

Research on the Multilateral Cooperation Model under the “Belt and Road” Initiative—A Case Study of Cooperation in the Tumen River Basin

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Abstract: This article takes the Tumen River Basin International Cooperation Zone as its empirical focus and analyzes in detail the evolution of its multilateral cooperation model, structural architecture, and implementation pathways under the Belt and Road Initiative (BRI). It situates the case within broader debates on connectivity governance and the provision of regional public goods. The study finds that the zone has improved coordination across Northeast Asia through a layered institutional design—exemplified by the Greater Tumen Initiative (GTI)—diversified strategic alignment—such as China–Russia linkages around the Arctic Sea Route and synergies with the Republic of Korea’s Eurasia Initiative—and deepened cross-sectoral integration that combines “hard” infrastructure connectivity with “soft” connectivity in rules and standards. Together, these mechanisms have measurably enhanced regional co-governance efficiency. Looking ahead, the zone should prioritize an institution-based opening regime, explore “smart border” demonstration areas that leverage digital governance, and build environmentally sustainable, resilient supply chains. These steps would not only consolidate local gains but also generate a transferable paradigm for BRI-led multilateral cooperation.

1. Introduction

The core vitality of the “Belt and Road” Initiative lies in its innovative practice of multilateral cooperation. Located at the junction of China, Russia, and North Korea, the Tumen River Basin is the geographical fulcrum and strategic pivot for Northeast Asian regional cooperation. Since the United Nations Development Programme (UNDP) led and initiated the Tumen River Area Development Programme in 1991, the region has gradually progressed from bilateral cooperation to a multilateral framework under the Greater Tumen Initiative (GTI), covering China, Russia, Mongolia, and Korea [1]. Following the global promotion of the “Belt and Road” Initiative in 2015, the Tumen River Basin has become a key node in the northbound corridor of the initiative, highlighting its geopolitical value as an “internal link for Northeast and an external connection to Asia-Pacific [2].” This study focuses on this case in order to distill the practical logic behind the multilateral cooperation model under the “Belt and Road” framework and to provide a theoretical

reference for the development of overland cross-border cooperation zones.

2. Evolution of Multilateral Cooperation in the Tumen River Basin

2.1. Cooperation Background and Initiation Phase (1991–2005)

The embryonic stage of multilateral cooperation in the Tumen River Basin emerged in the historical context of the post-Cold War geopolitical restructuring of Northeast Asia. In the early 1990s, following the dissolution of the Soviet Union and the deepening of China's reform and opening-up, Northeast Asian countries began to re-examine the possibilities of regional economic cooperation [3]. Russia's Far East, endowed with abundant natural resources such as oil, natural gas, and timber, had long faced challenges such as underdeveloped infrastructure and population outflow; meanwhile, China's Northeast, as an old industrial base, was at a critical stage of transformation and urgently needed a new channel for opening up to the outside world [4]; North Korea and Mongolia hoped to overcome their economic development constraints by participating in regional cooperation. In 1991, the UNDP keenly identified the development needs of this region and took the lead in launching the "Tumen River Area Development Programme" (TRADP), marking the formal institutionalization of regional cooperation (Direct information refers to the Table 1). In December 1995, China, Russia, North Korea, Korea, and Mongolia signed an agreement at the United Nations Headquarters in New York on the establishment of the Tumen River Economic Development Zone and the Northeast Asia Consultative Committee, thereby constructing a "dual-committee" governance framework—the Northeast Asia Consultative Committee (NEAR) for broad policy coordination, and the Tumen River Development Coordination Committee (under TRADP) for advancing specific project implementation. This phase mainly centered on connectivity in transportation infrastructure, with projects such as the reactivation of the Sino-Russian Hunchun–Manhasset Railway (1999) and the upgrading of the Sino-North Korean Quanhe–Yueting Port. However, due to factors such as the outbreak of the North Korean nuclear crisis (2002) and insufficient policy coordination among the countries, progress remained relatively slow. In 2005, the UNDP ended its direct funding for TRADP, and North Korea also withdrew from the mechanism in 2009, leading to the transition period of the cooperation mechanism [5-6].

