

Proceedings of



29-31 July 2022

ITC Grand Chola, Chennai

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18-20 August 2023
JW Marriott, Kolkata

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PROGRAM SCHEDULE

Day - 1: Friday, July 29, 2022

10:30 am to 12:30 pm

Special session for Jewellers curated by MMTC-PAMP

Welcome address:



Mr Jayantilal J Challani

The Jewellers & Diamond Traders Association - Madras



Mr Arun Brakash

Titan Co Ltd



Mr Ankur Goyal

MMTC-PAMP India Pvt Ltd



Mr G K Venkatagopal

Emerald Jewel Industry India Ltd

1:30 pm onwards Delegate Registration & room check-in for in-house guests

1:30 pm onwards Exhibition opens

3:15 pm to 4:15 pm Special session on Refining Technology



Mr Peter Bouwer

Rand Refinery



Mr Debasish Bhattacharjee

MMTC-PAMP India Pvt Ltd



Mr Rakesh Bhan

Fischer Measurement
Technologies (India) Pvt Ltd



Ms Kristina Kern

Krastsvetmet

4:15 pm to 5:30 pm Live Telecast of Inauguration of IIBX by Honourable Prime Minister of India,
Shri Narendra Modiji at GIFT CITY, Gandhinagar, India

5:30 pm to 6:15 pm **Discussion:** Gold Refining: Address Challenges and Unleashing Opportunities



Mr Arjun Raghavendra

IGPC IIMA



Mr Suresh Kumar Banga

Bright Metal Refiners



Mr Manish Goel

ICICI Bank

6:15 pm to 7:00 pm Discussion: The Amazing World of Indian Silver

Moderator:



Mr Viraj Didwania
Foresight Bullion India Pvt Ltd



Mr Vijay Murthy
Hindustan Zinc Ltd



Mr Harshit Doshi
ICBC India



Mr Dhiaan Srinivasan
Emerald Jewel Industry India Ltd

7:00 pm to 7:30 pm Discussion: Price Outlook on Gold and Silver



Mr Debajit Saha
Refinitiv



Mr Chirag Mehta
Quantum AMC

7:30 pm onwards IGC Excellence Awards Nite & Gala Dinner Sponsored by Shreeji & Ariplutus

Day - 2: Saturday, July 30, 2022

9:00 am to 9:05 am Announcements, AV of Sponsors and Partners

9:05 am to 10:30 am Inaugural Function



Mr Ahmed Bin Sulayem
DMCC (Guest of Honour)



Mr Vikas Singh
MMTC-PAMP India Pvt Ltd



Mr Jayantilal J Challani
The Jewellers & Diamond
Traders Association - Madras



Mr Srivatsava Ganapathy
Eventell Global Advisory Pvt Ltd



Mr Prithviraj Kothari
IBJA



Mr Kamlesh Sharma
IFSCA



Mr David Gornall
LBMA (Online)

10:30 am to 11:15 am India - UAE CEPA: Opportunities for Precious Metals Sector

Moderator:



Mr Sadi Ahmad
Sam Precious Metals



Mr Chirag Thakkar
Amrapali Industries



Mr Mohammad Ayyob
Sam Precious Metals



Mr Pramod Mohan
FinMet Pte. Ltd

7:00 pm to 7:30 pm Discussion: Price Outlook on Gold and Silver



Mr Sanjeev Dutta
DMCC



Mr Harish Pawani
Bin Sabt



Mr Kinjal Shah
RJC

11:15 am to 11:30 am Networking Break Sponsored by AMS Bullion

11:30 am to 11:40 am

Presentation:



Mr Jacopo Monteforte Specchi
Certiline S.r.l.

11:40 am to 12:15 pm IIBX Ecosystem: Updates and The Way Forward

Moderator:



Mr P R Somasundaram
WGC



Mr Ashok Gautam
IIBX IFSC Ltd



Mr Anshuman Sharma
StoneX



Mr Sharad Jobanputra
Sequel Logistics



Mr Haresh Acharya
Parker Precious Metals LLP



Mr Ravi Ramakrishnan
JP Morgan



Mr K Mahendran
Karur Vysya Bank

12:15 pm to 1:00 pm Discussion: Opportunities in South Indian Gold / Silver Jewellery Market

Moderator:



Mr Surendra Mehta
IBJA



Mr Jayantilal J Challani
The Jewellers & Diamond
Traders Association - Madras



Mr Ba Ramesh
Thangamayil Jewellers Ltd



Mr Chanda Sreenivas
CapsGold Pvt Ltd



Mr Chetan Mehta
Laxmi Diamonds



Mr Sabarinath
The Coimbatore Jewellers Association

1:00 pm to 2:00 pm Networking Lunch Break Sponsored by Shiv Sahai & Sons

2:00 pm to 2:30 pm Special Address



Shri V S Sundaresan
Securities & Exchange
Board of India (SEBI)

