new long-term strategy to improve energy security, increase investment, and improve the sustainability of energy systems in the region, setting it on a path toward achieving a secure energy future.

The CAREC Energy Strategy 2030 outlines a set of initiatives and policy recommendations to be implemented over the next decade based on regional cooperation, embracing energy market reforms, and deploying more green technology. It was endorsed today at the 18th CAREC Ministerial Conference held in Tashkent.

The strategy responds to several challenges facing the region’s energy sector. CAREC countries are rich in natural resources, but uneven

distribution of these resources—compounded by inadequate infrastructure and inefficient energy utilities—means some countries continue to face power shortages.


The region is estimated to need around US$400 billion in investments by 2030 in order to meet increasing demand for power.

By working together, CAREC members will be able to create new regional governance systems to manage transmission systems centrally. Elevating the grid and pipeline planning from the national to regional level will lead to a larger and more integrated energy market.

This will mean it is better equipped to cover seasonal variability and uneven distribution of energy across the region. Creating a stable power supply also enables export to energy markets, such as the People's Republic of China (PRC), Pakistan, and India, along with new strategic transit opportunities for oil and gas through Turkey and Georgia.

To attract more investment, the strategy sets out comprehensive support for CAREC members to manage the ongoing structural reforms in their domestic energy markets. As market structures move from vertically integrated to unbundled and liberalized systems, support will be provided to crowd-in investment capital and encourage greater private sector involvement.

The strategy also emphasizes greater energy efficiency initiatives and significantly increases support for the deployment of renewable energy in a region where installed solar and wind currently amounts to less than 1% of total capacity. A new regional financing vehicle—the CAREC Green Energy Alliance—will be created to help members seek cofinancing for investments in energy efficiency, renewable energy, and other climate mitigation projects. Together, these initiatives will help to reduce CAREC members' dependence on fossil fuels.

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The strategy also includes a major component focused on the empowerment of women. By introducing policies to enhance the employability of

women in the region's energy industry, the objective is to create the conditions for women to become a greater driver of innovation in the energy industry, enable a more inclusive and diverse workforce, and ultimately close the gender gap in CAREC.

Mr. Ashok Bhargava, Director of the Energy Division at ADB's Central and West Asia Department, said, "While the energy sector has done remarkably well during a challenging period of rapid growth, the implementation of a shared vision by CAREC members has the potential to deliver far reaching benefits to regional economies in the next decade in terms of new investment, jobs, skills, and knowledge development."

The CAREC Program is a partnership of 11 countries—Afghanistan, Azerbaijan, the PRC, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan—to promote economic growth and development through regional cooperation, and supported by development partners. ADB hosts the CAREC Secretariat in its headquarters in Manila.

Since 2001, the CAREC Program has financed 200 regional projects worth US$37.0 billion in the areas of transport, energy, and trade. Of this, US$14.0 billion has been financed by ADB; US$14.8 billion by other development partners such as the World Bank, the Islamic Development Bank, and the European Bank for Reconstruction and Development; and US$8.2 billion from CAREC governments.

# Centrals Asian countries to adopt regional program for rational use of water resources

*Tashkent Times, 31 January 2020*

The regional program for rational use of water resources will open a new stage in the cooperation of Central Asian countries on the joint use of transboundary water resources and help them to jointly implement water and energy projects, the Uzbekistan Minister of Water Resources (MWR), Shavkat Hamroev told today at a press briefing.

He believes that such a program will also allow the adoption of new regional legal documents on the use of water resources of Syr Darya and Amu Darya, as well as mitigate environmental problems in the region together.

The mnister Hamroev noted that over the past two years, Uzbekistan, through joint working groups with Kazakhstan, Tajikistan, Kyrgyzstan and Turkmenistan, have resolved "a lot of pressing issues on water cooperation."