2.2. Mechanism Transformation and Strategic Upgrade Phase (2005–2015)

In 2005, TRADP evolved into the Greater Tumen Initiative (GTI), signifying a new stage of mechanism-based development in the cooperation process. This transformation was mainly reflected in three aspects. First, in the realm of institutional development, the GTI passed the "Concept Document on the Transition from a Transitional Mechanism to a Permanent International Organization" in 2014, which for the first time clearly delineated the rights and obligations of member countries, thereby providing a legal guarantee framework for the cooperation [7]. Second, at the local level in China, in April 2012, the State Council approved the establishment of the "China Tumen River Area (Hunchun) International Cooperation Demonstration Zone," innovatively adopting a "port + hinterland" development mode—using Hunchun as a hub to promote projects such as the normalized operation of the Sino-Russian Hunchun–Manhasset Railway (2013) and the opening of a self-driving tour route between China and North Korea (2011)(Direct information refers to the Table 1)[8]. Third, in terms of strategic alignment, Russia introduced its "Far Eastern Socio-Economic Development Strategy until 2025" in 2013, which resonated with China's "Changchitun Development and Opening-Up Strategy" launched in 2009; furthermore, in June 2015, the China-Korea Free Trade Agreement (FTA) was formally signed, reducing trade costs

along the Hunchun–Luo Jin–Busan logistics corridor by about 15% [9]. Notably, during this phase the cooperation focus shifted from solely infrastructure construction to balancing both “hard connectivity” and “soft connectivity,” as exemplified by initiatives such as the pilot “Green Channel” launched by Chinese and Russian customs in 2014 and the establishment of a tourism cooperation mechanism among China, Russia, and North Korea in 2015, paving the way for deeper cooperation in subsequent phases [10].

2.3. Stage of Synergistic Development under the ‘Belt and Road’ (2015-Present)

As we can see from the table below, the further promotion of the “Belt and Road” Initiative has provided both strategic impetus and an institutional platform for cooperation in the Tumen River Basin. In terms of mechanism integration, the GTI has formed a nested cooperative framework with the “Belt and Road” International Cooperation Summit (2017) and the China-Russia-Mongolia Economic Corridor (2016); for example, in October 2017 the maiden voyage of the Hunchun–Zarubino–Niigata shipping route was successfully launched, establishing the first regular land–sea intermodal route connecting China, Japan, and Korea (Direct information refers to the Table 1) [11]. In the field of emerging development areas, China and Russia have incorporated Tumen River cooperation into the “Polar Route” development framework and jointly conducted trial runs of the Hunchun–Zarubino–Arctic route in 2018, making the region a potential hub linking Northeast Asia with the Arctic [12]. From a geopolitical perspective, in 2018 North Korea adjusted its economic development strategy, leading to the signing of an agreement with China on the joint development and management of the Rason Economic and Trade Zone and the economic zones of Huayangping and Wihua Island; in 2019, Russia and North Korea initiated the renovation of the Luo Jin–Hasan Railway project, creating a valuable window for regional cooperation [13–14]. Despite the impacts of the COVID-19 pandemic since 2020, new breakthroughs have continued to emerge: for instance, in 2021 the annual freight volume on the Sino-Russian Hunchun–Manhasset Railway surpassed 4 million tons; and in 2022, China, Russia, and Korea launched a pilot “smart port” project, using blockchain technology to improve customs clearance efficiency by 35% [15]. These developments indicate that cooperation in the Tumen River Basin has evolved from tentative initial interactions to a deeply coordinated regional development platform.

