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INTELLECTUAL PROPERTY LAWS IN THE CONTEXT OF THE CHINA-PAKISTAN ECONOMIC CORRIDOR (CPEC): OPPORTUNITIES, CHALLENGES, AND PATHWAYS FOR ENHANCED COOPERATION

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Abstract
The China-Pakistan Economic Corridor (CPEC), a flagship component of China's Belt and Road Initiative (BRI), has emerged as a transformative framework for economic cooperation between Pakistan and China, emphasizing infrastructure, energy, industrial zones, and technology transfer. Within the broader context of the Shanghai Cooperation Organization (SCO), which promotes regional economic integration and stability (Zingel, 2020), CPEC facilitates expanded trade, special economic zones (SEZs), and technological advancement. However, as CPEC evolves into high-value sectors involving innovation and knowledge transfer, robust intellectual property (IP) protection becomes critical. This article examines Pakistan's IP legal framework, its alignment with international standards like TRIPS, and specific implications for CPEC projects. It highlights bilateral cooperation mechanisms, such as the MoU between Pakistan's Intellectual Property Organization (IPO) and China's National Intellectual Property Administration (CNIPA), challenges including enforcement gaps and counterfeiting, and opportunities in SEZs. Drawing on recent developments as of December 2025, including updated IP tribunals and enforcement systems, the analysis underscores how strengthened IP regimes can enhance investor confidence, foster technology spillovers, and support sustainable regional integration. Recommendations focus on policy reforms, joint initiatives, and accession to international treaties to maximize CPEC's benefits (Zahra, 2018).

INTRODUCTION

The Shanghai Cooperation Organization (**SCO**) provides a multilateral platform for security and economic cooperation among its members, including Pakistan and China, with goals of promoting trade, infrastructure, and technological progress in a stable environment (You, 2019). Central to Pakistan's engagement in this framework is the China-Pakistan Economic Corridor (**CPEC**), a flagship project of China's Belt and Road Initiative (BRI) that links Gwadar in Pakistan to Kashgar in China through an extensive network of highways, energy projects, special economic zones (SEZs), and digital infrastructure. Described as a collection of short-, medium-, and long-term initiatives, CPEC aims to upgrade power infrastructure, improve communications, enhance agriculture, and reduce poverty while strengthening bilateral ties and fostering regional integration (Ul, 2020).

As of late 2025, CPEC has entered a transformative Phase II, formally launched at the 14th Joint Cooperation Committee (JCC) meeting in Beijing in September 2025. This phase shifts focus from primarily infrastructure development to industrialization, modern agriculture, information technology, green energy, and people-centric growth, aligning with Pakistan's "5Es" framework (Exports, Energy, Equity, Empowerment, and Environment) and China's emerging priorities in its 15th Five-Year Plan(Wang, 2017). Key outcomes include agreements on an updated Long-Term Plan (2017-2030), new projects in SEZs like Rashakai and Allama Iqbal Industrial City, and emphasis on business-to-business collaborations, technology transfer, and sustainable development. Investments have surpassed $65 billion cumulatively, with Phase II promising job creation, export boosts, and deeper integration into SCO's broader economic corridors (Sharif, 2019).

However, as CPEC progresses into high-value sectors involving advanced technologies such as renewable energy systems, digital connectivity, agro-tech innovations, and manufacturing processes, intellectual property (**IP**) laws gain unprecedented prominence. Chinese investments introduce proprietary technologies, engineering designs, software, and branded solutions, necessitating robust protections against infringement, counterfeiting, or unauthorized replication to encourage genuine knowledge transfer and joint innovation. Without effective IP safeguards, investor confidence could erode, limiting technology spillovers that are vital for Pakistan's industrial upgrading and SCO-mandated scientific advancement (Wolf, 2020).

