

Let Engineering Science and Technology Create a Better Future for Humankind

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H.E. XI Jinping



Ladies and Gentlemen, Dear Friends,

The International Conference on Engineering Science and Technology is held in Beijing in this beautiful season. It is a great gathering of the engineering science and technology communities of China and the world. I appreciate the opportunity to meet engineering experts from all over the globe and listen to your insights about the development of engineering and the future of humankind.

First of all, on behalf of the Chinese government and people as well as in my own name, I would like to extend hearty congratulations on the opening of this conference and the CAETS meeting, and a most sincere welcome to all the participants!

Engineering science and technology is closely related to the development of humankind. Review the past, and we will know the future. A survey of human civilization shows that the

existence of humankind is linked to the development of productive forces, which has been powered by, among other things, the advances in engineering science and technology. Engineering benefits humankind; science and technology create the future. Engineering science and technology is a significant force that shapes the world; it originates from the needs in life and helps to improve human life. History tells us that engineering innovation has moved history forward at a fast pace and provides inexhaustible energy for human progress. It has been behind the transition from the dark age to civilization, from a nomadic way of life to agrarian and industrial society and to the information age.

Down the ages, humankind has created numerous engineering wonders. Many of them still stand and bear witness to the chronicle of human civilization. Ancient architectural miracles like the Pyramids of ancient Egypt, the Parthenon of ancient Greece, the Colos-

seum of ancient Rome, the Sun Temple of the Americas, Angkor Wat of Cambodia and Taj Mahal of India; major technological breakthroughs made by China such as paper-making, gunpowder, printing and compass; massive projects like the Great Wall, Dujiangyan Dam and Beijing-Hangzhou Grand Canal—these are all important symbols of human civilization that have had far-reaching impact on the evolution of world history.

In the modern era, engineering science and technology has directly connected scientific discoveries with industrial development and it has become a major driving force of economic and social development. Every industrial revolution was inseparable from a technological revolution. In the 18th century, the steam engine triggered the first industrial revolution and led to a great leap from hand-labor to the use of machines in production, ushering humankind into the age of mechanization. From the end of the 19th century to the first half of the 20th century, electric engine and chemical engineering triggered the second industrial revolution and pushed humankind into the age of electrification, atomic energy and aerospace, greatly improving the level of productive forces and standard of life, shrinking the spatial and temporal distance between countries, regions and peoples, and making the world “a global village”. In the second half of the 20th century, information technology triggered the third industrial revolution that enabled social production and consumption to shift from industrialization to automation and smart solutions, again greatly enhancing productive forces and labor productivity. As we have seen, every major breakthrough in engineering created a profound revolution in productive forces and pushed human civilization to a higher level.

President of the People's Republic of China

At the International Conference on Engineering Science and Technology 2014 (ICEST 2014) June 3, 2014 (Photo by Xinlei Pang, Xinhua)

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Throughout the 60 years of the People's Republic of China and the last 30 years of reform and opening-up, the Chinese economy and society witnessed fast development, thanks in no small part to innovations in engineering science and technology. A series of major engineering achievements such as nuclear bombs, man-made satellite, manned spaceflight and exploration of the moon have significantly enhanced the national strength and international status of China. A large number of mega-projects including the Three Gorges Dam, west-to-east gas pipeline, west-to-east power transmission, south-to-north water diversion, Qinghai—Tibet Railway and high-speed railways have significantly strengthened China's basic, manufacturing and emerging industries and quickened the pace of our modernization. Advances in agricultural science, population and health, resource and environment, public security and disaster prevention and reduction have greatly improved the standard and quality of life for more than 1.3 billion Chinese and brought about historic changes to China and the morale of the Chinese people.

Engineering science and technology has touched virtually every aspect of human life. From railways to bridges and dams, from cars to planes, from spaceships to ocean liners, from telecommunications to machinery, automatic production lines, TVs, telephones and to household appliances such as washing machines, refrigerators, microwave ovens, air conditioners and vacuum cleaners, engineering science and technology has made our work and life so much easier than before.