Table 1 Development phases and key events in the multilateral cooperation in the Tumen river basin

Time Span	Core Mechanism	Iconic Event
Key Milestone 1991-2005	TRADP (Tumen River Area Development Programme)	Signing of the Five-Country Agreement (1995)
Transformation Phase 2005-2015	GTI (Greater Tumen Initiative)	Establishment of the Hunchun International Cooperation Demonstration Zone (2012)
Synergistic Phase 2015 to Present	“Belt and Road” + GTI [16]	Maiden voyage of the Hunchun–Zarubino–Niigata shipping route (2017)

3. Core Features of the Multilateral Cooperation Model

3.1. Layered Mechanism Architecture

The multilateral cooperation in the Tumen River Basin employs a layered mechanism architecture, forming a three-tiered governance system comprising high-level strategic coordination, sector-specific dialogues, and local-level implementation. The table below, labeled "Table 2", clearly illustrates the cooperation tendencies of the GTI organization after the "Belt and Road Initiative" was proposed. At the high-level strategic coordination tier, platforms such as the GTI

ministerial meetings and Sino-Russian head-of-state summits (e.g., the “Xi-Putin Meeting”) provide top-level design for regional cooperation and propel the implementation of major cross-border projects. For instance, the Sino-Russian “Binhai 2” International Transport Corridor has been incorporated into Russia’s Far Eastern development planning, greatly optimizing the Sino-Russian cross-border logistics system. At the sector-specific dialogue level, over 20 specialized working groups in areas such as energy, transportation, and tourism have been established to promote specific issues. An example is the joint development of a “circular cross-national tourism route” by China, Russia, and North Korea that has successfully stimulated regional tourism economies through inter-ministerial cooperation in the cultural and tourism sectors. At the local implementation level, pilot projects such as the Rason Economic and Trade Zone between China and North Korea and the Hunchun–Hasan Cross-Border Economic Cooperation Zone between China and Russia have introduced innovative initiatives (e.g., “one-stop customs clearance” and “joint construction of cross-border industrial parks”), significantly enhancing trade facilitation. This composite governance structure effectively reduces institutional friction and fosters coordinated regional development. For example, from 2016 to 2019, the annual freight volume on the Sino-Russian Hunchun–Manhasset Railway increased by an average of 37%, becoming a model of “hard connectivity” in international infrastructure under the “Belt and Road” framework [17].

3.2. Diversified Strategic Alignment

The Tumen River Basin cooperation model emphasizes deep integration with the development strategies of the participating countries, achieving mutual benefit through the principle of “consultation, joint construction, and shared benefits.” Under Russia’s “Look East” strategy, Sino-Russian cooperation has extended to the development of the Polar Route, and leveraging the Tumen River port clusters (e.g., the ports of Rason and Zarubino) has helped to carve out a new outlet for Eurasian land bridge logistics, facilitating Sino-Russian trade volumes to exceed USD 100 billion in 2019. Meanwhile, cooperation between China and Korea has fully utilized the framework of the China-Korea Free Trade Agreement (FTA) to launch a container shipping line linking Hunchun, Rason, and Busan, thus promoting the cross-border division of labor in industries such as electronics and textiles and creating a synergistic effect in regional supply chains [18]. In addition, by aligning with Mongolia’s “Grassland Road” strategy, joint construction of the “Two Mountains Railway” (from Arxan to Qiaobashan) has connected the Tumen River’s maritime outlet with Mongolia’s mineral zones, shortening transportation distances by approximately 1,500 kilometers and significantly enhancing logistics efficiency. This diversified strategic alignment model fully respects the development needs of the various countries, avoids the imposition of unilateral rules, and reinforces the sustainability of regional cooperation [19].

3.3. Multidimensional Sectoral Integration

Cooperation in the Tumen River Basin has expanded from traditional infrastructure “hard connectivity” to include domains such as regulatory, cultural, and ecological integration—thus forming a more comprehensive pattern of coordinated development (Direct information refers to the Table 2)[20]. In the realm of infrastructure, projects such as the Hunchun–Changchun Express Railway (put into operation in 2017) and the Hunchun–Ulan Expressway (completed in 2010) have built a domestic network for material distribution, while renovation projects on the Sino-Russian Hunchun–Manhasset Railway and the Sino-North Korean Yueting–Rason Highway have enhanced the transport capacity of international corridors. On the “soft connectivity” front, innovations have been implemented in customs clearance, for instance, the use of a “single window” electronic clearance mode by Chinese and Russian customs and the mutual recognition mechanism for AEO

