

BRI 2.0: How to Follow the Call for International Triple-win Cooperation with Sustainable and High-quality Infrastructure Projects?

Siemens AG

I . Introduction

In 2013, Chinese President Xi Jinping introduced the idea of the Belt & Road Initiative (BRI), at the time called “One Belt One Road” (OBOR), with its objectives to improve the connectivity between Asia, Africa and Europe, to foster trade and to support the economic development in countries along this modern Silk Road. Since then, the group of participating countries has grown from originally 69 to more than 100 countries. BRI coverage has even expanded to the regions of Latin-/South America and the Pacific.

More than 3.000 (infrastructure) projects have meanwhile been realized in approx. 80 BRI countries, mainly in the area of power generation, power transmission, renewables, ports, roads, bridges, railways, oil & gas and industry parks. The expenses and investments of those projects are estimated at a total amount of more than 400 billion USD.

In October 2018, BRI celebrated its 5th anniversary. Since 2013, many BRI-related project experiences were made both on the side of Chinese investors and on the side of the receiving BRI countries. In parallel, many globally relevant economic and geopolitical parameters have changes dramatically in the past 5 years.

Therefore it is appropriate at this point in time to review these made experiences and to derive recommendations for future BRI activities in order to turn BRI into a true Tripe Win scenario for all parties involved.

II. BRI 2.0: International triple-win cooperation for sustainable and high-quality infrastructure projects

The level of infrastructure determines the wealth and competitiveness of nations and economies. The production of goods as well a beneficial trade relies on reliable infrastructure, such as e.g. power, transportation, or digital. The economic development and growth of a country as well as its stability depend to a high extent on the given level of infrastructure. With BRI, China shared its idea and vision, to foster cooperation, connectivity, trade and economic growth via realization of infrastructure projects.

Infrastructure is the backbone of a country's economic development and the base for the provision of quality services to its citizens. The development of its infrastructure also defines the competitiveness of an economy, the easiness to connect with other countries and the ability to manage future challenges. Infrastructure projects, as realized within BRI, are usually complex and go along with high-volume and long-term investments. In many countries, the decision for such a project has a deep impact on its future development. The country's needs, plans, specifics and capabilities are to be understood and to be considered in the project definition. This requires a close dialogue with all relevant stakeholders (government, companies, citizens) right from an early stage and the economy of the country of installation is to be integrated into the project realization. An intensive integration of local companies in the design and realization of such

projects creates local jobs and income, supports the increase of competencies and facilitates the project's acceptance within the respective society.

Infrastructure projects are complex with potential risks and pitfalls, especially when realized in foreign countries. The ideal project's solution design is often unique, due to the country's specifics and its given parameters (e.g. existing infrastructure into which the project needs to be integrated, or a country's financial capabilities). Multi-national companies (MNCs) with long-standing international experience and local knowledge as well as a strong economic performance and technological innovation power are a key success factor for BRI. The knowledge of local markets and requirements in current and future BRI countries, gathered in decades of onsite experience, is an asset they can bring to the game. Local value creation, local sourcing, and an established collaboration with local partners is a necessary prerequisite, if Belt and Road aims at bringing tangible value to local societies, e.g. by educating local workforce through dual vocation education and training. On the other hand, naturally, a proven track record of successfully and cooperatively working with Chinese partners, in China and abroad, is just as important. In providing this scarce combination of competences and experiences, such MNCs can truly act as "Bridge Builders" between China, international suppliers, local customers and governments.

Reference case for international cooperation I:

CINER Group Soda Ash Factory in Kazan

China Tianchen Engineering Corporation (TCC) selected Siemens as technology partner for the planning and realization of one of the world's soda ash factories for Turkey's energy

and chemical company **CINER Group**. The project started in 2015 and successfully commenced operations in 2017. After coming into operation, the soda ash factory produces 2.5 million tons of dense soda and 200.000 tons of sodium bicarbonate annually with advanced and environment-friendly methods. Most of these top-quality products are exported to Europe and other regions.



Siemens provided the technical design, equipment and commission for the plants combined heat and power plant (CHP) with an installed capacity of 379 MW. It supplies process steam and electricity to the soda ash plant and surplus in electricity is fed into the grid to power local economy and people's lives.

The Kazan CHP plant, as the source of process steam and electricity, is key to successful operation of the soda ash plant. Siemens supplied a tailor-made cogeneration solution including an SGT5-4000F gas turbine, an SST-800/600 steam turbine, two generators, SPPA T3000 DCS system and related electrical equipment. In addition Siemens' leading industrial drive and control systems are also crucial for stable operation of the soda ash plant.

For the effective implementation of such a complex, far-distance project Siemens dispatched 4 technical field advisors (TFAs) from China to provide technical support in six

disciplines throughout the entire installation and commissioning phase.

The joint project success of the TCC and Siemens at the Kazan Soda Ash Factory created around 2.000 jobs and has boosted exports of Turkey.