President Shavkat Mirziyoyev proposed to adopt a regional program for the rational use of water resources in Central Asia at a meeting of the founders of the International Fund for Saving the Aral Sea in August 2018. In October 2019, the draft program was discussed at an international conference under the auspices of the United Nations “Aral Sea Area – A Zone of Environmental Innovations and Technologies”.

According to MWR, due to water shortage, Uzbekistan has recently reduced annual water consumption from 64 BCM to 51–53 BCM per year in the 80s. The water consumption per person in the republic decreased to 1,560 cubic meters per year, while the country's population grew over the years from 15 million to almost 34 million in 2020.

According to the Central Asian Interstate Commission for Water Coordination, water availability in Central Asia may decrease by almost 25% by 2040 - to 1,500 cubic meters per year per person, due to increased consumption and economic growth in the region.

In the spring of 2017, the UN Regional Center for Preventive Diplomacy in Central Asia distributed the drafts of two conventions on the Amu Darya and Syr Darya, which create the legal basis for constructive cooperation in the water sector between the countries of the region.

# Taisugar should focus on biogas

*Taipei Times, Chen Wen-ching, 3 March 2020*

Among Taiwan’s state-run enterprises, Taiwan Sugar Corp (Taisugar) has been more agile in its corporate transformation and has the most diverse business operation.

Apart from pig farming, orchid cultivation and biotech product development, Taisugar also tried running a hypermarket chain - Taisuco, which was closed in June last year - and gas stations. Seen in this light, the company’s decision to enter the green energy market came as no surprise.

An opinion piece published in the Chinese-language Liberty Times (sister newspaper of the Taipei Times) on February 21st indicates that Taisugar is planning to construct solar energy facilities on the company’s reforestation land, which covers hundreds of hectares in Pingtung County, but cutting down trees to install renewable energy is absurd.

In addition to providing sustainable energy, the development of renewable energy serves a more important purpose: reducing greenhouse gas emissions. As thick tree foliage contributes to carbon fixation and helps curb greenhouse gases as well as improve air pollution, turning forest land into a base for solar energy facilities will cost more than it is worth.

Taisugar's former chairman Charles Huang played an important role in pushing for the circular economy promoted by President Tsai Ing-wen's administration. During his chairmanship, Huang pushed for the establishment of circular agricultural economy parks and transformed the company's Dong Hai Feng Pig Farm in Pingtung County into the nation's first ecological livestock farm.

The farm incorporates the nation's first ecological hog farm, which includes biogas power generation, solar-powered pigsties and circular facilities for organic resources and serves as a circular economy model. More importantly, the company owns a large plot of forest land around the farm. Biogas residues and slurry resulting from the anaerobic fermentation of pig manure and urine for biogas production can be turned into organic fertilizers and reused for the land. No other hog farms operate under the same conditions.

Biogas residues and slurry created from anaerobic fermentation contain an abundance of organic matter that is ideal as agricultural fertilizer.

For ordinary farmland, however, there are limits for the total amount of biogas residues and slurry that can be used as fertilizer depending on the kind of crop, not to mention that fertilization does not apply to every season.

This explains the major difficulty encountered by the Environmental Protection Administration (EPA) and the Council of Agriculture in recent years when they have been promoting the reuse of livestock manure wastewater — and biogas residues and slurry — as fertilizer for agricultural land: the difficulty of balancing supply from livestock farms with the demand for biogas residues and slurry for agricultural land.

Taisugar does not have to worry about this problem, because it has both pig farms and forest land.

Pingtung County is a major pig farming county, and pollution caused by wastewater discharged by pig farms constitutes an environmental problem that has been bothering government agencies.

Starting with former Pingtung County commissioner Tsao Chi-hung's term in office, the county government has been taking proactive measures to deal with the issue, such as guiding pig farmers to generate biogas power.

With regard to forest that can be legally logged, the county government gives subsidies to local Aboriginal communities to reduce logging. About 4,000 hectares of plain land in general agricultural zones previously used for agricultural or grazing purposes have been reforested, and a large proportion of the land reforestation can be attributed to Taisugar's efforts. The county's vast reforested land serves as the ideal location for reusing biogas residue as fertilizer.