2:30 pm to 3:15 pm Discussion : Bullion Trade and Market Post Domestic Spot Gold Exchange

Moderator:



Mr Harish Chopra
India Gold Policy Centre
(IGPC) - IIMA



Mr Chirag Thakkar
Amrapali Industries



Mr Shivanshu Mehta
MCX



Mr Ranjith Singh
BSE India



Mr Kumar Parmani
Yes Bank



Mr Manish Gavaskar
RBL Bank Ltd



Mr Nagendra Kumar
NSE



Mr A S Sriram
Tamilnadu Jewellers Federation

3:15 pm to 3:30 pm Networking Break Sponsored by AMS Bullion

3:30 pm to 4:15 pm Discussion 4: Tech Backed Gold Products

Moderator:



Mr Sudheesh Nambiath
India Gold Policy Centre
(IGPC) - IIMA



Mr Ketan Kothari
Augmont-Gold For All



Ms Saroja Yeramilli
Melorra (Online)



Mr Ritesh Singh
Bright Digital Gold Pvt Ltd



Mr Gaurav Mathur
SafeGold

4:15 pm to 5:15 pm Presentation: Updates on Global Gold Dore Flows



Mr Philip Newman
Metals Focus

Discussion : Attracting Gold Dore flows into India

Moderator:



Mr Philip Newman
Metals Focus



Hon. Dr. Kwabena Okyere-Darko Mensah (Online)
Minister in charge of
Western Regional Coordinating
Council of the Government of Ghana &
Chairman and Ghana Gold Expo



Mr Ramkumar Chandrasekharan
Goldstrom Pte Ltd



Mr Nick Spencer
Galaxy Gold Mines
(Online)

7:30 pm onwards Gala Theme Cocktail Dinner Sponsored by StoneX

Day - 3: Sunday, July 31, 2022

8:00 am onwards: Networking Breakfast for in-house delegates

10:30 am onwards: Check-out

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Keynote Address of Mr Ahmed Bin Sulayem, Executive Chairman & CEO, DMCC



Mr Ahmed Bin Sulayem
Executive Chairman & CEO, DMCC

DMCC, when conceptualized, was a gold initiative. From inception, there has been a lot of participation from the Indian community – be it in technology, market development, and in almost every field.

We contributed to it. At present, three refiners operate in Dubai. There is soon going to be a fourth one. India leads the market when it comes to gold. It is an interesting industry here. And the industry is changing. You have heard about Uptown Tower. Dubai has changed too in the last 20 years. Twenty years ago, gold in Dubai meant coins and bars and was controlled by a few families. Today we have over 3000 companies operating in gold, diamond, and precious metals in DMCC.

The UAE-India agreement is just the beginning. I expect more to come. We had a Hindu temple in Dubai before the country was formed. Five decades before, the Indian rupee was an accepted currency in

Dubai. We understand the rupee and hence launched the derivatives contract in rupees. We knew it would take longer to launch the rupee contract in India.

I would like to discuss forward product possibilities. With Uptown Tower, we have built a new foundation. We want to climb a new mountain. We are facing the beautiful challenge of filling up 90% of office spaces in a very short time. GIA is a recent addition. Gold is what DMCC started with. Gold is what attracted some of the designers to work on the project. We are here to engage. We are looking for a representative office in India. We have not decided where yet, maybe in southern India or in Mumbai. If there is something you feel we are missing at DMCC, please let us know.

■ ■ ■

Transcript of Special Address by Mr Kamlesh Sharma, GM and Head, Precious Metals Department, IFSCA, India



Mr Kamlesh Sharma

GM and Head, Precious Metals Department, IFSCA

I thank the organisers Eventell Global for inviting me to deliver a special address at this prestigious congregation of eminent entities and individuals having a long association with the bullion sector. It is my debut at IGC and am looking forward to learning from this experience.

Yesterday, we witnessed when the Hon'ble Prime Minister Sh. Narendra Modi inaugurated the India International Bullion Exchange apart from announcing other launches and initiatives such as the foundation-stone laying of the proposed IFSCA building Headquarters and the SGX-Nifty connect. I thank all the dignitaries on the dais and all the participants at the IGC who attended yesterday's landmark event for IFSCA, either physically or over the video link. Thus, the timing of this IGC has become all the more important for IFSCA as we have assembled here immediately after the launch of the India International Bullion Exchange (IIBX).

