

Beautiful Bays for Beautiful China

Policy

By ZHONG Jianli

China is gearing up to improve its seascape by building or renovating around 110 beautiful bays across the country.

The Ministry of Ecology and Environment (MEE) has issued an action plan to expand and upgrade the "beautiful bay" initiative, a key strategy to revitalize and safeguard the coastal ecosystem.

The action plan represents a substantial expansion from the previous 50 bays targeted under the initiative.

Moreover, the bays in seven major coastal cities will be comprehensively developed. They are Qinhuangdao and Tangshan in Hebei province, Weihai and Rizhao in Shandong province, Yancheng in Jiangsu province, Xiamen in Fujian province, and Sanya in Hainan province.

The goal is holistic improvement in the ecological environment of these bays, with "clean water, a tidy coastline, thriving birds and fish, and harmonious human-nature relationship." Specific targets have been set for 2025 and 2027 to



A view of the Sanya Bay in Hainan province. (PHOTO: XINHUA)

track the progress of the endeavor.

The plan focuses on three areas. It will drive the expansion and quality enhancement of beautiful bays, moving beyond localized efforts towards a more systematic approach. It will also prioritize the protection and restoration of critical marine ecosystems, such as

mangrove forests, coral reefs, seagrass beds and coastal wetlands.

Finally, it will strengthen the treatment and regulation of key sewage outlets discharging into the sea, and establish and improve a mechanism for regularly monitoring those outlets.

For effective implementation of the

plan, the MEE says increased funding and policy support is needed, as well as greater public participation, and enhanced publicity and guidance.

The beautiful bay initiative goes beyond safeguarding China's coastal environment. It will also help realize the broader goal of building a beautiful China.

Cross-border E-commerce Exports Encouraged

By LIANG Yilian

Cross-border e-commerce is generating new drivers of foreign trade. This sector is synergizing with foreign warehouses and other new foreign trade infrastructure, reducing intermediate links, providing direct consumer access, and promoting foreign trade structure optimization.

In early June, the Ministry of Com-

merce and eight other departments issued a new policy on expanding cross-border e-commerce exports and promoting the construction of foreign warehouses.

The policy deploys 15 measures from five aspects: actively cultivating cross-border e-commerce business entities, increasing financial support, strengthening relevant infrastructure and logistics system construction, opti-

mizing supervision and services, and carrying out international cooperation.

China will encourage qualified cross-border e-commerce companies to build sales networks and brand operation centers in foreign markets, and enhance brand cultivation capabilities to expand their global presence, according to the policy guideline.

During the first quarter of 2024, China's cross-border e-commerce trade

reached 577.6 billion RMB, rising 9.6 percent year-on-year, of which exports amounted to 448 billion RMB with a growth rate of 14 percent.

China has over 120,000 cross-border e-commerce entities and more than 1,000 cross-border e-commerce industrial parks. The number of overseas warehouses has surpassed 2,500 so far, covering a total area of over 30 million square meters.

Confucius 'Comes Alive' in His Hometown

Tech+Culture

By YU Haoyuan

Confucius, China's most famous teacher and philosopher, who lived over 2,500 years ago, has time traveled from the past to be with his students once again in his hometown of Qufu city, east China's Shandong province.

This modern Confucius classroom is located in the city's "Three Confucian Sites" (the Temple of Confucius, the Kong Family Mansion and the Cemetery of Confucius), which are dedicated to

commemorating Confucius and Confucian culture. At these sites visitors can engage with Confucius and his students through Mixed Reality (MR) glasses.

When visitors put on a pair of MR glasses, Zai Yu, a leading disciple of Confucius appears in cartoon version. He serves as the tour guide for the visit, sharing historical anecdotes about Confucius, such as the Grand Ceremony of Worship of Confucius, Lecturing at the Apricot Altar, and the story of the Thirteen Stele Pavilions.

This MR technology, combined with AI, big data, the metaverse, computer vision and acoustics, integrates historical and cultural aspects of the

location with holographic digital content. It creates a parallel world of the Three Confucian Sites for the visitor, corresponding precisely to the actual location.

