Bridging Asia and the World: The Roles and Prospects of Hong Kong's Sustainable Gold Standard and Governance Framework

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FOREWORD

As global green finance and sustainable investment continue to gain momentum, the gold industry faces increasingly severe environmental, social, and governance (ESG) challenges. The traditional concept of "responsible gold" is evolving to meet the rapidly changing and expanding expectations of the gold market. The governance model of the gold supply chain is undergoing a shift from "risk mitigation" to "value creation", from localised improvements to global sustainability, and from short-term benefits to long-term prosperity.

This report explores the transition from "responsible gold" to "sustainable gold," analyzing this core shift through multiple dimensions, including the alignment with international standards, full supply chain governance, due diligence and traceability, certification and validation, transparency enhancement, and standardised operations. It systematically examines the necessity, core components, and action recommendations for establishing a sustainable gold standard and governance framework in Hong Kong that integrates local characteristics while aligning with international standards. Through this research, we hope to provide fresh insights and inspiration for the sustainable development of Hong Kong's gold market, and inject more Asian perspectives and inclusivity into the global gold governance framework.

As Hong Kong continues to strengthen its position as a key player in the global financial system, its role as a hub for international gold trading and financial services becomes even more prominent. We believe that Hong Kong has the potential to drive the gold market's transformation towards greater sustainability, leveraging its unique geographical advantages, international financial infrastructure, and forward-looking policy frameworks.

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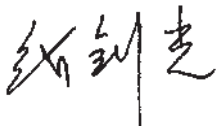

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INTRODUCTION: FROM “RESPONSIBLE GOLD” TO “SUSTAINABLE GOLD”

1.1 Current Status of the Responsible Gold Standards

Gold has long been regarded as a cornerstone of the global financial system. Its unique physical properties, scarcity, and safe-haven status make it an irreplaceable status in national reserves, cross-border settlements, and asset allocation. In recent years, the strategic importance of gold has become increasingly prominent with intensifying geopolitical uncertainties, inflationary pressures, and the restructuring of monetary systems.

However, the gold value chain – including upstream exploration and mining, midstream smelting and processing, and downstream trading, consumption, and storage – has long faced a range of environmental, social, and governance (ESG) controversies. These include issues such as carbon emissions in mining areas, chemical pollution, and illegal mining. To address these problems, major international gold industry associations like the London Bullion Market Association (LBMA) and the World Gold Council (WGC) have introduced the Responsible Gold Guidance (RGG) and the Responsible Gold Mining Principles (RGMP), respectively. Through due diligence, these initiatives aim to eliminate non-compliance and ethical risks in the supply chain, ensuring legal mining practices, preventing severe environmental pollution, and resolving issues related to conflict minerals.

Current mainstream responsible gold standards primarily focus on the upstream and midstream segments, with most originating from European and American frameworks. The applicability and feasibility of these standards in relation to trading scenarios, investment structures, and storage mechanisms in Asian markets remain open for discussion. Considering that China and India are the world's two largest gold-consuming countries, integrating more Asian perspectives into the existing standards may enhance the inclusiveness and comprehensiveness of global gold supply chain governance.

Meanwhile, gold mining, smelting, and processing are highly energy-intensive activities and are often associated with environmental issues such as large open-pit tailings, chemical pollution, and excessive levels of lead, arsenic, and cyanide in soil. Although global mainstream responsible gold standards have already covered some environmental issues, the question of how to align environmental impacts, including carbon emissions disclosures, with international sustainable disclosure requirements remains an important topic for consideration. Some gold producers and smelters have begun exploring energy saving measures and green technologies, but the industry as a whole still has significant room to improve in carbon emissions measurement, energy efficiency, and transparency. Particularly in downstream activities such as gold trading, storage, and financial products, there is a lack of standardised mechanisms for measuring and disclosing carbon footprints, making it difficult for investors to fully assess the environmental impact of the entire gold industry value chain.

1.2 The Paradigm Shift from "Responsible Gold" to "Sustainable Gold"

The core of the "Responsible Gold" concept lies in ensuring that the gold entering the market is sourced responsibly and ethically. Through due diligence, supply chain traceability, and independent third-party audits, it seeks to eliminate or minimize negative outcomes. For example, prohibiting "conflict gold", preventing serious environmental pollution, safeguarding basic labor rights, and avoiding human rights violations. The value of this approach lies primarily in using compliance measures to prevent misconduct.

With the growing global focus on green finance and sustainable investment, the core philosophy of global gold governance is inevitably evolving from "responsibility" to "sustainability." This evolution is reflected on three dimensions:

- **From Risk Avoidance to Value Creation:** Rather than only reducing negative impacts, the gold industry may actively generate positive value. This includes promoting low-carbon mining technologies, implementing ecological restoration and biodiversity conservation programmes, improving community education and healthcare, supporting skills training and long-term employment, and encouraging the diversification of local economies beyond mining. It positions gold as a solution for addressing climate change and promoting inclusive growth.
- **From Partial Improvement to Holistic Sustainable Development:** Traditional concept focuses mainly on immediate issues in the upstream and midstream segments (such as securing mining permits, managing tailings, and controlling hazardous substances). In contrast, the concept of Sustainable Gold covers the entire value chain, including downstream activities like trading, storage, financial product design, brand commitments, and ESG disclosure. This comprehensive approach intends to align gold industry practices with the UN Sustainable Development Goals and broad global sustainability targets.
- **From Short-Term Benefits to Long-Term Prosperity:** Traditional concepts tend to emphasize short-term economic contributions (e.g., job creation and infrastructure improvements), which often cease after a mining project's life cycle. The sustainable concept emphasizes long-term, systemic investments in communities, such as vocational education, entrepreneurship support, community development funds, and cultivating non-mining industries. The aim is to help local residents achieve economic diversification, ensure that women, indigenous peoples, and vulnerable groups share in the benefits, and promote the transformation and upgrading of regional social and economic structures.

