让工程科技造福

Engineering Technology to Benefit

——在2014年国际工程

– Keynote speech at 2014 International

人类创造未来

Humans and Create the Future

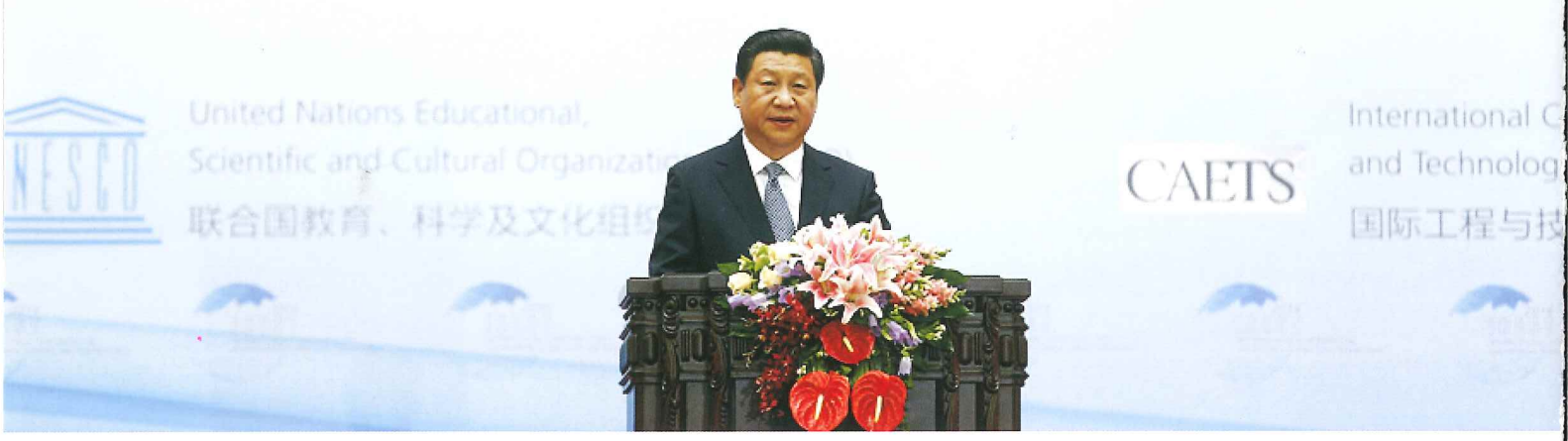
科技大会上的主旨演讲

Engineering Technology Conference

中华人民共和国主席　习近平

The People's Republic of China President Xi Jinping

Engineering and the 工程科技与人类未来



【编者按】国家主席习近平6月3日在人民大会堂出席"2014年国际工程科技大会"并发表主旨演讲，强调工程科技是改变世界的重要力量，发展科学技术是人类应对全球挑战、实现可持续发展的战略选择。还特别指出：新能源等技术的交叉融合正引发新一轮科技革命和产业变革。本刊特此转载全文，以飨读者。

女士们，先生们，朋友们：

在这个美好的时节，国际工程科技大会在北京隆重召开，这是世界工程科技界和中国工程科技界的一件盛事。我很高兴有机会同来自世界各地的工程科技专家学者见面，也很愿意聆听大家对工程科技发展、人类社会未来的高见。

首先，我谨代表中国政府和中国人民，并以我个人的名义，向大会的召开，表示衷心的祝贺！向出席大会的全体代表，表示诚挚的欢迎！向国际工程与技术科学院理事会会议的召开，表示衷心的祝贺！

工程科技与人类生存息息相关。温故而知新。回顾人类文明历史，人类生存与社会生产力发展水平密切相关，而社会生产力发展的一个重要源头就是工程科技。工程造福人类，科技创造未来。工程科技是改变世界的重要力量，它源于生活需要，又归于生活之中。历史证明，工程科技创新驱动着历史车轮飞速旋转，为人类文明进步提供了不竭动力源泉，推动人类从蒙昧走向文明、从游牧文明走向农业文明、工业文明，走向信息化时代。

古往今来，人类创造了无数令人惊叹的工程科技成

[Editor's Note] In his speech delivered on June 3, President Xi Jinping has vowed China will innovate in engineering to realize peaceful and sustainable development. He said advancing science and technology is a strategic choice for mankind to cope with global challenges and realize sustainable development. As the world's biggest developing country, China must give full play to science and technology in development, according to Xi. He also pointed out that the new tech (including the new energy) led to the new round of the tech revolution and industrial change.