(Authorized Economic Operator) certification between China and Korea, which has reduced enterprise compliance costs by 27% and markedly improved trade facilitation [21]. In terms of cultural exchange, initiatives such as the establishment of sister-city relationships between Yanbian and Russia's Khasan District as well as Korea's Gangwon Province, along with cross-border cultural and tourism events (e.g., ethnic festivals of the Korean minority and winter tourism festivals), have strengthened people-to-people ties. Furthermore, cooperation in emerging fields is continuously deepening—for example, the joint creation of the Northeast China Tiger and Leopard National Park by China, Russia, and North Korea as a pilot for cross-border ecological compensation, and the implementation of a “smart border” project by China and Korea that leverages blockchain technology to achieve traceability in logistics and improve the transparency of cross-border supply chains. This multidimensional integration model not only consolidates the material basis of regional cooperation but also strengthens social consensus and sustains long-term development.

Table 2 Selected declarations of the greater Tumen initiative since the proposal of the “belt and road”—up to 2025

Declaration Title	Date of Adoption	Major Content
Yanbian Declaration	September 17, 2014	Reaffirms the enhancement of the GTI cooperation platform; plans to complete the legal transition to an independent intergovernmental organization by May 2016; clarifies priority areas such as transportation, trade, and investment; and welcomes the participation of Japan and North Korea [22].
Moscow Declaration	June 29, 2017	Proposes a strategic action plan for 2017–2020, emphasizing cooperation in transportation infrastructure and trade and investment; promotes alignment with initiatives such as the “Belt and Road” and explores the establishment of project offices [23].
Ulaanbaatar Declaration	June 22, 2018	Advocates for the transformation of the GTI into an intergovernmental organization; supports the Pan-Korean Peace Declaration; and calls for enhanced cooperation with North Korea and Japan, including the launch of specific projects in transportation and tourism [24].
Changchun Declaration	August 22, 2019	Proposes the construction of an open Northeast Asian economic circle; pushes for the transformation of the GTI into an independent international organization; and focuses on the liberalization of trade and investment, infrastructure inter-connectivity, and sustainable green development [25].
Moscow Declaration	November 23, 2021	Aims to maintain online collaboration in the context of the pandemic; focuses on sustainable finance and green development; promotes energy cooperation (including hydrogen energy and regional grid interconnection); and approves an agricultural cooperation strategic action plan [26].
Shenyang Declaration	December 6, 2023	Establishes a roadmap for digital economic cooperation, emphasizing digitalization and paperless trade; hosts seminars on hydrogen energy cooperation; explores the role of local cooperation committees; and strengthens regional collaboration [27].
Seoul Declaration	December 9, 2024	Formulates the strategic action plan for 2025–2029, underscores the importance of digital economy and supply chain resilience; promotes the establishment of an integrated logistics network in Northeast Asia; and addresses low-carbon transition and biodiversity protection in environmental cooperation [28].

3.4. Targeted Strategies for Key Sector Breakthroughs

3.4.1. Mechanism Improvement and Innovation

In line with the high-quality development of the "Belt and Road Initiative", the cooperation in the Tumen River Basin needs to undergo systematic optimization at the institutional level. Firstly, the legal status of the GTI should be upgraded. It should evolve from an existing non-binding dialogue platform to a more effective international organization. With the joint efforts of the member countries of GTI, those countries can sign the GTI Free Trade Agreement to reduce

regional trade barriers, and establishing a joint financing fund to attract institutions such as the Asian Infrastructure Investment Bank and the Silk Road Fund to participate in cross-border infrastructure projects through the PPP model. Secondly, innovative cooperation models can be adopted by river basin countries. Considering the special circumstances of North Korea, a "flexible participation" mechanism can be designed. It allows it to join the joint management zone through a "limited sovereignty transfer" approach. Referencing the "one zone, two countries" model of the China-Kazakhstan Horgos International Border Cooperation Center, a pilot "one zone, three countries" management can be implemented to enhance the inclusiveness of the cross-border economic cooperation zone in order to enhance political mutual trust [29-30]. The "Belt and Road" Think Tank Cooperation Alliance can be relied upon to conduct second-track diplomacy. China is capable and is willing to set an example to organize Northeast Asian security dialogues, invite academia, business community, and former politicians to participate, and use non-official channels to alleviate strategic suspicions, creating a more stable environment for inter-governmental cooperation.