Transitioning from "Responsible Gold" to "Sustainable Gold" is not only the inevitable direction for industry evolution, but it also aligns closely with Chinese national dual carbon goals and broader sustainable development strategies. The gold industry can play an active role in advancing global sustainable development, becoming an important force in achieving win-win outcomes for the environment, society, and the economy.

1.3 Hong Kong's Strengths in Advancing the Implementation of Sustainable Gold Concepts

The sustainable transformation of the gold industry value chain requires more than just a shift in concept. It also demands robust market infrastructure and regulatory support. In this context, Hong Kong's strong financial sector and mature ESG regulatory system provide a stable, fair, and globally competitive platform to drive the gold market's sustainable transition.

On one hand, Hong Kong possesses mature trading and clearing mechanisms, an open market system, and a solid rule of law, while also being closely linked to the Chinese mainland market. Located at the heart of Asia's gold consumption and trade, Hong Kong's gold import and export volumes have consistently ranked among the highest globally. The Hong Kong government is also accelerating the development of an international gold trading market, with plans to expand gold storage capacity to over 2,000 tons within three years. The Hong Kong government is exploring the establishment of a central clearing system for gold in Hong Kong and has invited the Shanghai Gold Exchange to participate. These initiatives provide critical infrastructure support for trading, pricing, clearing, financing, and innovation of sustainable gold products in Hong Kong.

On the other hand, Hong Kong is at the forefront of ESG regulation, creating an excellent opportunity to integrate quantitative ESG indicators into sustainable gold standard. For example, the Hong Kong Exchanges and Clearing Limited (HKEX) has been updating its ESG Reporting Code to align more closely with international norms. Notably, starting in financial year 2025, all Hong Kong – listed companies will be required to disclose their Scope 1 and 2 greenhouse gas emissions, and by financial year 2026 large-cap issuers must also disclose material climate-related information, including Scope 3 emissions. The Roadmap on Sustainability Disclosure in Hong Kong published by Hong Kong government further states that large public interest entities may fully adopt the International Sustainability Standards Board (ISSB) standards by 2028. In line with this, the Hong Kong Institute of Certified Public Accountants has adopted the ISSB standards and introduced HKFRS S1 (General Requirements for Disclosure of Sustainability-related Financial Information) and HKFRS S2 (Climate-related Disclosures), effective August 1, 2025. This means that in the coming years, certain companies throughout the gold supply chain may face mandatory climate disclosure requirements in Hong Kong's capital market.

In this context, developing an ESG quantitative indicator system for each segment of the gold value chain will help proactively align Hong Kong's gold market with capital markets ESG frameworks. It would enable a comprehensive assessment of gold's sustainability performance from mining, processing to trading, providing global investors with clearer sustainable investment guidelines. For example:

- **Mining Enterprises**: Metrics such as "carbon emissions per unit of ore produced," "land reclamation rate," and "water recycling rate" could be defined.
- **Refining and Processing Enterprises**: Indicators like "energy consumption per ton of gold refined" and "compliance rate for wastewater and exhaust emissions" could be measured.
- **Financial and Trading Institutions**: The average carbon footprint of the gold they trade, hold, or store, and whether they would purchase carbon credits to neutralize those emissions could be assessed.
- **Storage and Transport Entities**: Metrics such as energy consumption per unit area of storage facilities, carbon emissions per ton-kilometer during transportation, and the utilisation rate of sustainable packaging materials could be quantified.

By establishing such a standard, Hong Kong may integrate Asian perspectives and needs into the global gold governance framework, driving deep integration of gold markets with carbon neutrality goals, green transition, and ESG disclosure requirements. It will also better meet international investors' demand to identify the sustainability attributes of gold, providing clear compliance guidelines and regulatory certainty for participants in Hong Kong's gold market. At the same time, this system will help local banks, refiners, ETF issuers, and vaults clarify their roles and responsibilities within a sustainable gold value chain. The aim is to form a complete closed loop covering mining, trading, disclosure, certification, and investment. This will contribute to the green transition of the global gold market while adding new dimensions to Hong Kong's status as an international financial center.

Taking the paradigm shift from "Responsible Gold" to "Sustainable Gold" as a starting point, this paper is the first attempt in the market to explore the necessity of establishing a sustainable gold standard and governance framework in Hong Kong that is both locally distinctive and internationally aligned, as well as providing actionable recommendations. The analysis covers critical dimensions including alignment with international standards, supply chain governance, due diligence and traceability, assurance and certification, transparency enhancement, and operational standardisation.

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PROSPECTS OF HONG KONG'S SUSTAINABLE GOLD STANDARD AND GOVERNANCE FRAMEWORK

2.1 Sustainable Gold Standard

As a key global gold trading hub, Hong Kong has the distinctive advantages of enjoying strong support of the Motherland and being closely connected to the world, alongside its status as an international financial center. This gives Hong Kong a natural advantage to drive the convergence of sustainable standards. The core objectives may be to bridge existing standards, explore the feasibility of integrating sustainability requirements across the entire value chain, enhance coordination efficiency, and establish a system that seamlessly aligns international rules with Asian market realities, thereby reinforcing Hong Kong's role as a central hub in the global gold supply chain.

The global gold industry has evolved into a multi-layered governance landscape anchored in the Organisation for Economic Co-operation and Development (OECD) framework. At its core are the standards of major institutions such as the WGC, LBMA, and the Responsible Jewellery Council (RJC), supplemented by other industry initiatives and regional standards. Collaboration among industry stakeholders to refine these standards and enhance their interoperability provides a solid foundation and collaborative opportunities for Hong Kong to deepen its due diligence and traceability systems, while efficiently aligning with leading international practices.