The EPA is now pushing for a co-digestion project of food waste and pig manure and urine for biogas generation to solve the problem of recycling food waste, which must be processed before being used as hog feed to prevent African swine fever. As biogas residues and slurry are not immediately usable as

crop fertilizer, the best way is to use them to irrigate forest land for non-agricultural purposes.

Rather than embarking on solar power generation out of the blue and cutting down trees for that cause, Taisugar would do better to assess its resources and incorporate the company's various branches, such as livestock farming, forestry, and biotechnology, to work on biogas power generation and develop organic fertilizer, in a bid to return to the basics and make the best use of the company's advantages.

*Chen Wen-ching is president of the Environment and Development Foundation.*

# Taipower vows to cut coal use during air pollution season

*Taipei Times, Natasha Li, 27 February 2020*

Taipower Power Co (Taipower) yesterday vowed to reduce coal use during "air pollution season" after the Environmental Protection Administration (EPA) late on Tuesday rescinded the Taichung City Government's sanctions on the state-run utility.

Citing Article 117 of the Administrative Procedure Act, the EPA overruled the city government's decision last month to revoke Taipower's operating licenses for two of its coal-fired generators at Taichung Power Plant to reduce the city's air pollution.

The city government basing the sanctions on a volatile set of rules was unlawful, the EPA said, adding that Taipower has not breached the city government's coal use limit over the past year, contrary to Taichung's claim.

As a result, Taipower can temporarily resume the use of its No. 2 and No. 3 generators at the facility until the Taichung Legal Affairs Bureau reaches a final decision.

"While we have not reactivated the two generators yet, as they need to undergo routine repairs … the EPA has given us the legroom that we desperately need," Taipower chief engineer and spokesman Hsu Tsao-hua said by telephone, adding that the company can now better maintain its power reserve margin at more than 10 percent.

Taipower has yet to set a definitive timeline to restart the generators, which "would depend on other factors, including the current level of energy consumption, as well as the air quality," Hsu said.

Taipower aims to lower coal use to 12.6 million tonnes this year, he said.

The utility plans to shut down three of 10 generators at the plant at the start of October, when air quality deteriorates as seasonal winds carrying pollutants from China sweep over Taiwan, he added.

***Tunghsiao Power Plant in Miaoli County, Central Taiwan***

"Moreover, the remaining seven generators would only function at the same level as six generators running at full capacity … translating into a 40 percent reduction in coal use," Hsu said.

The company is also increasing its use of natural gas for energy generation, he said, pointing to a new gas-fired unit installed at the Tunghsiao Power Plant in Miaoli County.

"An additional 109 million kilowatts would be integrated into our power grid by May … just before the summer," Hsu said.

Electricity from Taipower's gas-fired generators last year surpassed that of coal-fired generators, company data showed.

# Quảng Trị strives to become regional energy centre in 2025

*Vietnam News, VNS, 12 February 2020*

***The LIG Solar Power Plant in the central province of Quảng Trị (Photo dientungaynay.vn)***

QUANG TRỊ - The central province of Quang Trị is making greater efforts to lure investment in the energy sector in order to become a centre of energy in the region by 2020, according to the provincial People's Committee.

Top priority for investment attraction is given to wind, gas and thermal power, said the committee's vice chairman Nguyen Quan Chinh.

The province is looking to raise the total electricity generation capacity of local power plants of all kinds to 5,000MW in 2025, including 3,200MW of wind power, and around 1,500MW of solar power.

As of February this year, Quang Trị is home to seven wind power plants already operational or going to be put into use, with total capacity of 218MW. The province has given approval of investment for 28 other such plants with combined capacity of 1,441MW.

Six solar power projects capable of generating 354 MWin total have been commissioned or are under construction.