In the 21st century, engineering science and technology will play an even more prominent role. I had worked in Zhejiang Province for five years and overseen the construction of the 36 km long Hangzhou Bay Bridge. The bridge helped Hangzhou to become a major transportation hub and facilitated the movement of goods, funds and information, which delivered broader socio-economic benefits and catalyzed the growth of the Jiangsu-Zhejiang-Shanghai economic zone. Today, it is increasingly clear that science and technology is indeed the primary productive force; engineering advancement and innovation is playing a more dominant role in driving economic and social development. It is not only a decisive factor pushing productive forces and labor productivity, but also a key force promoting the development of education, culture, sports, health and art.

Ladies and Gentlemen, Dear Friends,

The pursuit of a happy life is the most enduring force driving the progress of human civilization. The Chinese people, like people everywhere in the world, want better education, more stable jobs, more satisfactory income, more reliable social security, improved medical and healthcare services, more comfortable living conditions and more beautiful working and living environment.

Today, the world is turning multi-polar, economic globalization is deepening, culture is as diverse as ever and humankind is fast entering an information society. On the other hand, many global problems, such as food, resource and energy shortage, environmental pollution, climatic anomalies, population expansion, poverty, prevalence of disease and economic crisis, pose severe challenges to human existence and development.

Where can we find the motive power to realize our dream, counter the challenges and create the future? We can only find it from development, reform and innovation. The more resources we consumer, the fewer they will be on our planet. Therefore, the traditional development mode relying on the consumption of large quantities of resources is clearly unsustainable. The number of people leading modern lives will grow fast. If we continue with the current pace of resource consumption, our future will be in doubt. China has over 42 million engineering professionals: They are the most valuable asset for creating a better future of China. Advancing science and technology is a strategic choice for humankind to meet global challenges and realize sustainable development. This puts forward a new mission for the advancement and innovation of engineering science and technology.

A single innovation may lead to a whole new industry and shape or even change the world. Academician Longping Yuan's team invented hybrid rice, which increased China's per mu rice yield to over 800 kilograms and contributed enormously to feeding the over 1.3 billion Chinese people. After being introduced to India, Bangladesh, Indonesia, Pakistan, Egypt, Madagascar and Liberia, it boosted local rice output by 15%–20%, thus helping to ensure food security and reduce poverty in many parts of the world.

Today, discoveries, technologies, products and materials are being updated at ever shorter intervals, engineering innovations keep emerging, social and economic development is generating enormous needs, and the innovation potential of humankind is beyond our imagination. The crossover and integration of information technology, biotechnology, new energy technology and new material technology is creating a new wave of scientific, technological and industrial revolution. This will bring new opportunities for the development of human society. The major breakthroughs in any field of engineering may inject new vitality into the world and unleash enormous change in industry and society.

In the next few decades, a new round of scientific, technological and industrial revolution will dawn upon human society; engineering advancement and innovation will be an important engine driving forward human progress. Information technology is the leading technology that has penetrated all aspects of economic and social life; it will bring about a transition in the economic growth pattern from one dominated by material production and service to one dominated by information production and service and the world economy is entering a new phase led by information industry. Biotechnologies will create new areas of economic growth; gene technology, protein engineering, space utilization, ocean development and new energy and materials will produce a great many innovation results that will expand the space for production and development and increase the standard and quality of human life. Green technology is becoming a key fulcrum for technology to serve society and an important means for building a beautiful planet. The development of energy technology will provide primary solutions for meeting the energy challenge.

The development of engineering science and technology has always been driven by the vision to create a better future for humankind—a historic mission that the global scientific and engineering community must take upon.

Ladies and Gentlemen, Dear Friends,

"A single flower does not make spring, while a hundred flowers bring spring to the garden." Humankind now lives in one and the same global village; all nations are interconnected and interdependent and working with one another like never before; the world is becoming a tight-knit community of shared destiny. The Chinese people share the joy and sorrow of other nations; the dream of the Chinese people is firmly joined with that of other nations.