The three core standards covering the entire gold value chain are highly authoritative internationally, with strong market influence, and are widely recognised by industry players. Conducting a comparative analysis of the core content and characteristics of these standards is an essential step toward effectively integrating international norms with local practices.

2.1.1 Global Responsible Gold Standard Frameworks

The responsible gold standards established by the WGC, LBMA, and RJC each have distinct focuses while complementing one another. They also differ in their core content, key characteristics, and degree of applicability to the Hong Kong market. An overview of these differences is presented below:

Organisation	Core Standards & Content	Applicability for Hong Kong
WGC	The Responsible Gold Mining Principles (RGMP) focuses on ESG compliance at the mining stage and upstream due diligence. It consists of ten "umbrella" Principles and 51 more detailed statements. covering aspects such as environment, labor, community, and anti-corruption.	Suitable for Hong Kong – based gold mining investment firms and mineral trading companies, aligning with Hong Kong's role as an international financing hub. However, the implementation requires supplementing localised traceability rules to translate RGMP into operational guidelines compliant with Hong Kong's laws, regulatory terminology, and commercial practices. These local rules must also be efficient and user-friendly to accommodate the high-frequency, large-volume cross-border trading environment of Hong Kong's gold market.
LBMA	Responsible Gold Guidance (RGG) focuses on the midstream refining segment. It requires adherence to the OECD's five-step due diligence framework for responsible sourcing, and incorporates anti-money laundering (AML) and Combating the Financing of Terrorism (CFT) requirements.	Provides a clear international compliance benchmark for local gold refiners. Hong Kong may adopt a tiered compliance approach (e.g. minimum baseline vs. best practice) to accommodate companies of different sizes and maturity levels. This ensures that even smaller refineries can meet fundamental requirements while leading firms strive for higher standards.
RJC	RJC Code of Practices (COP) and Chain of Custody (COC) Standard cover the entire value chain with particular emphasis on downstream retail ethical compliance and transparency.	Aligns with Hong Kong's role as a major jewelry retail hub, and disclosure requirements may be tailored to Asian consumer preferences and expectations. Furthermore, strengthening data integration with local quality assurance and warehousing institutions is essential to enhance data credibility and circulation efficiency.

In addition to the responsible gold standards established by the three major organisations, the Shanghai Gold Exchange (SGE), as China's national gold exchange and a leading force in the domestic gold market, also places significant emphasis on the compliance requirements for gold materials and their supply chains. SGE also attaches importance to the sustainable gold concept and explicitly requires certified refiners to comply with AML regulations and other legal requirements, ensure proper supply chain traceability, and conduct periodic on-site inspections or spot checks of their gold material operations and sources. These regulations form the supervisory and management framework for SGE's oversight of refiners' compliance and supply chain traceability.

2.1.2 International Mutual Recognition and Localisation of Hong Kong's Sustainable Gold Standard

Based on the analysis of the standards from the three major institutions above, it is essential for Hong Kong to construct a coordinated framework that combines international standards adapted to the local context with complementary localised guidelines. On one hand, the gold regulatory system may be aligned with those of the three major institutions on a technical basis. By establishing mutual recognition mechanisms, gold materials and products that meet Hong Kong's local standard may gain recognition in the international market. On the other hand, specific regional gaps may be addressed by developing a consistent implementation framework.

Specifically:

- **Upstream Mining:** Localised due diligence requirements and detailed operational guidelines may be developed based on WGC principles.
- **Midstream Refining:** The LBMA's Good Delivery Rules may be aligned to formulate tiered and classified compliance standard.
- **Downstream Trading and Retail:** RJC standard may be referenced to design due diligence and traceability disclosure requirements tailored to the local consumer environment.

Ultimately, by leveraging Hong Kong's advanced digital infrastructure to integrate data across all stages of the value chain, the city may develop into a global hub for the alignment and verification of sustainable gold standard.

2.2 Regulation and Governance Mechanism

2.2.1 Establishing a Regulatory Model Tailored to Market Development Needs

The regulatory model is a core element of a sustainable gold governance framework. A model tailored to the specific developmental needs of Hong Kong's gold market will help ensure effective rule enforcement and market trust, foster international cooperation, enhance market efficiency, and enable Hong Kong to build a competitive governance framework within the global gold value chain. Currently, three regulatory models are commonly observed in international markets:

- **Independent Regulatory Agency Model:** An independent, specialised regulatory body is responsible for standard-setting, compliance supervision, dispute resolution, and handling violations. This model ensures a high degree of regulatory independence and authority, making it suitable for jurisdictions with a strong rule of law and mature financial markets.
- **Industry Self-Regulation Model:** Industry associations lead the creation and enforcement of standards, and companies self-regulate based on jointly established rules. This model suits markets where the industry is mature and capable of self-correction.
- **Joint Regulatory Model:** The government and industry associations collaborate to formulate and implement standards. In this hybrid approach, the government provides supervision and enforcement, while the industry body offers technical support, guidance, and coordination. This model can be advantageous for markets with constrained resources or where the supply chain involves complex ESG issues.

Taking the London gold market as an example, it predominantly operates under an industry self-regulation model, with the LBMA responsible for setting and enforcing standards relating to "Responsible Gold" and promoting certification and self-discipline within the industry. For Hong Kong's gold market, the choice of regulatory model may align with its strategic direction. If the preference is to reinforce its independence as a global financial center and focus on building a highly specialised gold trading market with international influence, the Independent Regulatory Agency Model may more effectively enhance regulatory authority and independence. Such a model would facilitate better integration of international standards, drive supply chain-wide compliance, and enhance global investor confidence. However, if Hong Kong faces greater challenges related to the complex supply chains of the gold industry, cross-border transactions, and ESG issues, such as the need for "end-to-end" regulation, it may be worthwhile to explore and evaluate the feasibility of either the industry self-regulation model or a joint regulatory model. This may help address the non-compliance of multinational enterprises and other global challenges more efficiently, while enhancing the flexibility of Hong Kong's gold market.

