

# China's Sci-tech Vitality Noticed Worldwide

## Voice of the World

By TANG Zhexiao

While China continues to inject energy into development of innovation capacity, its vitality in the area of science and technology has attracted world's attention.

**Surging technical capabilities**  
Though the U.S. led the field of super-computers for decades, the *New York Times* said experts believed two systems in China beat the U.S. Frontier model, in the race to be the first exascale computer.

According to biannual TOP 500 list, the Sunway Taihu Light, a system developed by the National Research Center of Parallel Computer Engineering and Technology and installed in Jiangsu province, is the fastest system in the world currently.

Meanwhile, aircraft manufacturing is seen as the indicator of a country's technical and industrial development, said *Radio Free Europe/Radio Liberty*, noting that China had completed pre-delivery maiden test flight of homemade C919 passenger aircraft this May. Besides, it also said China is at the forefront of many other high-tech fields including quantum computing, radio telescopes, 5G-6G communication networks and artificial intelligence.

Green energy achievements have seen the first offshore wind farm in southern Italy, Beleolico project adopted wind turbines provided by a Chinese energy company, marking the milestone of China-Europe cooperation in renewable energy. "Chinese wind-turbine makers have grown big on the back of their rapidly growing home market," said the *Wall Street Journal*, adding the Beleolico will demonstrate the capabilities of China's high-end manufacturing industry.

The country will "be a clean energy game-changer," said the *Space News*, and it would "become a leader in green energy technology" and "a leading space power," according to *The Hills*. The Bloomberg, also noted China will add enough new solar power this year to nearly double last year's record amount of installations as the country accelerates its clean energy drives.



Citizens watched intelligent robots dancing at University of Science and Technology of China, Anhui province. (PHOTO: VCG)

**Strategic support**  
This year's data from the China Association of Automobile Manufacturers showed that May sales in China of new energy vehicles (NEVs) rose 49.6 percent month-on-month even as overall purchases of cars fell.

Spanish national daily newspaper *ABC* said the rapid development of NEVs relied on farsighted strategies, including financial support by the government and a plan of adopting electronic public transport in selected cities.

Not only has the NEVs industry blossomed, but Chinese companies also see sci-tech investment up over the past decade. Investment in sci-tech by enterprises accounted for more than 76 percent of the country's total R&D investment, according to Ministry of Science and Technology. In 2012, the country's high-tech companies paid 800 billion RMB (about 120 billion USD) in taxes, and this number climbed to 2.3 trillion RMB in 2021.

China is closing the gap with the U.S. on research spending, and the U.S. is no longer the "uncontested leader" in science globally, said the US National Science Foundation on *Nature*.

**Talent education & cultivation**  
The education model with Chinese characteristics

plays an important role in the improvement of sci-tech capabilities.

The country has become one of the world's most important sources of talent and innovation hubs, said Kenya's *The Star*, adding that China's higher education sector is on a new path of high-quality development with Chinese characteristics and it is an example that needs to be adopted by developing countries.

The capacity of colleges and universities to serve major national strategies has also continued to increase. They have undertaken more than 60 percent of the national basic research tasks and more than 80 percent of the national natural science foundation projects, *The Star* reported.

Over the South Africa, China's education policy is providing a positive example according to *The Independent Online*, saying that "An indispensably vital element to innovation, inarguably, is the country's educational system and how it can convert innovation into a functional instrument for engendering solutions." It also said that the focus on policy implementation has greatly assisted China to become a leader in sci-tech research.

## Hi! Tech

# Railway Station Shines with Its Solar Roof

By Staff Reporters



Hangzhou West Railway Station in east China's Zhejiang province. (PHOTO: VCG)

As a major traffic hub designed for the 2022 Asian Games, Hangzhou West Railway Station has installed a total of 7,540 PV panels for a 15,000 m² area, and the project's grid-connected power generation has entered countdown.

The PV panels are made of monocrystalline silicon cells, usually referred to as silicon cells, one of the most efficient material when it comes to the conversion of sunlight into energy.

The main advantage of monocrystalline cells is

their high efficiency, which is typically around 15 to 20 percent. With better performance in low levels of sunlight, they are ideal for cloudy areas.

They also have the advantage of being the longest lasting solar cells, with life expectancy being around half a century.

To integrate the panels with the overall landscape, the designer combined the surrounding environment with photovoltaic efficiency optimization, making the station look like wearing a solar "hat" on its roof.

Applying the latest domestic inverter equipment and assembly technology, the station will make full use of its "hat" once completed, with an installed capacity of 3 MW.

It is expected to reach a power generation of 2.31 million kWh annually, saving more than 800 tons of standard coal and reducing carbon dioxide emissions by more than 2,300 tons every year.

# Microalgae Makes Cement Sustainable

By Staff Reporters

Concrete is the most widely used building material globally. Recently, an American research team found a way to make cement production carbon neutral by pulling carbon dioxide out of the air with the help of microalgae.

Portland cement is the most common type of cement in general use. When extracting limestone to make portland cement, large amounts of carbon dioxide will be released to the air.

The research team figured out that replacing quarried limestone with biologically grown limestone, a natural process where some species of calcareous microalgae complete photosynthesis, would create a net carbon neutral way to make portland cement.

The biogenic limestone could work as a filler,

making portland cement carbon neutral or even carbon negative, by pulling carbon dioxide out of the atmosphere and storing it permanently in concrete.

If all cement-based construction around the world was replaced with biogenic limestone cement, more than 250 million additional tons of carbon dioxide would be pulled out of the atmosphere annually, according to the team.

Limestone isn't the only product microalgae can create. It is reported that microalgae's lipids, proteins, sugars and carbohydrates can be

used to produce biofuels, food and cosmetics.