Ladies and gentlemen, friends:

In this beautiful season, the international engineering science and technology conference is held in Beijing. This is a good event in the field of the engineering technology in China and the world. I'm glad to meet engineering experts from all over the world and also very willing to listen to everyone's opinions in engineering development and so forth.

First of all, on behalf of the Chinese government and Chinese people, and in my own name, I express our heartfelt congratulations to on the opening of the conference! a sincere welcome to all of the delegates to the conference! I express our heartfelt congratulations on the opening of the meeting of the International Council of Academies of Engineering and Technological Sciences (CAETS)!

Engineering technology is closely related to human survival. Consider. A review of the history of human civilization shows that human survival is closely related with the social productivity development level. In the development of social productivity, engineering technology plays a key role. Engineering tech benefits the humanity, and science and technology creates the future. Engineering technology is the important power to change the world; it comes from the life needs, and serves the life. History proves that engineering technology innovation is rapid with the rotation of the wheel of history and provides the driving force source for human civilization progress. It drives the human society to go from ignorance to civilization, from nomadic civilization to agricultural civilization and industrial civilization, and to the information age.

Through the ages, human beings have created countless amazing

果。古代工程科技创造的许多成果至今仍存在着，见证着人类文明编年史。如古埃及金字塔、古希腊帕提农神庙、古罗马斗兽场、印第安人太阳神庙、柬埔寨吴哥窟、印度泰姬陵等古代建筑奇迹，如中国的造纸术、火药、印刷术、指南针等重大技术创造和万里长城、都江堰、京杭大运河等重大工程，都是当时人类文明形成的关键因素和重要标志，都对人类文明发展产生了重大影响，都对世界历史演进具有深远意义。

近代以来，工程科技更直接地把科学发现同产业发展联系在一起，成为经济社会发展的主要驱动力。每一次产业革命都同技术革命密不可分。18世纪，蒸汽机引发了第一次产业革命，导致了从手工劳动向动力机器生产转变的重大飞跃，使人类进入了机械化时代。19世纪末至20世纪上半叶，电机和化工引发了第二次产业革命，使人类进入了电气化、原子能、航空航天时代，极大提高了社会生产力和人类生活水平，缩小了国与国、地区与地区、人与人的空间和时间距离，地球变成了一个“村庄”。20世纪下半叶，信息技术引发了第三次产业革命，使社会生产和消费从工业化向自动化、智能化转变，社会生产力再次大提高，劳动生产率再次大飞跃。工程科技的每一次重大突破，都会催发社会生产力的深刻变革，都会推动人类文明迈向新的更高的台阶。

新中国成立60多年特别是改革开放30多年来，中国经济社会快速发展，其中工程科技创新驱动功不可没。“两弹一星”、载人航天、探月工程等一批重大工程科技成就，大幅度提升了中国的综合国力和国际地位。三峡工程、西气东输、西电东送、南水北调、青藏铁路、高速铁路等一大批重大工程建设成功，大幅度提升了中国的基础工业、制造业、新兴产业等领域创新能力和水平，加快了中国现代化进程。农业科技、人口健康、资源环境、公共安全、防灾减灾等领域工程科技发展，大幅度提高了13亿多中国人的生活水平和质量，使中国的面貌、中国人民的面貌发生了历史性变化。

时至今日，人类生活各个方面无不打上了工程科技的印记。从铁路横贯、大桥飞架、堤坝高筑、汽车奔驰、飞机穿梭、飞船遨游、巨舰破浪、通信畅通，到成千上万的各种机械、自动化生产线、电视、电话，再到洗衣机、冰箱、微波炉、空调、吸尘器等家用电器，工程科技给人类生产生活带来了空前便利。

engineering tech achievements. Many achievements achieved in ancient times still exist now, witnessing the annals of human civilization. Examples are Egyptian pyramids, Greece Temple, Colosseum in Rome, Indian Sun Temple, Angkor Wat in Cambodia, Taj Mahal in India and other ancient architecture wonders. Also, China's papermaking, gunpowder, printing and compass are major innovations, and China's Great Wall, Dujiangyan, Beijing-hangzhou Grand Canal and other major projects are the crucial factors are symbols for the formation of human civilization, having the impact on the development of human civilization having the far-reaching significance on the historical evolution of the world.