2.2.2 Clarifying the Roles and Positioning of Value Chain Stakeholders

With a top-level governance structure in place, the establishment and implementation of a sustainable gold standard requires the concerted participation of multiple stakeholders. Only through a multi-layered coordination mechanism including government guidance, industry collaboration, corporate implementation, and public engagement, can we ensure that sustainable gold standard is both practical and widely recognised in the market. Key stakeholders and their roles include:

- **Government and Regulators Provide Institutional Safeguards and Policy Support.** Through top-level planning, incentive mechanisms, and regulatory frameworks, they reduce transition costs, stimulate market vitality, and drive implementation momentum to ensure industry standard is effectively observed. For instance, this may involve integrating ESG elements into the gold industry regulatory system to promote mandatory or guided disclosure of carbon emissions, environmental impacts, and supply chain due diligence. Additionally, special funds or subsidy programs may be established to help gold industry enterprises obtain sustainability certifications, build green vault facilities, adopt blockchain traceability technology, and conduct carbon footprint accounting.
- **Industry Organisations and Associations Act as a Bridge Between Policy Standard and Corporate Practice.** These bodies help companies understand and implement the sustainable gold standard. By participating in international standard alignment, industry training, and policy advocacy, they enhance market awareness and support. By facilitating information sharing and voluntary self-regulation within the industry, they help coordinate development across the supply chain.
- **Gold Value Chain Enterprises are the Primary Force in Implementing the Standard.** By establishing robust traceability systems, they ensure that gold sourcing and production processes comply with sustainability standards. Through proactive transition and participation in certification, these companies may reduce ESG risks, enhance brand value, improve competitiveness, and potentially secure better financing terms or price premiums. Their commitment and internal drive are crucial for the successful execution of the standard.
- **Financial Institutions and Trading Platforms Leverage Capital Allocation, Risk Management, and Market Incentives to Drive Adoption.** By integrating ESG factors into credit approval, investment decisions, product design, and custodial services, they guide capital flows toward compliant gold enterprises in the value chain. For example, banks and investment funds may support qualifying gold projects through green loans, sustainability-linked loans, and green bonds. Gold exchanges may launch dedicated "Sustainable Gold" trading boards and refine related trading rules and disclosure mechanisms.

- **End-Retailers and Consumers Act as Market Drivers for the Standard's Implementation.** Brand retailers can improve product transparency by clearly labelling the sustainable attributes of gold products. Consumers, by choosing compliant products, increase market demand for sustainable gold, pushing enterprises and the supply chain to strengthen their environmental and social commitments.
- **Independent Third Parties and the Public Act as Safeguards to Ensure Transparency and Fairness.** Certification bodies and professional auditors provide independent verification for the standard, ensuring compliance and market trust. Media, NGOs, and research institutions reinforce transparency and accountability in standard enforcement through information disclosure and social supervision. Public participation, oversight, and advocacy not only drive the implementation of the standard but also accelerate its adoption throughout the supply chain.

2.2.3 Building a Multi-Metal Sustainable Governance Framework and Cross-Institutional Collaboration

With the establishment of a sustainable gold standard, Hong Kong could extend the framework to other precious metals and critical minerals. Leveraging Hong Kong's strong foundation and pivotal global position in gold trading, finance, and regulation, the creation of a multi-metal sustainable governance framework may naturally enhance its core competitiveness and broaden its scope of business. It is also a strategic move to align with global precious metals governance trends and to amplify Hong Kong's influence in the international market for these resources.

Within the precious metals industry, different metals (gold, silver, platinum, palladium, etc.) have distinct supply chain characteristics, use cases, and risk profiles. A practical approach is to deepen and perfect the sustainable gold standard first. Once the gold framework is mature, with refined operating mechanisms and solid technical support, it may be gradually expanded to related precious metals like silver and platinum. The ultimate goal is to build a sustainable governance ecosystem covering all major precious metals.

Principles for Building a Multi-Metal Standard and Category-Specific Adaptation

The expansion to multiple metals may account for the unique supply chain attributes of each metal, while maintaining alignment with core global institutional standards to ensure cross-category and cross-system compatibility. Starting with sustainable gold, it makes sense to prioritise metals that are closely related and highly representative, such as silver and the platinum group, as the first additions to the system:

Silver: As a precious metal with high correlation to gold, silver's supply chain shares some similarities with gold's but also has distinct features. Notably, standalone silver mining is relatively rare, as a significant portion of silver is produced as a by-product of mining for other major metals like copper, lead, and zinc. This makes source tracing more challenging. It is necessary to optimize the scope of due diligence and verification based on the gold system, clarifying responsibilities for tracing the sources of by-product silver. A collaborative due diligence mechanism may be established between primary base metal mining enterprises and silver processing companies to ensure compliance from the extraction of silver at the mine through to its separation and processing.

Platinum: Platinum is a critical industrial precious metal used in everything from jewelry to automotive catalysts and chemicals manufacturing. Its supply chain is longer and involves a more diverse set of participants compared to gold, with risks more widely distributed. During due diligence, given platinum's heavy industrial usage, the framework may place extra emphasis on downstream participants such as processors and end-use manufacturers, ensuring that compliance is maintained from raw material procurement all the way to final product use. For traceability, the system needs a finer granularity to accommodate platinum's trading patterns, which often involve multiple small-lot transactions and batches. Moreover, deep alignment with the standards of the London Platinum and Palladium Market (LPPM) is essential. Integrating the LPPM's sustainable mining and processing guidelines into Hong Kong's system will align local platinum governance with international norms. Platinum's close cousin, palladium, may also be included in this expansion, given its similar properties and use cases. Harmonising standards for platinum and palladium together can create operational synergies and reduce complexity for entities dealing with these metals.