Pakistan's IP regime governed primarily by the Intellectual Property Organization Act 2012 and aligned with the Trade-Related Aspects of Intellectual Property Rights (**TRIPS**) agreement since its WTO accession in 1995 (Abbas & Liu, 2019), offers foundational safeguards through ordinances on patents, trademarks, copyrights, and industrial designs (Abbas, 2016). The Intellectual Property Organization of Pakistan (IPO-Pakistan) serves as the centralized authority for registration and coordination. Recent 2025 developments reflect ongoing reforms: new IP tribunals have been established or approved in cities like Quetta and Rawalpindi, expanding specialized adjudication; digital initiatives, such as e-filing systems and the planned Intellectual Property Rights Enforcement Complaint Management System (IPRE-CMS), aim to streamline processes and improve tracking; and enforcement coordination with agencies like police, the Federal Investigation Agency (FIA), and customs has been bolstered (Ahmad & Singh, 2017).

Yet, persistent enforcement challenges including judicial delays, limited specialized expertise, widespread counterfeiting (particularly in pharmaceuticals and consumer goods), digital piracy, and resource constraints potentially undermine investor confidence and the full realization of CPEC's innovation-driven potential (U.S. Department of State, 2025). Bilateral cooperation mechanisms, such as the longstanding MoU between China's National Intellectual Property Administration (CNIPA) and IPO-Pakistan, provide avenues for capacity building and joint enforcement, especially relevant for SEZ projects (Ahmad & Batnaghar, 2019).

This article explores IP in the CPEC context, linking it to SCO's economic goals of trade liberalization, infrastructure development, and technological progress (Arrafat, 2020). It analyzes Pakistan's evolving laws, bilateral and multilateral cooperation frameworks, and incentives in SEZs, enforcement challenges, and key 2025 updates. By addressing these dimensions, the discussion highlights how a strengthened IP ecosystem can enable Pakistan to leverage CPEC for sustainable, innovation-driven growth, contributing to regional stability and prosperity within the SCO framework. Ultimately, effective IP protection is not merely a legal obligation under TRIPS but a strategic imperative for transforming CPEC into a corridor of shared technological advancement and mutual economic empowerment (Ali, 2015).

Overview of CPEC and its link to SCO Economic Objectives

CPEC, integral to SCO's vision of regional connectivity and trade liberalization (Javed & Ahmad, 2016), has seen investments exceeding $65 billion by 2025, spanning energy, transport, and SEZs. The project's Long-Term Plan (2017-2030) emphasizes industrial cooperation, technology transfer, and mutual prosperity. SEZs, such as Rashakai, Allama Iqbal Industrial City, and Dhabeji, offer tax incentives and streamlined regulations to attract Chinese firms in high-tech sectors. Within SCO, Pakistan's membership facilitates preference for member trade, aligning with CPEC's goal of extending benefits to Central Asia. However, realizing these—through infrastructure maintenance, agricultural improvements, and scientific advancement—requires protecting innovations transferred via joint ventures (Kalim, 2020).

Pakistan's Intellectual Property Framework and TRIPS Compliance

Pakistan's IP laws, modernized post-TRIPS accession, include the Patents Ordinance 2000, Trademarks Ordinance 2001, and Copyright Ordinance 1962 (amended 2000). The IPO Act 2012 established the Intellectual Property Organization of Pakistan (IPO-Pakistan) as a centralized body for registration and coordination (Khan & Ahmad, 2018).

Key protections:

i. **Patents**: 20-year term for inventions, with national treatment for foreigners.
ii. **Trademarks**: Registration prevents counterfeiting in CPEC brands.
iii. **Copyrights**: Safeguard software and technical designs.
iv. **Enforcement**: IP tribunals in major cities, expanded in 2025 to Quetta and Rawalpindi, with plans for more (U.S. Department of State, 2025).

By 2025, IPO launched the Intellectual Property Rights Enforcement Complaint Management System (IPRE-CMS) for digital tracking, improving coordination with police, FIA, and customs (IPO-Pakistan, 2025). Pakistan's Global Innovation Index ranking improved, reflecting gradual reforms (WIPO, 2023). In CPEC, these laws enable Chinese firms to register IP locally, protecting technologies in energy plants and SEZs (Shah & Zakir, 2023).