Since modern times, engineering tech has more directly linked scientific findings with industrial development and has become the main driving force of economic and social development. Every industrial revolution is inseparable from technology revolution. The 18th century, the steam engine led to the first industry revolution, causing a major leap from manual labor to dynamic machine manufacturing and letting the human society enter the mechanization era. From the end of the 19th century to the 20th century, motor and chemical engineering triggered the second industrial revolution, letting the human society enter the era of electrification, atomic energy, and aerospace, greatly improving the social productivity and human life level, narrowing the distance between the human beings, between countries or regions, letting the earth become a "village". In the second half of the 20th century, information technology triggered the third industrial revolution, letting the social productivity greatly increase again. Each major breakthrough in the engineering technology can trigger the profound change in the social productivity and promote human civilization to a new higher level.

In 60 years since the founding of new China, especially in 30 years of reform and opening-up, China's rapid economic and social development is attributed to engineering technology as one of innovation drives. A batch of major projects (e.g. nuclear bombs, manned spaceflights, lunar exploration projects and so forth) has greatly promoted the comprehensive national strength and international status of China. A large number of major projects (e.g. The Three Gorges Project, West-east Gas Transfer, South-north Water Diversion, Qinghai-Tibet Railway, high-speed railways and so forth) has greatly promoted the innovation ability and level in China's basic industry, manufacturing industry, and other new industries, accelerating the modernization process of China. The development of the engineering tech in agriculture, population health, resources and environment, public safety, disaster prevention and mitigation and so forth have greatly improved the living standard and quality for more than 1.3 billion Chinese and have resulted in the historic changes in the face of China and Chinese people.

Today, in all aspects of human life, there is an imprint of engineering technology. Examples are railways, bridges, high dams, cars, planes,

进入本世纪以来，工程科技在人类社会发展中的角色愈益突出。我在浙江省工作了5年，亲历了全长36公里的杭州湾跨海大桥的修建。这一工程不仅促进了当地从交通末梢到交通枢纽的飞跃，更通过物流、资金流、信息流的汇聚和扩散影响了经济社会发展各个领域，促进了苏浙沪经济圈发展。可以说，当今世界，科学技术作为第一生产力的作用愈益凸显，工程科技进步和创新对经济社会发展的主导作用更加突出，不仅成为推动社会生产力发展和劳动生产率提升的决定性因素，而且成为推动教育、文化、体育、卫生、艺术等事业发展的重要力量。

女士们、先生们、朋友们！

对幸福生活的追求是推动人类文明进步最持久的力量。享有更好的教育、更稳定的工作、更满意的收入、更可靠的社会保障、更高水平的医疗卫生服务、更舒适的居住条件、更优美的生产生活环境，是中国人民和世界人民的共同梦想。

当前，世界多极化、经济全球化深入发展，文化多样化、社会信息化持续推进。粮食不足、资源短缺、能源紧张、环境污染、气候异常、人口膨胀、贫困、疾病流行、经济危机等诸多全球性难题，对人类生存和发展构成严峻挑战。

实现梦想、应对挑战、创造未来，动力从哪里来？只能从发展中来、从改革中来、从创新中来。地球上的物质资源必然越用越少，大量耗费物质资源的传统发展方式显然难以为继。面向未来，世界现代化人口将快速增长，如果大家依照现存资源消耗模式生活的话，那是不可想象的。中国拥有4200多万人的工程科技人才队伍，这是中国开创未来最可宝贵的资源。发展科学技术是人类应对全球挑战、实现可持续发展的战略选择。这一切，对工程科技

spacecraft, ships, communication devices, all kinds of machinery, automated production lines, TV sets, phones, washing machines, refrigerators, microwave ovens, air conditioners, vacuum cleaners and other home appliances. Engineering technology has brought unprecedented convenience for our humans.

Since entering this century, engineering technology in the development of human society has played an increasingly prominent role. I worked in Zhejiang for 5 years, and witnessed the construction of the Hangzhou Bay Bridge 36 km long. This project not only promotes the leap of the locality from the traffic ending to the transportation hub, but also promotes the development of the economic circle of Shanghai, Zhejiang and Jiangsu including the logistics, cash flow, information flow and so forth. We can say that, in today's world, the role of science and technology has become increasingly important, and the engineering technology progress and innovation play a major role in the economic and social development. The engineering technology is not only a decisive factor to promote the development of social productivity and labor productivity, but also an important factor to promote the development of education, culture, sports, health, art, and etc.

Ladies and gentlemen, dear friends!