At the same time, regarding the sustainable development of other metals, further collaboration with international frameworks like the London Metal Exchange (LME)'s responsible sourcing standard may be explored. On this basis, extending the scope of the standard from precious metals to critical mineral sectors such as lithium, cobalt, and rare earths may be viewed as a strategic expansion. This helps propel the system from supply chain management at the commodity level toward a long-term layout for broader strategic resources. By building regulations that integrate sustainability, traceability, and international rules, Hong Kong may position itself to play a more influential role in linking mainland Chinese markets with global standards, strengthening its impact in the international commodities sector and contributing to the global dialogue on responsible resource governance.

Building a Cross-Institutional Collaboration Platform and Linkage

To effectively implement the above multi-metal standard and achieve genuine international synergy, Hong Kong may position itself as a pivotal connector among global institutions. Building on the sustainable gold governance framework, Hong Kong may establish a multi-metal standard collaboration platform involving the leading international bodies for each metal category. This platform would promote mutual recognition of standards, resource sharing, and greatly enhance the system's international compatibility and influence. By establishing regular communication mechanisms with institutions such as the LBMA, LPPM, and LME, Hong Kong may proactively participate in the formulation and revision of global sustainable precious metals standards. Forming professional teams to voice the perspectives of the Asian market may allow Hong Kong to translate its own and the region's practical experiences into international consensus, driving international standards to better align with the needs of the Asian market.

2.3 Due Diligence and Traceability

2.3.1 Core Regulatory Framework for Due Diligence and Traceability

Due diligence and traceability form the central pillar for implementing Hong Kong's sustainable gold standard. They reinforce each other and work in tandem, connecting robust gold assurance standards with transparency initiatives, while creating a closed-loop system for risk prevention across the entire supply chain. The design of this pillar is fundamentally based on the widely adopted OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, along with its supplemental documents. This provides a baseline framework for due diligence and traceability in the gold industry, focusing on the following aspects:

- **Comprehensive Risk Management Loop:** Establish a full management cycle encompassing risk identification, assessment, mitigation, and auditing. This systematic approach ensures that risks are managed at every stage of the supply chain and provides a standardised procedural foundation for traceability efforts.
- **Focus on High-Risk Areas:** Concentrate traceability and verification efforts on segments of the supply chain that are high-risk (for example, material sourced from conflict-affected regions or artisanal and small-scale mining channels). Perform targeted checks for issues such as involvement in conflict financing, corruption, or labor rights violations, thereby enhancing the reliability of source data.
- **Integration of Due Diligence into Operations:** Embed due diligence responsibilities and requirements deeply into everyday business operations. Ensure that traceability information is effectively used to support product compliance verification, thereby improving overall supply chain transparency and credibility.

2.3.2 Localisation of the Core Regulatory Framework for Hong Kong

Within the international framework, major industry organisations have further developed specific implementation standards that complement the OECD guidance. The core requirements of these standards serve as important benchmarks for elevating practices in Hong Kong's market. Given Hong Kong's high volume of cross-border gold trade, the local due diligence process may prioritize the accuracy and transparency of traceability information, using internationally accepted gold assurance standards as the foundational basis for local implementation. Industry bodies may lead the formulation of more operational guidelines, introducing mandatory third-party verification for high-risk transactions and systematically validating counterparty qualifications and raw material sources in cross-border business. Additionally, referencing international practices, due diligence compliance results can be linked to commercial processes such as supplier onboarding to boost the overall market's international recognition.

At the operational level, a risk management process can be established referencing the core steps of the OECD framework.

- **Risk Identification and Assessment:** Systematically identify actual and potential risks throughout the supply chain and assess their severity based on established standards to determine priority.
- **Internal Reporting and Communication:** Establish internal reporting mechanisms and conduct necessary communication and disclosure to stakeholders.
- **Risk Mitigation and Response:** Formulate and implement appropriate mitigation strategies for confirmed risks. This may involve working with suppliers on corrective actions, strengthening dynamic monitoring, or timely adjusting partnerships when risks cannot be effectively mitigated. This process aims to systematically integrate risk control requirements into the daily operations of the local framework.

2.3.3 Frontier Technology Empowerment and Intelligent Risk Control

Empowerment through frontier technologies and intelligent risk control will help Hong Kong solidify its role as a hub for sustainable gold, propelling the industry from "compliance adaptation" towards "value enhancement". Hong Kong can leverage its existing digital infrastructure to deepen the application of technologies such as blockchain and Artificial Intelligence (AI) across the sustainable gold value chain. Specifically, relying on blockchain technology, a full-process traceability system covering mining, refining, and retail can be built. Through on-chain trajectories, refined management and tracking of each link can be achieved, resolving industry issues related to fraud and trust. This enhances the market recognition of gold's value while strictly adhering to regulatory standards and reducing compliance costs. Furthermore, by empowering the industry with AI technology, past advanced practices can be transformed into intelligent, digital forms, creating smart risk control tools that cover all stages of the industrial chain and improving the overall precision of risk management.

Blockchain Technology Builds an Efficient Foundation for Compliance

Blockchain technology provides an immutable trust foundation for end-to-end traceability, effectively addressing traditional industry pain points such as ease of information tampering, numerous data disconnects, and insufficient credibility. It serves as a critical technological enabler for multi-metal and cross-regional traceability. By leveraging blockchain, data from all links of the precious metals chain – from mineral mining, refining and processing, and cross-border transport to terminal retail – can be unified and stored on the chain. This includes due diligence results, audit reports, transaction vouchers, warehousing information, and quality inspection certificates. In this way, a unique traceable code is generated to achieve full traceability.

