

Engineering the 21st Century Silk Road

A summary of four presentations of the second conference panel, April 13.

by Brian Lantz

The conference heard from four highly qualified speakers of the second panel who provided their specific insights into China's high-technology infrastructure accomplishments and aspects of China's enormous Belt and Road Initiative. A summary of their respective remarks is included here, in the order in which they spoke.

The afternoon panel concluded with a statement from former U.S. Senator Mike Gravel (D-Alaska), who gave a ringing endorsement of the efforts of the Schiller Institute, and praised Lyndon and Helga LaRouche's irreplaceable work in initiating—and working tirelessly for—the New Paradigm, which encompasses the New Silk Road and World Land-Bridge.

China's Revolutions in Transportation

Professor Nie Lei, Dean, School of Traffic and Transportation, Beijing Jiaotong (Transportation) University (BJTU)

Professor Nie provided an expert's overview of China's highly advanced transportation system. Her School notes that it is “the birthplace of Chinese modern transportation education,” with seven departments encompassing 29 research institutes and 39 specialized laboratories.

After Jason Ross's opening presentation, Professor Nie outlined China's revolution in transportation technologies and its emerging, national transport system. First, for her audience, Prof. Nie provided some brief context.

China's rapid economic growth began with the “Opening Up” policy initiated in the late 1970s, but by 1998 the primary reliance on the expansion of road and

air transport was not sufficient to match freight and passenger transport needs, Prof. Nie explained. Crude oil, coal, steel, and wood was spilling over onto already crowded roads and highways; railway stations were “very crowded” with people; and China's cities completely lacked the subway systems that might help relieve growing urban traffic congestion.

It was in this context, she explained, that the central government decided to construct “a modern, comprehensive transportation system utilizing different transportation modes in a coordinated way.”

As a result, to date, China's freeway system is now the largest in the world, at 130,000 km; high-speed rail (HSR) at the end of 2016 stood at about 22,000 km, first in the world; airline transport (passenger and freight) is second in the world; top-rated ports have been enormously expanded for domestic and international trade; pipeline networks now move oil and natural gas; and 25 of China's cities now have subway systems—again ranking China number one in the world, with 31 more urban subway systems under construction or in planning. And China continues to build out its integrated system, with plans reaching to 2030 and beyond. By the response of Professor Nie's American audience, one knew that they were mentally comparing China's profound transformation with the proverbial “potholes” of the decaying U.S. transport grid!

Professor Nie emphasized the advanced research, design, engineering, and construction involved in China's emerging “comprehensive” system. Nowhere is this clearer than in HSR, “which is very complicated,” she noted. China has now built HSR lines that operate in the most extreme climates and over routes varying widely in climate and topology. Special HSR technologies allow trains to operate year round in a wide variety of extreme conditions.

The Lanzhou-Xinjiang HSR operates under condi-

tions in which winds, on the Xinjiang Desert, reach 60 km per hour; the Harbin-Dalian HSR operates in temperatures ranging between 40 and – 40 degrees Celsius. These HSR trains are running at 200-350 km per hour. Similarly, China has developed the knowledge to build 9,000 km of bridges, carrying six rail lines, with HSR trains operating at 300 km per hour!

It is clear that China's scientists, engineers, and technicians have broken new ground in mastering high-speed construction, electrical multiple unit (EMU) traction power supply, operations management, and safety monitoring technologies, to name a few. Tickets? Ticket prices are one-third to one-quarter of those in Japan and Europe. Clearly, the potential of such creative breakthroughs inspired this American audience, both laymen and professionals.

The Potential of Bangladesh

Mr. Faiyaz Marshid Kazi, Counsellor, the Permanent Mission of Bangladesh to the United Nations

Mr. Kazi provided the considered viewpoint of a proud emerging nation, a player in the Asia-Pacific region. While this region is exerting increasing “gravitational pull” on the world economy, Bangladesh, “squeezed” between three economic powerhouses—India, China, and the ASEAN nations of Southeast Asia—has its own advantage of “geostrategic location,” Mr. Kazi pointed out. The future of Bangladesh lies in “connectivity,” as “the cornerstone of regional economic cooperation and integration.”