The pursuit of happiness of life is the most lasting power to promote human civilization progress. The common dream of the Chinese people and the people of the world is to enjoy better education, more stable job, more satisfactory income, a more reliable social security, higher levels of medical and health services, more comfortable living conditions, and a more beautiful production and living environment.

At present, the world advances in multi-polarization and economic globalization, cultural diversity, social informationization. Global problems such as food shortage, shortage of resources and energy, environmental pollution, abnormal climate, population expansion, poverty, disease epidemic, and economic crisis pose a serious challenge to human survival and development.

Where is the driving force to realize the dream, meet the challenge and create the future? It can be only from developing, from the reform, from the innovation. Material resources will be less and less in the earth. The traditional development mode is clearly unsustainable. For the future, a rapid rise in world population will pose a challenge in the resource consumption. China has more than 4.2 million talents in the field of the engineering technology, and they are the most valuable resource of China. The development of science and technology is a strategic choice

进步和创新提出了新的使命。

一项工程科技创新，可以催生一个产业，可以影响乃至改变世界。袁隆平院士的团队发明了杂交水稻，促进中国粮食亩产提升到800公斤以上，不仅为中国解决13亿多人口吃饭问题作出了突出贡献，而且推广到印度、孟加拉国、印度尼西亚、巴基斯坦、埃及、马达加斯加、利比里亚等众多国家，使那些地方的水稻产量提高15%－20%，为人类保障粮食安全、减少贫困发挥了重要作用。

当今世界，新发现、新技术、新产品、新材料更新换代周期越来越短，工程科技创新成果层出不穷，社会经济发展的需求动力远远超出预测，人类创新潜能也远远超出想象。信息技术、生物技术、新能源技术、新材料技术等交叉融合正在引发新一轮科技革命和产业变革。这将给人类社会发展带来新的机遇。任何一个领域的重大工程科技突破，都可能为世界发展注入新的活力，引发新的产业变革和社会变革。

未来几十年，新一轮科技革命和产业变革将同人类社会发展形成历史性交汇，工程科技进步和创新将成为推动人类社会发展的重要引擎。信息技术成为率先渗透到经济社会生活各领域的先导技术，将促进以物质生产、物质服务为主的经济发展模式向以信息生产、信息服务为主的经济发展模式转变，世界正在进入以信息产业为主导的新经济发展时期。生物学相关技术将创造新的经济增长点，基因技术、蛋白质工程、空间利用、海洋开发以及新能源、新材料发展将产生一系列重大创新成果，拓展生产和发展空间，提高人类生活水平和质量。绿色科技成为科技为社会服务的基本方向，是人类建设美丽地球的重要手段。能源技术发展将为解决能源问题提供主要途径。

for our humans to respond to the global challenge and realize the sustainable development. All of this puts forward a new mission of engineering technology progress and innovation.

Engineering technology innovation can create a new industry, and can influence or even change the world. Academician Yuan Longping's team developed hybrid rice, which can promote the rice yield 800 kg per mu. This technology not only contributes to the development of China, but also is promoted in many countries including India, Bangladesh, Indonesia, Pakistan, Egypt and Madagascar, Liberia and so forth. In these countries, their rice yield has been improved by 15–20%. Thus, it has played an important role in ensuring food security and poverty reduction in the world.

In today's world, the replacement cycle of new discovery, new technology, and new product is getting shorter, while technology innovations emerge in endlessly. The demand of the social and economic development power is far beyond prediction, and the human innovation potential is far beyond imagination. The combination of information technology, biotechnology, new materials, new energy technology and so forth is causing a new round of technological revolution and industrial revolution. This will bring new opportunities to the development of human society. Any of the major breakthrough in the engineering technology can inject new vitality to the world development and trigger a new industrial revolution and social change.

In the coming decades, a new round of technological revolution and industrial revolution will form a historic meeting with the human society development, while the engineering technology progress and innovation will become the important engine to promote the development of human society. Information technology is the first to penetrate into the economic and social life, and will be lead to an economic development mode mainly composed of material production, material service will promote, which is mainly composed of information production and information service. The world is entering the new economy development period dominated by the information industry. Biologically related technology will create a new economic growth point. In the fields of gene technology, protein engineering, space utilization, marine development, new energy, and new materials, there will be a series of major innovations which can expand the production and development space, improve the level and quality of human life. Green technology becomes the basic direction of the science and technology serving the society, and is an important means to build the beautiful earth. Energy technology development will provide the