Once data is recorded on the chain, it becomes immutable, ensuring the authenticity and integrity of traceability data and eliminating information fraud at a technical level. With automated verification mechanisms in place, the system can cross-check the consistency of data across all nodes. For instance, if data in one link conflicts with the previous link, an alert is automatically triggered to prevent non-compliant data from entering the subsequent supply chain. This helps establish a comprehensive traceability management system throughout the entire process. In the case of cross-border applications, blockchain technology enables real-time, cross-regional querying and cross-validation of traceability data. This breaks down information barriers between different countries and institutions, enhancing the credibility of traceability information in cross-border transactions. Additionally, it effectively supports the cross-border flow of traceability data for multiple types of metals.

In parallel, privacy-preserving computation technology can be employed to encrypt sensitive data. Under the basic principle of ensuring data sharing, this approach strikes a balance between transparency in traceability and privacy protection, thereby aligning with the business characteristics and compliance requirements of different precious metals.

AI Technology Strengthens Dynamic Risk Control Capabilities

Building on accumulated advanced industry practices and fortified by AI technology, dynamic risk control capabilities can be further strengthened. This optimizes the efficiency of the closed-loop management of supply chain risks, addressing the delays and limitations of traditional manual controls while enhancing the foresight and predictability of risk prevention. Through the continuous iteration of specialised AI risk control models, core risk areas throughout the supply chain can be agilely identified, analyzed across multiple dimensions, intelligently assessed, and closely monitored.

To address the risk characteristics of different precious metals, AI-powered risk control tools can be used to conduct differentiated monitoring of links such as mineral sourcing, production and processing techniques, raw and auxiliary material procurement management, and refining production. When anomalies are detected, the model generates tiered alerts based on preset risk assessment models. These are synchronously sent to various stakeholders in the supply chain, triggering established risk disposal mechanisms to achieve fully intelligent risk control.

In addition, the application of AI technology can expand the dimensions of risk control. For example, in the field of AML compliance, AI can assist in analyzing complex cross-border transaction networks and capital flows. In environmental monitoring, it can leverage satellite remote sensing data to track ecological changes in mining areas and estimate carbon emissions. These technologies provide important data supplements and cross-verification for traditional due diligence and sustainability assessments, offering more objective and timely information support for the entire management system.

Leveraging these cutting-edge technologies, Hong Kong will create a new risk management ecosystem featuring “technology empowerment, intelligent risk control, and compliance synergy.” This will not only support the implementation of international rules but also build a robust risk prevention framework, accelerating Hong Kong’s development as an industry benchmark for sustainable gold.

2.4 Assurance and Certification

As a vital link between the Mainland and global gold markets, Hong Kong may promote the deep integration of international assurance standards with its local strengths. Building a sustainable gold assurance system that is both internationally aligned and locally adaptable will provide an essential guarantee for supporting China's gold industry in engaging with global sustainable governance.

2.4.1 Core Frameworks and Characteristics of Global Responsible Gold Assurance

As core tools for governing ESG issues in the gold supply chain and preventing associated risks, international organisations like the WGC, LBMA, and RJC have developed assurance frameworks to match their standards. These frameworks cover core segments of the value chain – including mining, refining, and retail – and translate broad principles into specialised, actionable, and auditable practices for different industry actors. Together, the assurance standards of these bodies offer a comprehensive set of international guidelines and operational systems that underpin the industry's sustainable development. Each organisation's assurance framework has a distinct focus and they complement one another, collectively covering all critical points of the gold value chain. The table below summarizes the assurance requirements and positioning of the WGC, LBMA, and RJC frameworks:

Governance Body	Assurance Framework(s)	Value Chain Positioning	Core Assurance Requirements
WGC	Assurance Framework for the Responsible Gold Mining Principles; Guidance on Implementing and Assuring the RGMPs Supplement to the Assurance Framework	Upstream Mining	• Implementation is phased in; mining companies must proactively disclose compliance status and publish assurance reports. • Annual assurance is required, conducted by independent third-party institutions with appropriate expertise and experience. • Assurance efforts focus on a dual assessment of both process compliance and performance outcomes; however, companies are temporally not mandated to use a specific international assurance standard for this purpose.
LBMA	LBMA Responsible Sourcing Programme – Third Party Assurance Guidance	Midstream Refining and Supply Chain	• Mandatory adherence to the international assurance standard ISAE 3000 and the OECD due diligence guidance for conflict-affected/high-risk areas is required. • Annual assurance must be carried out by LBMA-approved service providers, with results synchronised with the LBMA and non-confidential findings from these assurance reports made public. • Non-compliant refiners will be removed from the Good Delivery List.
RJC	Code of Practices (COP) RJC Certification Process – Requirements for Certification Bodies and Auditors	Full Value Chain (Focus on Downstream Retail)	• The assurance framework follows the ISEAL Code of Good Practice for Sustainability Systems. • Member companies are required to complete a self-assessment and submit a report prior to undergoing third-party assurance audits. • The framework also supports mutual recognition and interoperability with other equivalent standards.

2.4.2 The Advantages of Localising Sustainable Gold Assurance Standard in Hong Kong

Hong Kong is currently establishing an ESG information disclosure and regulatory framework aligned with international ISSB standards. This framework mandates the disclosure of climate-related financial information by listed companies and encourages independent third-party assurance of ESG data, underpinned by a robust green finance policy environment. The synergy between Hong Kong's mature ESG ecosystem and its function as a gold finance hub allows assured and certified sustainable gold to be readily integrated with financial products—such as ESG gold ETFs and green loans – thereby facilitating capital flows and value appreciation.

Hong Kong has established a comprehensive value chain ecosystem from the perspectives of capital and ownership. This spans upstream global mining resource allocation, midstream high-standard refining and processing, and downstream world-class jewelry retail. Such an industry layout eliminates assurance gaps between different stages and supports cross-node data verification. This industrial ecosystem is deeply integrated with Hong Kong's financial and professional service capabilities, enabling the effective alignment of the entire gold asset lifecycle with compliance assurance.