3.4.2. Strategies for Breakthroughs in Key Areas

To improve the effectiveness of cooperation in the Tumen River Basin, precise breakthroughs in key areas are necessary. In addressing the challenges related to securing maritime outlets, a short-term measure could involve taking equity stakes in ports on the Russian-North Korean border (such as Terminal 3 at Rason Port) and signing long-term lease agreements to ensure stable Chinese logistics corridors; in the medium term, modernizing the Russian-North Korean railway bridge should be promoted, with joint investments from Japan and Korea to construct a 30-meter-high highway bridge that would enhance cross-border transportation capacity. In the field of the digital economy, a "Digital Tumen River" cross-border trade blockchain platform could be established to pilot the settlement of digital currencies, reduce transaction costs, and build a Northeast Asian digital free trade hub to attract high-tech enterprises. In terms of green development, integrating Mongolia's wind and solar resources with China's photovoltaic technology to jointly build low-carbon energy bases, while also developing cross-border eco-tourism corridors and promoting "Northeast Tiger and Leopard Ecological Label" products, could organically combine ecological protection with economic development, yielding a sustainable new model of regional cooperation.

3.4.3. Construction of a Risk Prevention System

To ensure the long-term stability of cooperation in the Tumen River Basin, it is essential to build a multi-level risk prevention system. To address geopolitical risks, for example, a "Key Project Political Risk" scheme could be set up, in collaboration with institutions like the Asian Infrastructure Investment Bank and the Eurasian Development Bank, establishing a risk compensation pool to hedge against risks for key infrastructure projects. Concerning ecological security, a "Tumen River Basin Cross-Border Environmental Standard" should be formulated, along with the establishment of cross-border joint monitoring stations for pollution to facilitate data sharing and coordinated governance, thereby avoiding environmental conflicts resulting from development activities. Moreover, a conflict prevention mechanism should be established by urging member states to sign a "GTI Emergency Consultation Agreement" to ensure that even in the event of sudden incidents (such as pandemics or border conflicts) border crossing rights can be maintained, thereby safeguarding the stability of regional supply chains. Through systematic risk prevention, the resilience of regional cooperation can be enhanced, providing a solid guarantee for high-quality development under the "Belt and Road."

4. Conclusion

The multilateral cooperation practice in the Tumen River Basin, as an important pillar of the “Belt and Road” Initiative in Northeast Asia, has successfully explored an innovative development path for overland cross-border cooperation through layered mechanism design, diversified strategic alignment, and multidimensional sectoral integration. The study shows that the region’s cooperation has not only promoted the parallel advancement of infrastructure “hard connectivity” and regulatory/standards-based “soft connectivity,” but has also provided invaluable experience for overcoming geopolitical constraints and enhancing regional synergy by fostering institutional openness and exploring pilot projects in emerging fields such as “smart borders” and green industrial chains. However, in the face of infrastructural bottlenecks and geopolitical sensitivities, future cooperation needs to further strengthen mechanism innovation—such as advancing the transformation of GTI into a permanent international organization and deepening demonstration projects in areas like smart borders and green industrial chains—while also constructing a multi-level risk prevention system. The experience of the Tumen River Basin suggests that the vitality of multilateral cooperation lies in the inclusive integration of differentiated development needs and the dialectical unity of “hard connectivity” and “soft connectivity.” This case not only provides a paradigm for cross-border cooperation under the “Belt and Road” framework but also injects renewed momentum into the process of Northeast Asian regional integration—ultimately contributing to the long-term goal of building a community with a shared future for mankind.

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