Meanwhile, some large-scale thermal power projects have landed in the province. Notably, a 1,320MW thermal power plant is being developed by Thailand's EGAT International Company

Limited in the East -South Quang Trị Economic Zone. The project, expected to cost more than VND55 trillion (US$2.36 billion), is the biggest investment project in Quang Trị to date.

Russia's Gazprom is proceeding with a gas-fuelled power plant with a capacity of 340MW, while T&T group is considering a power plant fuelled by liquefied natural gas (LNG) with a capacity of 1,200-1,500 MW in the first phase, and 2,400-3,000 MW in the second phase.

Local leaders said they had seen breakthroughs in attracting investment in its energy sector in the past few years. They have also taken drastic measures to support businesses such as enhancing administrative reforms, improving the investment environment and providing tax and land lease breaks.

Information supply, e-government and official data system building, and consulting services have been also included.

**IFC INSIGHTS**

# Nepal: Following hydro deal, what's next?

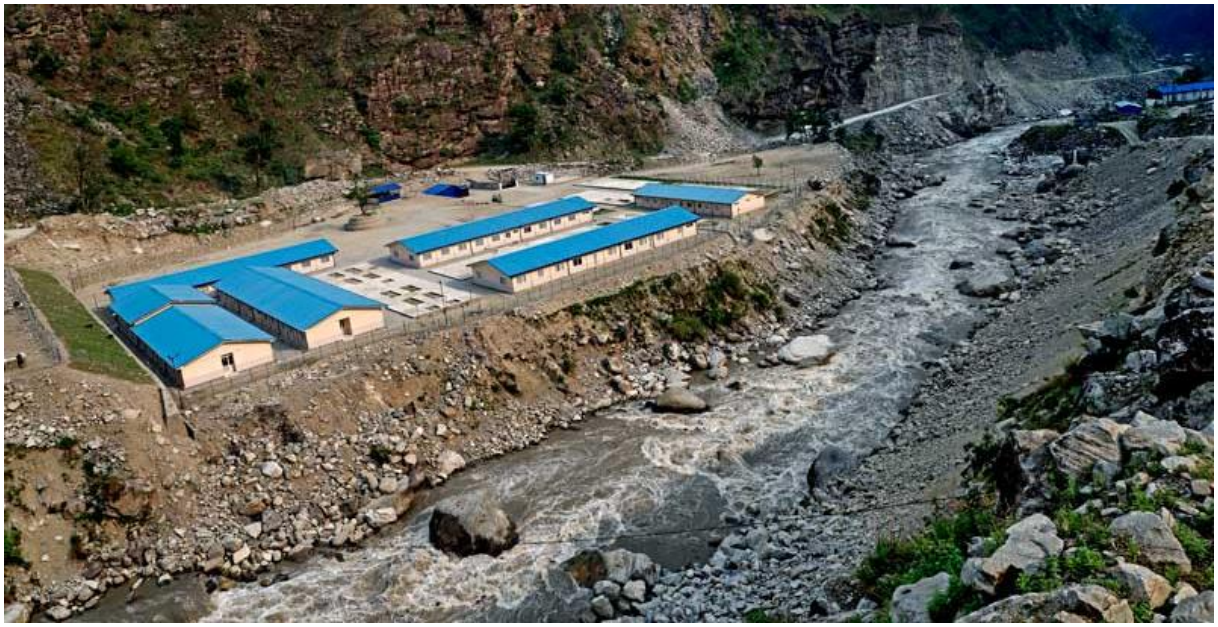
*IFC, 12 November 2019*

A majority-owned Korean subsidiary company earlier in November signed a financing agreement with nine co-lenders, including IFC, to build a 216-megawatt hydropower plant that will provide power to up to 9 million people by 2024. The project, developed by Nepal Water and Energy Development Company, represents one of Nepal's largest-ever foreign direct investments. Once completed, Upper Trishuli-1, or UT-1, will sell power to Nepal's national public utility company under a 30-year power purchase agreement.