About five kilometers from the Three Confucian Sites is the Confucius Museum. As visitors enter the museum, they are greeted by a massive wall of books transformed into a projection screen showcasing key moments from Confucius' life. Diving deeper into the museum, they encounter a waterfall wall explaining the contents of *Analects*, a book of sayings and ideas attributed to Confucius and his contemporaries.

For the curious wanting to ask

questions, there is also an interactive exhibit called Confucius Q&A. By using a large touchscreen, visitors can tap on the dialogue box to send messages to Confucius, which allows visitors to listen to Confucius' answers in real-time.

The sightseeing experience of Confucius is a great example of the marriage between technology and culture. Modern digital capabilities have given a new vitality to Confucian culture, attracting tourists from across the globe. With such technology being increasingly integrated into sightseeing, visitors can engage more directly with cultural relics, gaining a deeper understanding of the stories behind them.

Future Industries Emerge in Jiangsu

Case Study

By WANG Yu, JIN Feng, ZHONG Jianli

Donning AR goggles, workers in the Metaverse Industrial Park in Kunshan city, Jiangsu province, can now effortlessly follow task prompts and collaborate with experts in real-time during troubleshooting scenarios, while visitors can indulge in immersive experiences like watching the aurora borealis or enjoying a Jurassic Park-type roller coaster ride.

This fusion of metaverse technologies and the real economy is gathering pace in the park. Currently, it has attracted 68 key metaverse enterprises, 95 metaverse projects, and 17 metaverse application scenarios spanning smart cities, cultural tourism and industrial manufacturing.

One of the foundational technologies is the future communications network facility. Stretching over 34,000 kilometers and covering 40 major cities, the facility has been widely utilized for remote surgery, smart mining, supercomputing resource sharing and digital twinning, serving thousands of enterprises in their smart transformations.

In recent years, Jiangsu has been advancing the frontier of future industries, with major investments in areas like next-generation AI, third-generation semiconductors, gene and cell technology, and hydrogen-based energy storage.

At the Nanjing Intelligent Technology Research Institute, the "Wentian 1" brain-inspired supercomputer has achieved simulations of nearly 500 million neurons, leading the country in brain-inspired computing.

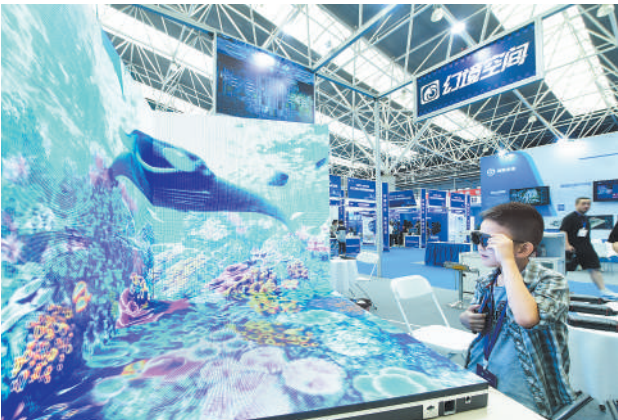
In the streets of Jiangsu's Zhangjiagang city, one can frequently spot hydro-

gen-powered buses, as the city pushes forward its development of new energy industry. It has gathered a number of enterprises involved in hydrogen preparation, storage and transportation equipment, and hydrogen fuel cell manufacturing, with the annual output value of these enterprises exceeding 10 billion RMB.

From building application scenarios

to coordinating the industrial chain, Jiangsu is leveraging cutting-edge technologies to meet new demands and shape a comprehensive future industry ecosystem.

As these nascent industries mature and achieve breakthroughs, they will create new competitive advantages and become engines of economic growth for the province.



A boy experiences an immersive VR demonstration at the international metaverse equipment exhibition held in Kunshan, east China's Jiangsu province. (PHOTO: VCG)

Global Journal Observatory

Serving the Academic Community at Cutting Edge of Extreme Manufacturing

By GUO Dongming

Extreme manufacturing refers to the forefront of the manufacturing field, where persistent challenges exist that contemporary science and technology struggle to overcome. Since Zhong Jue, academician of the Chinese Academy of Engineering, first introduced the concept of extreme manufacturing in 2003, its implications have continued to evolve alongside sci-tech advancements.