共创人类美好未来，是工程科技发展的强大动力，全球工程科技人员要切实承担起这个历史使命。

女士们、先生们、朋友们！

“一花独放不是春，百花齐放春满园。”今天，人类生活在同一个地球村，各国相互联系、相互依存、相互合作、相互促进的程度空前加深，国际社会日益成为一个你中有我、我中有你的命运共同体。中国人民和各国人民休戚与共，中国人民的梦想和各国人民的梦想紧紧相连。

现在，各国都在深入思考今后的发展前景。中国已经明确了今后一个时期的发展蓝图，我们的奋斗目标是，到2020年国内生产总值和城乡居民人均收入比2010年翻一番，全面建成小康社会；到本世纪中叶，建成富强民主文明和谐的社会主义现代化国家。中国正在全面深化改革，统筹推进经济、政治、文化、社会、生态文明等领域改革，努力破解发展难题，消除影响经济社会发展的体制机制障碍，不断为发展增添新动力。

中国是世界上最大的发展中国家，发展是解决中国所有问题的关键。要发展就必须充分发挥科学技术第一生产力的作用。我们把创新驱动发展战略作为国家重大战略，着力推动工程科技创新，实现从以要素驱动、投资规模驱动发展为主转向以创新驱动发展为主。我们将继续实施可持续发展战略，优化国土空间开发格局，全面促进资源节约，加大自然生态系统和环境保护力度，着力解决雾霾等一系列问题，努力建设天蓝地绿水净的美丽中国。我们将高度关注民生，着力解决人民的衣食住行、教育、医疗、养老等问题，让人民过上更好的日子。我们将承担负责任大国的使命，通过建设一个和平发展、蓬勃发展的中国，造福中国人民，造福世界人民，造福子孙后代。

女士们、先生们、朋友们！

工程科技的灵魂在于开放，在和平、发展、合作、共赢的时代潮流中，提高工程科技发展国际化水平已成为各国推动工程科技创新的普遍共识和重要手段，共享工程科

main way to solve the energy problem.

Let us build the bright future through the development of engineering technology. The global engineering technology personnel should earnestly shoulder the historical mission.

Ladies and gentlemen, dear friends!

"A single flower does not make a spring, instead, all flowers." Today, human beings live in the same global village. Mutual connection, interdependence, mutual cooperation, mutual promotion are unprecedented. The international community has increasingly become more important for our humans. The Chinese people and people from different countries are positively correlated, while the dreams of the Chinese people and the people all over the world are tightly connected.

Now, all countries are thinking about the development prospect. China has developed a blueprint in the next period. Our goal is, by 2020, the gross domestic product (GDP) and urban and rural residents per capita income will be doubled when compared with that in 2010 and a well-off society in an all-round way will be built; by the middle of this century, will build a prosperous democratic, civilized and harmonious modern socialist country. China is under the comprehensive reform, including the economic, political, cultural, social, and ecological areas. We spend efforts to crack development problems, eliminate barriers to influence the system and mechanism for the economic and social development, and constantly add momentum for development.

China is the world's largest developing country, and development is the key to solve the problems of China. It is necessary to give full play to the role of science and technology as the first production force. We take the innovation development strategy as a national important strategy, strive to promote engineering technology innovation, and realize the innovation-driven development. We will continue to implement the strategy of sustainable development, and optimize the national spatial development pattern, comprehensively promote resource saving, increase the effort for natural ecosystem and environmental protection, strive to solve a series of problems such as fog, and strive to build a beautiful China. We will pay attention to the livelihood of the people, and address the problem in the daily life of the people, including education, health care, pension and other issues, and let people live a better day. We will undertake the mission as a responsible big country, and build a peaceful China which will benefit the Chinese people and the people of the world as well as benefit our future generations.

Ladies and gentlemen, dear friends!

The soul of engineering technology lies in the open. In the peace, development and cooperation, win-win situation, a common consensus and important means in the world are to improve the international level of engineering technology development. Sharing the engineering tech results is an important way to promote common development and common prosperity. By strengthening international engineering technology cooperation, learning from each other and inspiring each other, we can promote engineering tech progress and innovation, cope with the challenge of human beings and achieve common development of all countries.