In summary, Hong Kong possesses exceptional advantages across ESG regulation, the financial ecosystem, industrial layout, and professional institutional support. Building on this foundation, Hong Kong may consider integrating core international assurance rules – such as those from the WGC, LBMA, and RJC – with local financial risk control requirements and ESG development goals. This would help to develop a set of unified, pragmatic and internationally recognised localised assurance and implementation guidelines, thereby eliminating the compliance redundancy caused by parallel standards.

2.5 Disclosure and Transparency

2.5.1 Global Transparency Building Practices and Regulatory Frameworks

Driven by the global wave of sustainable development, transparency in the gold supply chain has become a core metric for assessing industry compliance and responsible value creation. Focusing on two key elements – information disclosure and data quality – international requirements have emerged that span the entire value chain of gold (from mining to refining to circulation in markets). These international disclosure frameworks provide important reference points for regions like Hong Kong when constructing their own transparency systems.

Mainstream global disclosure initiatives share two common trends. First, they establish a strong foundation of data integrity and verification, often by pairing mandatory disclosures with independent assurance. This ensures that the information companies report about their supply chains (such as the origin of gold, environmental impacts, or social issues) is reliable and trustworthy. Second, they increasingly utilize digital tools to enhance transparency and improve management efficiency. These trends offer a benchmark for Hong Kong as it develops a transparency system tailored to its market.

Governance Body	Core Transparency Features
WGC	1. Mining companies must publicly disclose their environmental and social performance, along with their climate risk management practices. 2. The disclosure framework covers the entire mine lifecycle in a systematic way, from exploration and operation through to mine closure and rehabilitation. 3. Companies must report any non-conformances and provide detailed remediation plans with supporting evidence for how they will address these issues.
LBMA	1. Established a dedicated LBMA Responsible Sourcing Disclosure Guidance. 2. Disclosure of raw material sources and due diligence regarding high-risk areas is mandatory for refiners. 3. All sourcing data disclosed must be verified by independent third parties and archived according to set requirements. 4. Leverages the Gold Bar Integrity (GBI) initiative to integrate core supply chain data.
RJC	1. Any product claims made to consumers must be clear, non-misleading, verifiable, and consistent with written documentation to ensure transparency at the consumer end. 2. Companies are required to identify and control stages where material mixing may occur, and implement physical segregation for materials with specific origin claims to ensure traceability. 3. Established a grievance and oversight mechanism to maintain continuous external supervision of certified members.

2.5.2 The Construction Path and Ecosystem Development of Hong Kong's Transparency System

By drawing on global disclosure frameworks and accounting for local market characteristics, Hong Kong may focus on two key areas as it builds its own transparency system.

The first is establishing and refining disclosure rules. This involves formulating specific disclosure guidelines tailored to the characteristics of the gold supply chain. Key elements to include are compliance management for Artisanal and Small-scale Mining (ASM), ESG risk assessment in cross-border trade, traceability of sourcing from conflict-affected areas, and the protection of the consumer's "right to know". The guidelines may clearly define the disclosure responsibilities and content requirements for all entities across every stage of the supply chain.

The second is constructing a data quality control system. Drawing on the experience of international bodies, Hong Kong needs to set unified standard for supply chain data collection and accounting, and establish a qualification accreditation mechanism for third-party assurance providers. Furthermore, by referencing database models like that of the LBMA, Hong Kong may develop a regional gold supply chain data sharing platform to promote the centralised management, cross-verification, and secure sharing of data.

Subject to compliance with laws and regulations regarding cross-border data transfer, exploring the implementation path and collaboration mechanisms for data sharing will be a critical topic for building a credible and efficient transparency system. This requires balancing transparency enhancements with commercial information security. One potential approach is to explore a "usable but invisible" data sharing model powered by technology within a compliance framework. This approach aims to truly unlock the value of data in supply chain risk management while safeguarding the rights and interests of all parties.

2.6 Management and Operational Processes

To establish a localised sustainable gold system that carries credibility and enforcement power, Hong Kong can learn from the operational models of leading international institutions. A key strategy is to synchronize standards implementation with a robust membership or accreditation system and clear stakeholder management processes across the entire value chain. This helps ensure that the standards do not just exist on paper, but are effectively put into practice by all relevant parties.

Analysis of existing international models indicates that institutions tend to manage participation in line with their roles in the market. When exploring a localised sustainable gold standard covering the full industry chain, a tiered management mechanism may be considered, for example:

- Focus mandatory certification requirements on refiners. As the critical junction between upstream mining and downstream markets, refiner certification can serve as a market entry threshold, ensuring compliance and traceability at the critical midstream stage.
- Set compliance commitment requirements that must be validated by independent third parties for miners and large traders. This quasi-mandatory arrangement aims to control risks at the source and for major trade flows, while providing a clear compliance path for large enterprises.

The effective establishment and operation of this tiered management mechanism depend on setting clear, actionable key process requirements for the underlying membership or accredited-refiner system. Regardless of which management model is ultimately chosen, rigorous and standardised operational procedures are needed to guarantee the credibility and enforceability of the standards.

Specifically, relevant operational management procedures may define at least the following core processes:

1. **Admission Review Process:** Establish objective criteria for membership or certification eligibility and setting up an independent review mechanism.
2. **Continuous Supervision and Audit Process:** Require members or certified enterprises to submit periodic reports and undergo third-party audits.
3. **Compliance Enforcement and Remediation Process:** Define clear procedures for investigation, rectification, and disposal regarding non-compliance.
4. **Information Publicity Process:** Ensure transparency of key information such as certification status and audit results.

These procedural requirements act as the institutional safeguards that transform static standards into dynamic management capabilities. They make sure that the standards are not merely statements of principle, but are effectively implemented via mechanisms that are verifiable and enforceable.