Bangladesh therefore sees China's Belt and Road as “a grand, exciting initiative,” reported the Counsellor. The Belt and Road Initiative intends to link “Central Asia, South Asia, Southeast Asia, and Africa, bringing Pan-Asian and Eurasian regional cooperation to a new level,” building mutual trust and shared benefits.

Mr. Kazi highlighted the Bangladesh-China-India-Myanmar Economic Development Corridor (BCIM-EC) as a project that can link China's southern provinces to the sea and provide connectivity in energy, transport, and people among the region's nations. (This project was covered in *EIR*, June 24, 2016.) However, he explained, a major hurdle is to harmonize standards of infrastructure across the included nations, as Bangladesh and Myanmar “have a long way to go” to meet China's current, advanced standards. The BCIM-EC

also has the potential to link with the East-West development corridor across Southeast Asia, now supported by the Asian Development Bank. (More on this below.)

Other initiatives referenced by Mr. Kazi included Bangladesh's collaboration with Japan, which is now developing the Bay of Bengal Industrial Growth Belt centered on Matarbari Island, where a major, integrated industrial city and trade hub is to be built. Other regional initiatives are also under way, including the Bangladesh-Bhutan-India-Nepal (BBIN) Initiative, and other projects restoring ties “broken since colonial times.”

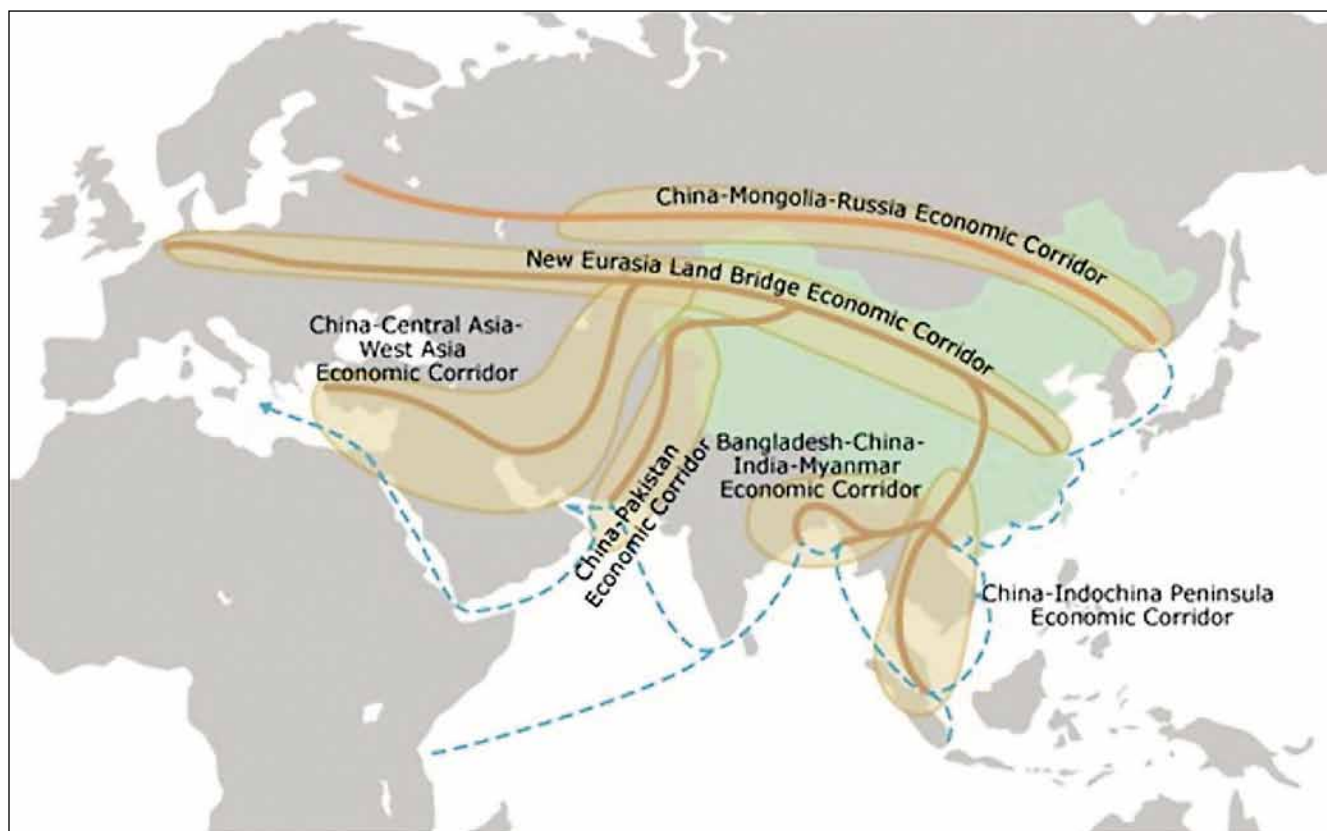
Contrary to western “green” perspectives, Mr. Kazi stated at the outset that Bangladesh views its growing population (now over 160 million in an area roughly that of Wisconsin) as a “demographic dividend,” representing potential markets and developing productive potentials. Over 45 years, Bangladesh has reduced poverty from 80% to 22%. Overcoming the remaining impoverishment depends on “mainstreaming our economy into the regional economies all around” Bangladesh, he concluded.