In recent months, BRI has been facing a critical and skeptical echo by many countries, not only BRI countries, but also from e.g. the EU and the USA. One main reason for the stated criticism can be seen in the level of available and accessible information on BRI and the related projects. BRI will not only impact China and the country of installation, but will have effects on the economic and social processes on global level. It is therefore essential that BRI relevant information is being shared and thus being made available and accessible on a global scale. A broad information base and increased transparency on BRI projects and participation potentials will facilitate the general understanding and acceptance of BRI as well as the active engagement of global key players.

Another reason of the stated criticism concerns the procurement and bidding process for BRI projects. For non-Chinese companies, it is often difficult to participate in the bidding. With a fewer number of participating contestants in a BRI bidding, the wide range of worldwide experiences and knowledge remains untapped. Furthermore, a fewer or limited circle of bidders naturally lead to a reduced competition and therefore to non-optimal allocation of resources. The number of BRI projects is expected to rise and the nature of BRI infrastructure projects is expected to reach higher levels of complexity. It will become necessary to open the bidding and procurement process to all global market players in order to avoid bottlenecks, misallocation of resources, one-sided risk taking etc.

Reference case for international cooperation II:

Punjab Thermal Power Limited 1263 MW CCPP in Jhang - Pakistan

China Machinery Engineering Corporation (CMEC) cooperates successfully with Siemens in the 1263 MW combined cycle power plant project in Jhang Pakistan. Siemens supports CMEC in the technical design, in the provision of high-quality equipment and in the commissioning of the CCPP. It supplies two units of SGT5-8000H, one unit of SST-5000, two units of NEM heat recovery steam generator, the transformer and switchyard system, the distributed control system (DCS) for the plant and related auxiliary systems.



The project is developed in a fast-track. Therefore, the management teams of Siemens and CMEC formed a steering committee and held regular meetings to monitor the schedule, the product quality and other important issues of the project. This ensures efficient proceeding of the project.

The CCPP will be put into commercial operation in 2019. It will be able to generate over 1.26 million kWh of electricity, which will secure a reliable energy supply to

approx. 4 million households and therefore help to alleviate the long-lasting power shortage in Pakistan.

BRI spans meanwhile more than 100 countries and requires billions of dollars in funding for the large-scale infrastructure projects it entails. The massive financing capital needed for realizing the many BRI projects cannot and should not be covered by one nation alone. The connected risk of the total investments needs to be distributed across many nations and many financial institutions. By increasing the share of (Chinese and international) commercial banks in BRI project financing, the quality of financial planning and execution as well as the healthy competition among lenders will be increased, costs will decrease, as the risks can be shared among a larger community. The increased integration of the international financial community will furthermore foster the understanding, acceptance and sense of responsibility of/for BRI on a global level.

At its 5th anniversary and after more than 3.000 realized projects, BRI is at an early stage by looking at the still existing enormous infrastructure needs worldwide. Implementing certain standards in infrastructure across all countries, improving the connectivity and supporting the competitiveness of economies with infrastructure will continue to generate many more infrastructure opportunities and projects in the future. This task cannot be handled by one nation and one economy alone. Cooperation on different layers (e.g. technology, finance) will become more crucial for a continued success in the realization of the BRI idea.

III. Conclusions & Recommendations

The Belt & Road Initiative (BRI), initiated and driven by China, has the potential foster the peaceful & fruitful cooperation between nations worldwide. One of its pillars is the improvement of infrastructure in order to provide the base for economic development in developing countries and to facilitate the exchange of goods, services and know-how.

In its first 5 years, China undertook tremendous financial and economic efforts in realizing > 3.000 infrastructure projects in more than 80 countries. But even with this high number of realized projects, the infrastructure in many countries is still far away from the level of infrastructure in developed countries. In addition, the number of participating countries in BRI is still growing. It is expected that the demand in quantity and quality of BRI projects will increase and it cannot be managed by one economy (China) alone. Trusted cooperation with experienced international partners (companies, financial institutions etc.) as well as a stronger focus on market mechanisms such as competition and transparency will be key for a successful realization of upcoming BRI projects.

For facilitating this path it is recommended:

- **Continue the intensification of the dialogue with all involved parties** (governments, customers, population) for understanding and considering the various needs, positions and pain points in the planning and realization of BRI projects.
- **Increase the transparency and information on BRI projects** to enable national and international companies to actively introduce their experiences and capabilities in the planning and realization of BRI projects.

- **Actively engage international partners (MNCs) with profound experiences and deep roots in the countries where BRI projects are to be realized.** For a successful BRI project realization a multitude of competences is needed: knowledge of local market needs and specifics, innovative technologies, expertise for the planning and execution of long-term and complex projects, people development skills, and financing capabilities.
- **Open the bidding process on BRI projects** to national and international companies to foster competition and to facilitate the optimization in solution design and resource allocation.
- **Increase the share of sustainable local value add in BRI projects** by including local companies in a responsible and respectful way.
- **Increase the stake of national and international commercial banks in BRI financing** to widen the capital pool, to distribute the financial risks, and to increase the financing quality of BRI projects.