Launched in 2019, the *International Journal of Extreme Manufacturing (IJEM)* became the first journal to specifically address extreme manufacturing science and technology in the world. Serving as a hub for experts worldwide, *IJEM* concentrates on manufacturing with extreme characteristics, fosters communication across disciplines, and promotes multidisciplinary integration and innovation in the frontiers of extreme manufacturing.

Publishing cutting-edge research
IJEM keeps pace with international trends in sci-tech development, maintains close ties with leading research teams and facilitates the widespread dissemination of their breakthroughs.

For example, in addressing the significant challenge of conducting rapid non-destructive testing at extremely high temperatures in aerospace, metallurgy and various other fields, academician Jiang Zhuangde's team from Xi'an Jiaotong University first achieved temperature measurements up to 1,200 °C using a flexible thin film sensor in 2022, breaking the limits of existing flexible temperature sensors.

To ensure the rapid dissemination of this significant breakthrough, *IJEM* assisted the authors in refining their manuscript before submission and offered a fast track for peer review.

Driving revolution in manufacturing paradigms

Extreme manufacturing in today's world indicates utilizing advanced manufacturing technologies and high-end equipment to enable the fabrication of extreme-scale, high-precision, and high-performance structures, devices or systems, as well as scientific lab equipment that can simulate extreme physical environments or conditions.

It involves multidisciplinary fields, including machinery, materials, optics, physics, chemistry, mechanics and mathematics, integrating the fundamentals and applications of a pioneering and exploratory nature. Recognizing the crucial role that leading journals play in advancing disciplines and driving technological innovation, *IJEM* organizes conferences and special issues.

For example, acknowledging the importance of high-performance manufacturing in meeting the significant high-performance demands for high-end equipment and components, *IJEM* has organized international academic webinars



Guo Dongming. (COURTESY PHOTO)

on this critical emerging manufacturing concept, supported by the China Association for Science and Technology (CAST).

IJEM has also organized a special issue with publications from esteemed institutions like the Massachusetts Institute of Technology, Tsinghua University and Dalian University of Technology. From foundational theories to manufacturing techniques and performance assessments, this collection investigates significant advancements and future directions for extreme manufacturing.

Furthermore, the journal advocated for promoting high-performance manufacturing through policy recommendations submitted to the CAST.

Serving manufacturing academia

Extreme manufacturing remains abreast of trends and pioneers new frontiers. Cooperating with leading institutions, *IJEM* established the Extreme Manufacturing Institution of the Chinese Mechanical Engineering Society, aiming to consolidate academic resources, bridge industry-academia gaps, and advance extreme manufacturing.

Additionally, a series of *IJEM* conferences have been arranged, and collaboration with other prestigious international conferences such as the International Manufacturing Conference in China has been maintained. These forums are dedicated to exploring cutting-edge manufacturing topics, where global scientists convene to discuss advancements.

Furthermore, the academic platform provides a channel for recommending experts to contribute to the manufacturing roadmaps addressing manufacturing frontiers and significant demands.

Today, the advancement of both our society and standard of living requires us to delve into this new world. Serving as the editor-in-chief of *IJEM* is both a great honor and a significant responsibility.

Guided by fellow researchers worldwide, *IJEM* endeavors to improve the journal's service quality and scholarly impact, contributing to the advancement of manufacturing and broader scientific and technological progress.

The author is an academician of the Chinese Academy of Engineering, and editor-in-chief of the International Journal of Extreme Manufacturing.

Journal Review

Innovation in manufacturing technology has brought new tools, products and discoveries, thus promoting the progress of civilization and the development of society. Human beings have never stopped pursuing further exploration, and various extreme environments have put forward new requirements for manufacturing technology.

Oriented to the forefront of manufacturing fields, including extreme conditions, environments and materials, *IJEM* has broken the boundaries of disciplines, providing a new communication platform for researchers worldwide who are committed to pioneering extreme manufacturing technology.

Since its inception, its influence has steadily grown, with its impact factor increasing year by year. *IJEM* has now established itself as an important journal in the realm of manufacturing technology.

—Shen Zhesi
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