As our planet is fast running out of renewable energy, using algae as a construction material may be a solution to energy challenges.



Marine microalgae cultivation base in Fangchenggang city, Guangxi Zhuang Autonomous Region. (PHOTO: XINHUA)

## Opinion

# Time Will Tell

Global infrastructure matters to all humankind and should not be politicized.

By QI Liming

U.S. President Joe Biden and other G7 leaders relaunched the initiative to address the infrastructure gap in the developing world, newly renamed "Partnership for Global Infrastructure and Investment," at their annual gathering this June in Germany.

Among the G7's 600 billion USD initiative, Biden also announced that the U.S. will mobilize 200 billion USD of investment in global infrastructure projects under its new strategy, in the next five years.

Some media and critics have inferred that Biden's move is aimed to counter the influence of China's Belt and Road Initiative (BRI).

**Don't make infrastructure plans geopolitical**

According to CNBC, Choi Shing Kwok, CEO of Singapore-based research institute ISEAS-Yusof Ishak Institute, said, "It is questionable whether at this stage the scale [of the G7 initiative] can match that of the BRI, but that is something to be seen later."

In the past decade or so, China has signed more than 170 BRI cooperation agreements with 125 countries and 29 international organizations across Asia and Europe, as well as Africa, and Latin America.

Nearly 800 billion USD in investments has been undertaken within the BRI, surpassing the investments currently pledged by the G7. Trillions more dollars are expected to be invested through China's infrastructure project into the network comprising six development corridors.

"In the end, if the implementation [of the G7 initiative] is done in such a way that it does not force countries to factor in geopolitics, then it will be acceptable," said Choi.

**BRI and B3W enjoy complementary**  
At the G7 summit in 2021, the U.S. had already launched a plan. It was called Build Back Better World (B3W), which promised to improve the 40 trillion USD infrastructure of developing countries.

China is willing to work with the U.S. on a G7-led global infrastructure plan and welcomes Washington to join the BRI, Chinese Foreign Minister Wang Yi said in February this year.

Actually, according to *The Diplomat*, the BRI and B3W are in many ways inherently complementary. The BRI could provide a number of instructive lessons for B3W planners.

In fact, it is not hard to argue that in order to build back a better world following the COVID-19 pandemic, the BRI and B3W should work together. To begin with, the BRI and B3W could be complementary in their sectoral focus and financing mechanisms.

China's BRI is primarily focused on traditional hard infrastructure. Over the past two decades, China has accumulated rich experience in building infrastructure overseas, either by con-

structing contracted projects or through foreign aid, and has a comparative advantage in cost and project's completion time.

In comparison, the B3W focuses on "softer" outcomes, namely improvements in climate, health and health security, modernized digital technology, and gender equity and equality.

China has repeatedly emphasized the open and inclusive nature of the BRI, and already expresses its willingness to collaborate with the B3W, which aligns with the BRI's principles of extensive consultation, joint contribution, and shared benefits.

**Far away from taking sides**  
According to a previous G20 report, there will be a 15 trillion USD investment gap in global infrastructure by 2040.

Infrastructure development, as a major lever for promoting the overall progress of humankind,



Chinese and Indonesian builders work near the 4th girder yard of the Jakarta-Bandung High-Speed Railway in Indonesia on May 1, 2022. The railway is a landmark project of the Belt and Road Initiative and practical cooperation between China and Indonesia. It is 142 kilometers long. Once completed, the travel time between Jakarta and Bandung will be reduced from more than three hours to 40 minutes. (PHOTO: XINHUA)

enjoys unparalleled space for development.

In addition to the U.S., Europe will mobilize 300 billion euros from private and public funds in more than five years, to fund infrastructure of developing countries as part of the G7's drive to "counter" China's BRI, President of the European Commission Ursula von der Leyen said at this year's G7.

Some netizens questioned that why can't using "supplement" instead of "replace". Few developing countries want to be in a position where they must take sides.

Riedel Research Group founder David Riedel said it did not matter who the investors were, and that outcomes would not be apparent overnight.

It doesn't mean much near term, but a longer term, investors need to appreciate the importance of investments made for infrastructure, said Riedel.

# Giving Express Delivery Packages Longer Lifespan

By DU Peng & QI Liming

China's express delivery business has seen rapid development in recent years, with the average daily delivery volume exceeding 300 million at the end of 2021. Thus, how to make use of recyclable and environment-friendly packaging for ordered goods has become an important issue in the industry.

Delivery of fresh frozen goods by many e-commerce and logistics enterprises, is being made of recycled insulation boxes. Compared with the disposable foam boxes commonly used in the past, the new box has a longer service life, usually up to more than one year, and can be re-used hundreds of times.

The main body of the recycled insulation box is made of expanded polypropylene (EPP), which is not only good for keeping foodstuff warm, but is also more portable, durable, and easier to degrade in the natural environment.

As for the delivery of ordinary goods, the recycling express packaging is mostly put together by honeycomb panels made of polypropylene plastic (PP), being light, durable and easy to fold. The service life of this recycled box can be up to three years under normal circumstances. After reaching the end of its service life, the recycling rate of the polypropylene material could be more

than 90 percent.

Besides the advantages of service life and recycling rate, the recycled boxes actually produce lower carbon emissions.

Although the cost of the recycled packing box is relatively high at present, it could be reduced through repeated use. The cost will be far lower than that of the disposable carton as long as it is used enough times.



Recycling box is suitable for the recycle use of upstream and downstream cargo logistics turnover packaging in apparel textile, fast-moving consumer, pharmaceutical and other industries. (PHOTO: Ningbo Hexiang Technology Co., Ltd.)