Bilateral IP Cooperation between Pakistan and China under CPEC

China-Pakistan ties, rooted in SCO's shared history (Khan & Ali, 2018), extend to IP. A 2017 MoU between China's CNIPA (formerly SIPO) and IPO-Pakistan promote information exchange, capacity building, and joint enforcement. The China-Pakistan Free Trade Agreement (CPFTA, Phase II 2019) includes IP provisions for cooperation. In SEZs, incentives like 10-year income tax exemptions indirectly support IP by attracting tech-intensive investments.

Examples: Hybrid seed trials and agro-tech transfers raise IP concerns, as rights prevent seed saving, impacting farmers (Grain, 2025). Strengthened bilateral mechanisms address such issues. China's IP evolution—from perceived weak protection to global leader in patents—influences expectations for reciprocity in CPEC (Nazneen & Xu, 2019).

IP Protection in CPEC Special Economic Zones

CPEC prioritizes nine SEZs for industrialization. The Special Economic Zones Act 2012 (amended) offers exemptions from duties and taxes on capital goods, fostering environments for tech transfer. IP in SEZs:

i. Registration mandatory for enforcement.
ii. Incentives encourage licensing proprietary technologies.
iii. Challenges: Potential reverse-engineering in joint ventures.

Proposed reforms include enhanced FET standards in investment agreements for Chinese investors (2024 analysis). Robust IP attracts FDI in high-value sectors like IT and renewables.

Challenges in IP Enforcement within CPEC

Despite frameworks, enforcement gaps hinder CPEC:

i. High counterfeiting rates erode trust.
ii. Judicial delays and limited specialized judges.
iii. Low awareness fuels infringements.
iv. In SEZs, security risks compound IP theft concerns.

BRI-wide issues, like disputes in weaker regimes, apply to Pakistan (Yu, 2019). Digital advancements exacerbate unauthorized reproduction of CPEC software/designs. 2025 U.S. reports note progress but persistent inconsistencies (U.S. Department of State, 2025).

Opportunities for Technology Transfer and Innovation

Strong IP enables spillovers: Chinese firms license tech to locals, boosting agriculture and manufacturing (Rimmer, 2018). Joint labs and research centers under CPEC promote protected collaboration.

Accession to treaties like PCT and Madrid Protocol facilitates international protection. Common Interests initiative proposed for shared legislative approaches 2018. In SCO context, IP cooperation counters terrorism/drug threats by fostering legitimate economic channels.

Current developments of 2025

i. New IP tribunals and IPRE-CMS enhance enforcement (IPO-Pakistan, 2025).

ii. UK review recommends bilateral cooperation (UKIPO, 2025).

iii. CPEC Phase II emphasizes green tech, requiring IP for innovation.

Recommendations

To fully harness the transformative potential of the China-Pakistan Economic Corridor (**CPEC**) within the Shanghai Cooperation Organization (**SCO**) framework for economic integration, technological advancement, and sustainable development, Pakistan must adopt a multifaceted strategy to strengthen its intellectual property (IP) regime. These targeted recommendations address current gaps in enforcement, international alignment, and regional cooperation, building on recent 2025 reforms while promoting investor confidence and innovation-driven growth. Implementing these steps will not only bolster investor confidence amid CPEC Phase II's focus on industrialization and green technologies but also contribute to sustainable, inclusive growth across the SCO region (Kalim, 2020).

i. **Enhance Enforcement Mechanisms**: Expand specialized IP tribunals beyond the existing ones in Karachi, Lahore, and Islamabad to include newly established facilities in Quetta covering Balochistan and Rawalpindi, as outlined in the 2025 Investment Climate Statement (U.S. Department of State, 2025). Provide targeted training for judges on CPEC-specific issues, such as technology transfer in special economic zones (SEZs) and digital IP disputes. Fully operationalize and integrate the Intellectual Property Rights Enforcement Complaint Management System (**IPRE-CMS**), launched in Lahore on 19th Sep, 2025 and Karachi 24th Sep, 2025, with law enforcement agencies like police, the Federal Investigation Agency (FIA), and customs for swift complaint resolution and coordinated raids against counterfeiting.