Today, every country is thinking hard about their future. China has drawn the blueprint for the next phase of its development. Our goals are to double the GDP and per capita income of urban and rural residents from the level of 2010 and build a moderately prosperous society by 2020; and to build a modern socialist country that is strong, prosperous, democratic, civilized and harmonious by the middle of the century. China is deepening reforms in the economic, political, cultural, social and ecological fields and working hard to solve developmental challenges, clear the institutional obstacles hindering economic and social development and create new impetus for development.

China is the biggest developing country of the world; development is the key to solving all of China's problems. To develop, we must give full play to the role of science and technology as the primary productive force. We are implementing an innovation-driven development strategy, making vigorous efforts to promote engineering innovation; and bringing about a shift in our development model from one reliant on input and investment to one driven by innovation. We will continue to implement the strategy of sustainable development, optimize the development pattern of our geographical space, promote resource conservation, strengthen protection of the ecosystem and environment, resolve smog and other problems, and endeavor to build a beautiful China with blue sky, green land and clear water. We will pay high attention to the people's basic necessities and spare no effort to solve the problems relating to their daily life, education, medical services and old-age care so that they will lead more fulfilling lives. We will act as a responsible big country that strives for peaceful development and economic prosperity, which will benefit not just the Chinese people but also the world and the future generations.

Ladies and Gentlemen, Dear Friends,

The soul of engineering science and technology lies in openness. Our time calls for peace, development and win-win cooperation. Increasing the internationalization level of engineering science and technology has become a common understanding of all countries and an important way for them to promote engineering innovation; sharing the fruits of engineering advances is vital to the common development and prosperity of all. We should strengthen international cooperation and learn from and inspire each other to promote the advancement and innovation of engineering science and technology, address common challenges of humankind and realize the common development of all nations.

During more than 30 years of reform and opening-up,

China has built cooperative relationships in science and technology with more than 150 countries and regions, carried out extensive personnel exchange and taken part in many key projects at the cutting-edge of engineering science and technology, such as the International Thermonuclear Fusion Experimental Reactor, the Human Genome Project and the Galileo Project. These have been instrumental to China's economic and social development and progress in engineering science and technology.

I recently visited UNESCO and talked with Ms. Bokova about exchanges and mutual learning between different civilizations. UNESCO has made great efforts in this regard and played a unique role in promoting understanding and cooperation between nations and individuals. International cooperation in engineering science and technology is an important driver of human progress. CAETS is the most important organization in the international community of engineering science and technology. It plays an important role in promoting relevant international cooperation and facilitates the advancement of engineering science and technology in many countries. The Chinese Academy of Engineering has actively conducted productive exchanges with all countries.

The national representatives and academicians and experts present today are international leaders in the field of engineering science and technology. You are messengers who spread engineering science and technology and bridges that pave the way for talent exchange. You have made great efforts to help scientific and technological development and modernization in China. The Chinese government and people would like to express our heartfelt gratitude for what you have done.

The Chinese people love peace and desire development. China will deepen and expand international exchanges and cooperation in the field of engineering science and technology. We stand ready to work with other countries to jointly solve problems and create the future. We will strengthen intergovernmental strategic cooperation in engineering science and technology and support such international exchanges and cooperation with a more open mind. We will also strengthen semi-governmental and non-governmental cooperation and promote exchanges between research institutes, institutes of higher learning, academic organizations, enterprises, cities and scientists. We will strengthen cooperation in major science and technology projects and continue participating in or spearheading large international science and technology cooperation programs beneficial to future development, human health and addressing climate change. We will strengthen engineering science and technology information exchange, establish large database, network system and virtual research center with other countries and international organizations to share information, technology and resources. We will strengthen training of engineering science and technology talents and make international exchange and cooperation an important platform for bringing together first-class scholars and training of top-notch innovative engineering talents.

Engineering science and technology is the wing of humankind to realize dreams and carries people's aspiration for a better life. It can make tomorrow full of hope and the future more brilliant. I hope the engineering experts and scholars of China and other countries will strengthen cooperation and contribute more to the progress of human society.

Thank you.