At the same time, the effective implementation of these procedures relies on systemic support conditions. These include allocating a professional team for daily operations and auditing, establishing clear and publicly accessible written policies and detailed operating rules, and building an adaptable digital information management platform. These supporting elements not only enhance processing efficiency and ensure data security but also constitute the solid foundation for the implementation and continuous operation of the management system.

3

FUTURE DEVELOPMENT DIRECTIONS AND RECOMMENDATIONS

Leveraging its unique status as an international financial center, its mature trading and clearing infrastructure, and its position at the heart of Asian gold trading, Hong Kong has natural advantages and a solid foundation to lead the next phase of sustainable gold governance. By deeply integrating global best practices with Hong Kong's local regulatory environment and market characteristics, the city is poised to build a sustainable gold standard and governance framework that aligns with international norms while fully reflecting Asian characteristics. To achieve this vision, Hong Kong may proceed systematically along three core areas: standard setting, capacity building, and market promotion.

First, in terms of standard setting, the following key measures can be taken to ensure the framework possesses international authority while being fully adapted to the practical needs of the Asian market:

- **Establish a Tiered Standard-Setting Mechanism:** Drawing on the international frameworks of the WGC, LBMA, and RJC, a joint working group composed of the government, industry associations, and experts may be established. This group will formulate tiered standard and quantitative ESG indicators for upstream mining, midstream refining, and downstream trading. It will define core baseline requirements (such as supply chain traceability and ESG risk assessment) and best practice guidelines (such as carbon footprint accounting and ecological restoration indicators) for each stage.
- **Promote International Mutual Recognition and Localisation:** Cross-institutional collaboration with organisations such as the LBMA, LPPM, and LME may be strengthened. Through mutual recognition mechanisms, Hong Kong may achieve compatibility between its local standard and mainstream international standards. Simultaneously, localised operational guidelines may be developed to adapt to Asian trading scenarios and cross-border trade demands.
- **Build a Credible Certification System:** Combined with Hong Kong's mature financial risk control requirements, a system may be established to strictly supervise and authorise third-party assurance and certification bodies, ensuring consistency and reliability in standard enforcement. By linking certification results to green finance products, a positive cycle of compliance certification, information disclosure, and capital premium can be realised.
- **Integrate Technology and Disclosure Mechanisms:** Relying on frontier technologies like blockchain and AI, standardised management and operational processes may be formulated. This includes building data-sharing platforms and intelligent risk control tools to ensure a consistent approach to due diligence, traceability, and transparency disclosure. Enterprises may be required to periodically publish assurance reports and remediation plans, promoting a closed-loop governance framework for the entire industry chain.

Second, regarding capacity building, the following paths may ensure that the Hong Kong standard is effectively executed and continuously implemented:

- **Establish an Industry Alliance:** Led by relevant government agencies, a sustainable gold industry alliance may be jointly initiated by local large-scale financial institutions, international gold refiners, mining companies, jewelry enterprises, vaults, investors, and professional service providers to research and formulate the standard.
- **Cultivate a Professional Talent Pool:** In collaboration with Hong Kong's accounting, legal, and relevant professional bodies, systematic training may be provided to develop professionals capable of ESG auditing in the precious metals industry. This will provide professional support for due diligence, supply chain traceability, and international sustainable information compliance disclosure across the entire value chain.
- **Conduct Tiered Industry Communication and Capacity Enhancement:** For large institutions, investors, and refiners, deep training and strategic consulting services may be provided, covering high-standard due diligence implementation, ESG data management system integration, and sustainable financial product design to help them become ecosystem benchmarks. For SMEs active in the Hong Kong supply chain, such as jewelers and traders, modular and practical support toolkits. This includes simplified due diligence guides, compliance cost control schemes, and certification application coaching.

Finally, in terms of market promotion, efforts may be made to transform Hong Kong's sustainable gold standard from an industry consensus into a broadly applied market norm:

- **Establish a High-End Strategic Dialogue Platform:** High-level sustainable gold forums may be held regularly, gathering global gold industry leaders to publish the latest progress on standard development, best practice case studies, certified enterprises directories, and market insight reports. This may establish Hong Kong as a core decision-making and exchange center for "sustainable gold."
- **Initiate Market-Wide Joint Commitments:** Alliance members (particularly large financial institutions) may be encouraged to leverage their global client networks and market influence to drive corporate clients and partners to prioritise the procurement and use of sustainable gold products that meet Hong Kong standard, creating a demonstration effect at the supply chain level.
- **Promote Deep Collaboration with in the Financial System and Innovation of Key Financial Instruments:** First, develop standardised financial product templates and encourage large financial institutions to create green trade finance, risk management, and investment products that are linked to their certification levels of Hong Kong standard, thereby attracting active participation from sustainable capital. Second, create a "Sustainable Gold Qualified Delivery List." Gold categories meeting the standard may be included in a public list, serving as a primary source for market trading, green reserves, and raw materials for high-end brands. This will form a standard-based public pricing and liquidity pool, generating a liquidity premium to incentivize more entities to apply for certification.

In the short term, establishing and implementing Hong Kong's sustainable gold standard and governance framework will effectively consolidate the achievements of existing international rules in addressing the needs of the Asian market, downstream sectors, and ESG quantitative disclosures. It will also provide local banks, refiners, exchanges, ETF issuers, and investors with clear and actionable compliance guidelines and value creation pathways. Collectively, these outcomes will enhance the transparency and credibility of Hong Kong's gold market, thereby attracting more sustainable investment and participation.

In the long run, as the sustainable gold standard becomes gradually implemented and continuously refined, Hong Kong may offer valuable experiences and models that serves as a regional reference for the global gold supply chain. This process may not only inject new development momentum into Hong Kong's gold market and enhance its influence in global precious metals rule-making, but also further solidify Hong Kong's position as an international financial center.

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