The deal had many layers: a US$453 million financing package organized by IFC, a US$135 million political risk guarantee from the Multilateral Investment Guarantee Agency (MIGA), and more than US$100 million in blended concessional finance from the International Development Association Private Sector Window (IDA-PSW). The IDA-PSW support lessens the costs and risks associated with the project's long development period.

The project comes at a time of growing interest in investment opportunities in Nepal.

The country, located between economic giants China and India, is richly endowed with natural beauty, fertile land, and an abundance of water. A recent IFC and World Bank study, a Country Private Sector Diagnostic (CPSD) on Nepal, pinpointed several sectors with strong potential for enabling Nepal's economic growth, including ICT, tourism, and agribusiness. The study found that policy reforms, investments in public goods, and private sector engagement could potentially stimulate the development of those sectors.



***The campsite in Mailung, Rasuwagadhi, will house contractors and engineers during construction of UT-1, which will start by 2020.***

Barshaman Pun, Nepal's Minister of Energy, called the UT-1 hydro project a "game-changer" for his country. "Not only will it power hundreds of thousands of homes and businesses, but it will also serve as an of example of how private companies can help Nepal expand its hydropower sector and attract much needed foreign direct investment."

Hydropower, infrastructure projects more broadly, and other promising sectors identified by the CPSD have the potential to transform Nepal's economy – and to help the country become more climate resilient. The UT-1 project, in fact, includes financing from the Finland-IFC Blended Finance for Climate Program and the Climate Investment Funds to help lessen the risk of flooding from glacial lakes.

With reforms, higher productivity, and the UT-1 project, investors may see more opportunities in Nepal. And with greater private sector activity in the economy, the country stands a better chance of meeting its goal of becoming a middle-income country by 2030.

An additional study, the Nepal Infrastructure Sector Assessment, found that infrastructure growth will be key to Nepal's future, saying it is to necessary to promote overall growth and will providing access to basic services, jobs, and markets. "In a geographically challenged country like Nepal, (infrastructure development) also will help create reliable supply chains, allowing for more efficient movement of goods and services," the report said.

The infrastructure assessment report found that investment needs for infrastructure average 10 to 15% of GDP annually over the next decade, and that while public investment will be critical for infrastructure development, the country needs to place a greater emphasis on private sector investment.

Nepal's investment opportunities don't end there. The private sector diagnostics analysis also included the information and communications technology services sector. In the short run, ICT can increase exports of low- to mid-range business process outsourcing and data analytics. Over time, it can potentially raise the productivity of other sectors, such as tourism and agribusiness, retail and e-commerce, and logistical software used in the transport sector. Start-up motorbike ride sharing companies, for instance, have established a foothold in solving transport infrastructure constraints.

***UT-1 is the first project in Nepal to undertake a consent process with affected indigenous communities.***

Tourism enjoys substantial comparative advantages because of Nepal's unique geography. Nepal is the gateway to the world's tallest mountains, maintains vast nature preserves, and has some of the world's most important Buddhist and Hindu sites. By refining the experiences of tourists, the sector could grow significantly and create more jobs, the country diagnostic found.

In agribusiness, Nepal's varied micro-climates give it a potential edge in high-value niche products such as spices (such as large cardamom, where Nepal leads the global market), fruit juices, honey, medicinal herbs, tea, coffee, apples, and cut flowers. The analysis identified storage and warehousing as a good medium-term opportunity for investors, and agriculture support services in the medium to long-term. With more than 70% of the population working in agriculture, creating markets in high-potential

agriculture value chains could have a substantial impact on living standards in rural areas.

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**About CACCI:**

Founded in 1966, the Confederation of Asia-Pacific Chambers of Commerce and Industry (CACCI) is a regional non-governmental association principally composed of the national chambers or associations of commerce and industry in Asia and the Western Pacific. Its current membership of 29 countries and independent economies cuts across national boundaries to link businessmen and promote economic growth throughout the Asia-Pacific region. CACCI holds Consultative Status in the Roster Category of United Nations' Economic and Social Council (ECOSOC)

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