Sustainability of the Belt and Road

Richard Trifan, Vice President, Government Relations and Trade, The Eurasia Center, Washington, D.C.

A rail logistics expert and promoter of Eurasian and Silk Road international trade with America and the European Union, Mr. Trifan spoke to the “global sustainability” of the Belt and Road Initiative, “of the actual infrastructure, the information flow, and the movement of goods, services, people, and trans-border crossings...” Mr. Trifan emphasized that it is not good enough just to build the New Silk Road—which he compared in its scope to man's effort to master outer space—but that, looking ahead, “the sustainability of the project will be paramount,” given the enormous investment required. Perhaps the most important point of his remarks was that it will be up to each and every nation on the New Silk Road to ensure the the integrity of the entire system, and that sustainability requires “succession planning”—a *multi-generational* process, educating successive generations.

Companies and nations are quite capable of build-



The Belt and Road Initiative: six economic corridors spanning Asia, Europe and Africa.

ing out the complex of systems that are evolving, and the labor for that initial construction can initially be imported or domestic, or a combination of both, Mr. Trifan said. However, in his view, it is most likely that “responsibility for maintaining these systems over time will devolve to the respective nations through which they each pass”—be they rail, energy, or communications systems.

Mr. Trifan emphasized that this must be seen as a “huge impetus” for each nation’s educational programs, and for all nations to collaborate to ensure that sufficient funding is available across the more than 40 nations now being connected. For the Belt and Road to last a specified life cycle—50 to 100 years is Mr. Trifan’s assumption—the required levels of local education must be offered at universities, engineering schools, and secondary and trade schools.

These institutions must be aligned with the development of “design templates” across the system that ensure systematic inspections, maintenance, and required replacements on a timely basis, based on the life cycle of every component (“degradation planning”).

These include rail guideways, signaling in all modes, information systems including satellites, border facilities, and similar planning in other areas such as energy systems, pipelines, and power grids. Issues of “common language” along the systems, building in of vendor warranties, etc., will require a centralized, collaborative decision-making process.

However, this is not a closed, static system. Transformations must be expected. Propulsion is an example. Full electrification, but also diesel, is being employed initially on railways. In the future, maglev propulsion will come into play, and must be integrated and “synchronized.” Here is the singular importance of proceeding, as Jason Ross developed in his opening remarks on the panel, with full recognition that increasing the creative capacities of peoples along the Belt and Road is both the source and intended outcome of creating mankind’s New Silk Road and World Land-Bridge “platform.”