With more than 30 years of reform and opening-up, China has established the relationship with more than 150 countries and regions in the science and technology cooperation, carried out a wide range of engineering science and technology talent exchange, taken part in the international thermonuclear experimental reactor project, the human genome project, Galileo project and so forth. These play an important

技成果是推动共同发展、促进共同繁荣的重要途径。我们要通过加强国际工程科技合作，相互借鉴，相互启发，推动工程科技进步和创新，应对人类共同挑战，实现各国共同发展。

改革开放30多年来，中国已经同150多个国家和地区建立了科技合作关系，开展了广泛的工程科技人才交流，参与了国际热核聚变实验反应堆计划、人类基因组计划、伽利略计划等一大批反映当代工程科技前沿的重大科技工程，对中国经济社会发展和工程科技进步起到重要促进作用。

前不久，我到联合国教科文组织进行访问，同博科娃女士谈到了世界文明交流互鉴问题。联合国教科文组织在推动文明交流互鉴方面进行了不懈努力，在推动国与国、人与人增进理解、加强合作方面发挥了不可替代的作用。工程科技国际合作是推动人类文明进步的重要动力。国际工程与技术科学院理事会是国际工程科技界最重要的学术组织，在促进工程技术国际合作方面发挥了重要作用，有效促进了各国工程科技进步。中国工程院同各国开展了十分活跃的工程科技交流，取得了很好的效果。

在座各国代表和各位院士专家学者，是国际工程科技界的领军人才，是工程科技传播的使者、人才交流的纽带，你们为中国科技事业和现代化建设付出了心血、作出了贡献，中国政府和中国人民对此表示衷心的感谢！

中国人民热爱和平、渴望发展。中国将在更大范围深化工程科技领域国际交流合作，愿意同世界各国携手努力，共同解决问题，共同创造未来。我们将加强政府间工程科技战略合作，以更开放的胸怀支持工程科技国际交流合作。我们将加强半官方及民间工程科技合作，促进国内外科研机构、高等学校、科技学术组织、企业、城市、科学家个人的交流。我们将加强重大科技工程合作，继续参加或牵头开展对未来发展、人类健康、应对气候变化等更有利的国际大科技合作工程。我们将加强工程科技信息交流，同世界各国和国际性组织共同建立大型工程科技数据库、网络系统和虚拟研究中心等，促进实现信息共享、技术共享、资源共享。我们将加强工程科技人才培养，把国际交流合作作为聚集一流学者的重要平台，联合培养拔尖创新型工程科技人才。

工程科技是人类实现梦想的翅膀，承载着人类美好生活的向往，能够让明天充满希望、让未来更加辉煌。希望中外工程科技专家学者加强合作，共同为人类社会进步作出新的更大的贡献！

谢谢大家。

role for the economic and social development and engineering tech progress of China.

Not long ago, I made a visit to UN's educational, scientific and cultural organization, and talked with Irina Gueorguieva Bokova about the world civilization exchanges and etc. The United Nations educational, scientific and cultural organization has carried on the unremitting efforts in promoting the culture exchanging; and has played an irreplaceable role in promoting understanding between people and countries as well strengthening the cooperation. Engineering technology international cooperation is an important power to promote the progress of human civilization. The International Council of Academies of Engineering and Technological Sciences (CAETS) as the most important academic organization has played an important role in promoting international cooperation and effectively promoted the engineering technology progress in the world. The Chinese academy of engineering has carried out active engineering technology exchange with other countries and has obtained a good result.

Delegates and experts, you are excellent talents in international engineering technology, the angels in the spread of engineering technology, and links of technical exchanges. You have spent a effort and made a contribution for China technology and modernization construction. We Chinese government and people express heartfelt thanks!

The Chinese people love peace and desire for development. China will carry out the broader international exchanges and cooperation in the field of engineering technology, and work with all countries to solve problems and create the future. We will strengthen engineering technology strategic cooperation between the governments and have a more open mind to support international exchanges and cooperation. We will strengthen the semi-official and civil cooperation in engineering technology, promote the exchange in the domestic and foreign scientific research institutions, institutions of higher learning, academic organizations, businesses, cities, scientists and etc. We will strengthen the cooperation in the major technology projects, continue to participate in or organize the international cooperation projects in order to deal with the issues in the climate change, human health, and future development. We will strengthen the exchange in engineering technology with other countries and international organizations to jointly build large engineering technology database, network systems and virtual research centers and etc., promote information sharing, tech sharing, and resource sharing. We will strengthen the engineering technology personnel training, and take the international exchanges and cooperation as an important platform to gather leading experts and so forth.

Engineering technology is the wing for humanity to realize the dream, carries the human yearning for a better life, and can let tomorrow full of hope and the future more brilliant. We hope that the Chinese and foreign engineering technology experts will strengthen cooperation and jointly make new greater contributions for human society progress!

Thank you.