ii. **Deepen Bilateral Ties with China**: Renew and expand the existing Memorandum of Understanding (MoU) between Pakistan's Intellectual Property Organization (IPO-Pakistan) and China's National Intellectual Property Administration (CNIPA) to include regular SEZ specific IP audits, joint enforcement workshops, and capacity-building programs tailored to CPEC projects in energy, agriculture, and IT sectors.

iii. **Accede to Key International Treaties**: Accelerate accession to the Patent Cooperation Treaty (PCT) and Internet Treaties to streamline international patent filings and enhance protections for digital content, building on Pakistan's existing membership in the Madrid Protocol since 2021 for trademarks.

iv. **Implement SEZ-Specific Measures**: Incorporate mandatory IP protection clauses in SEZ agreements, including requirements for technology licensing and dispute resolution through arbitration, to safeguard proprietary innovations in joint ventures and attract high-tech investments.

v. **Launch Comprehensive Awareness Campaigns**: Initiate nationwide public and stakeholder education programs to highlight IP benefits, targeting SMEs, online platforms, and rural communities to reduce unintentional infringements and foster a culture of innovation.

vi. **Align Policies with Emerging Needs**: Update national laws to better address digital IP challenges (e.g., software piracy and online enforcement) and biologics (e.g., pharmaceutical patents), drawing lessons from China's advanced frameworks in data protection and biotech IP.

vii. **Integrate with SCO Regional Initiatives**: Advocate for SCO-wide IP harmonization, including shared standards for technical regulations, cross-border enforcement, and technology transfer platforms, as emphasized in recent discussions on industrial cooperation and sci-tech innovation centers (e.g., the China-SCO Sci-Tech Innovation Cooperation Center in Qingdao).

Conclusion

The China-Pakistan Economic Corridor (**CPEC**), deeply embedded in the Shanghai Cooperation Organization (**SCO**)'s framework for economic and technological advancement, holds immense potential to drive Pakistan's sustainable development and regional integration. As a flagship of China's Belt and Road Initiative, CPEC has already delivered tangible benefits: by late 2025, over 38-43 projects worth approximately $25 billion have been completed, adding significant energy capacity, modernizing infrastructure, and creating hundreds of thousands of jobs. The formal launch of Phase II at the 14th Joint Cooperation Committee meeting in September 2025 marks a pivotal shift toward industrialization, modern agriculture, information technology, green energy, and people-centric initiatives, aligning Pakistan's "5Es" framework with new corridors of growth.

Effective intellectual property (**IP**) laws are pivotal in this evolution, serving as the bedrock for protecting Chinese investments in advanced technologies while enabling genuine local innovation and knowledge spillovers. A robust IP regime not only safeguards proprietary designs, software, and agro-tech transferred through joint ventures but also builds investor confidence essential for attracting high-tech FDI into special economic zones like Rashakai and Allama Iqbal Industrial City. Despite persistent challenges such as enforcement gaps, judicial delays, and counterfeiting the 2025 reforms, including expanded IP tribunals, digital complaint systems like IPRE-CMS, and enhanced bilateral coordination under the CNIPA-IPO MoU, signal meaningful progress toward TRIPS-compliant standards.

By proactively implementing the outlined recommendations ranging from treaty accessions and SEZ-specific arbitration clauses to SCO wide harmonization Pakistan can transform CPEC into a model of secure, mutually beneficial cooperation. This would not only accelerate Phase II's goals of export-led growth and poverty reduction but also position Pakistan as a vital connectivity hub linking South Asia with Central Asia and beyond. Ultimately, strengthened IP protections will foster a virtuous cycle of innovation, inclusivity, and prosperity, contributing to enduring regional stability within the SCO ecosystem and reinforcing the enduring China-Pakistan partnership as a beacon of shared future.

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