As a delighted conference participant with long experience in banking commented, “Well, we’re not just going to be holding hands and singing *Kumbaya!*”

New Proposals for Regional Cooperation

Dr. Liu Qiang, Director of the Energy Economics Division of the Institute of Quantitative & Technical Economics, Chinese Academy of Social Sciences (CASS), and Professor, Graduate School of CASS

Dr. Liu noted that he came from a small village and saw his first train when his family moved to a nearby town. Now, just 30 years later, he can even come to New York City, perhaps quite often. His point was that the Belt and Road Initiative is the “natural result of Chinese economic development.” “This is the first time in human history that a big country transformed itself from a poor country to a rich country,” Dr. Liu stated, “and this has a big impact on the whole system of the world.” He sees this as the backdrop to the Belt and Road Initiative, so that now “China has enough capability to invest abroad, and to transfer our experience to the whole world, and also our lessons.” This will create new markets for China, which has accumulated a huge capacity in industry and production, allowing China to produce higher quality goods for export, “and we can have common development of nearly half the population of the world,” creating a more stable development of the whole world.

Dr. Liu then reviewed six proposals that he has been involved in making, in the context of the six development corridors of the Belt and Road. He began by outlining his proposal for the development of the “Northeast Asia power grid.” China, Dr. Liu reported, now has a big power generation surplus, and he proposes to export that surplus to nations such as South Korea and Japan. Dr. Liu couched this proposal in terms of a “win-win” substitute for nuclear energy in the aftermath of Fukushima.

EIR notes that while the Northeast Asia power grid may be otherwise viable, a pragmatic, dollar-and-cents decision to substitute natural gas today for the benefits of nuclear energy technologies over the long run, would ignore the durable, “incommensurable” (to borrow from Jason Ross’s presentation on the same panel), qualitative advantages of advancing a full nuclear energy platform for the Belt and Road. It would prevent the required increase in energy-flux density of

power sources. Exactly such an exchange of considered views was central to organizing this very conference.

Dr. Liu explained that China is now working to solve the widespread problem of “dirty energy,” energy sources and technologies that create smog over very large areas of China, particularly in November and December. “We have a big plan to substitute natural gas,” he continued, with natural gas pipelines now coming from Russia and Central Asia, as well as liquified natural gas from Australia and Qatar—and even from the United States. China can thus develop as a major natural gas hub, in the near term. Clearly this view informs the current perspective of Dr. Liu’s Energy Economics Division within CASS.

Dr. Liu outlined a number of additional major projects, which add more breadth and depth to what the Belt and Road Initiative encompasses. Dr. Liu has proposed a North Asia gas market, and also a Greater Central Asia power network, linking to existing grids and utilizing surplus Chinese power generation “to make a big market in the Middle East.” Including Pakistan and Afghanistan in this grid, Dr. Liu added, “can have a very big benefit for peace of the world.”

As an adviser to Pakistan Railways, he proposed the first rail line from Pakistan through Afghanistan to Turkmenistan and its modern city of Marv (Merv), which is also historically important as a city of the ancient Silk Road. A rail line westward from Gwadar Port to reach “large markets in Iran” has also been proposed to Pakistan.

Dr. Liu and his colleagues are also proposing an Indochina Peninsula power network, a project reaching into Laos, Vietnam, Cambodia, and Thailand, and intersecting other corridors along rivers such as the Mekong. Discussions are under way for HSR reaching from Kunming, China to the capitals of Laos and Thailand, which could then be further extended to Malaysia and Singapore. Energy will be a major requirement.

Dr. Liu Qiang explained that for these projects, if agreed upon, “money is not a problem. We have enough capital to invest,” given real economic opportunities that can realize far more. The actual question, he said, is avoiding risks, “and maybe the political risks will be biggest . . . depending on the host countries.” Yet the sense of his remarks in this regard was an optimistic one: These problems happen along the way, and can be overcome.