For benefit of those who may not be aware, the IFSCA is the unified regulator for all financial products, financial services and financial institutions which can

be undertaken in the international financial services centres set up in India under the SEZ Act. GIFT-IFSC is the first and so far, the only IFSC in India. The IFSCA Act bestows the powers of the domestic regulators such as the RBI, SEBI, PFRDA & IRDAI, for GIFT-IFSC. IFSCA is mandated to develop and regulate all aspects of financial sector activities including banking, equity markets, precious metals, funds management, pension funds, insurance sector.

Before I settle into my talk about the journey and plans about the bullion eco-system in IFSC, I would like to emphasise that the regulatory approach of IFSCA is different since its mandate is different. If I may take a sporting analogy, I would reckon that the role of a regulator -supervisor is like that of a rule-maker and umpire in the game of cricket. Once the rules of the game have been framed, then the umpire and the regulator must keep a distance while keenly observing the flow, motivation and tendencies of players. The umpire should intervene only if the spirit and the objectives of the game are being flouted or compromised to set things right and if required modify the rules of the game accordingly.

In the backdrop of this overarching philosophy, I'd like to focus on the journey with respect to bullion starting from the measures undertaken in the last 18 months or so, that formed a part of the trying times of disruptions caused by the global pandemic of COVID-19.

Setting up of IIBX

Inspired by the vision of Hon'ble Prime Minister, armed with the mandate under a budget announcement, IFSCA on December 4, 2020 notified the IFSCA (Bullion Exchange) Regulations, 2020 paving the way for setting up a Bullion Exchange and a Bullion Clearing Corporation by a consortium of 5 leading Indian Market Infrastructure Institutions (MIIs).

India International Bullion Exchange (IIBX), the maiden international bullion exchange at GIFT-IFSC, has been set-up by a consortium of Central Depository Services (India) Limited (CDSL), India INX International Exchange (IFSC) Limited (INDIA INX), Multi Commodity Exchange of India Limited (MCX), National Securities Depository Limited (NSDL) and National Stock Exchange of India Limited (NSE) under the regulatory oversight of IFSCA.

IFSCA had issued detailed Operating Guidelines for Bullion Exchange, Bullion Clearing Corporation, Bullion Depository and the Bullion intermediaries in an IFSC, on August 25, 2022.

Some of the highlights of the bullion ecosystem at IFSC are as under:

1. Movement towards organised market:

The state-of-the-art infrastructure of IIBX will offer technology-based mechanisms for trading, clearing and creation of Bullion Depository Receipts (BDRs), the security traded on IIBX which is backed by the physical bullion. In addition to providing a trading avenue to various participants, IIBX will also offer the advantages of price discovery, transparency in disclosures, centralised clearing and assurance of quality.

IFSCA has ensured sourcing integrity of the bullion delivered through IIBX by mandating compliance to OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.

2. Import by Domestic Jeweller: From the Indian (DTA) perspective, the enabling of direct participation of qualified jewellers- as notified by IFSCA, on IIBX for the purpose of importing gold, is a major policy reform by the Government of India and the Reserve Bank. For the first time in India, since

the liberalisation of gold imports through nominated banks and agencies in the 1990s, the end users (eligible qualified jewellers in India) are allowed to directly import gold through IIBX. Our endeavour would be to provide an alternative channel of import based on the benefits of disintermediation of import.

3. Vaulting facilities at IFSC: Indian and Global vault service providers have set up or are in the process of setting up vaulting facilities in GIFT-IFSC which will lead to total storage capacity of approximately 125 tonnes for Gold and 1,000 tonnes for Silver. Further, Ministry of Commerce and Industry has notified on July 6, 2022 that any unit in an SEZ -including other than GIFT-IFSC- which is permitted to store bullion for the purpose of issuance of bullion spot delivery contract and BDR can also be deemed as a unit in IFSC.

Thus, the vaulting facilities at all the key bullion centres in India shall act as the spokes to feed the bullion for the jewellery manufacturers and exporters across the country, while the IIBX at GIFT-IFSC will act as a trading hub.

4. Indian Bank's branches as Professional Clearing Members: The RBI through a notification on June 7, 2022 has enabled Indian Bank's branches or Foreign Bank's Wholly owned subsidiaries who branches may be functional at GIFT-IFSC to operate as Professional Clearing Members (PCMs) subject to necessary approvals by the RBI.

5. Financialisation of Gold: IFSCA has already provided a regulatory framework for products like Gold and Silver ETFs which is expected to encourage participation by a variety of investors.

For International Market participants

Our audience from overseas may be interested in participating on the GIFT-IFSC bullion ecosystem under an 'offshore' regulatory framework, within India that has a huge ready-made consumer demand market, that is in existence. Although India has been a key consumer of gold, its share in the global trading volumes is less than 0.50% currently.

The potential for leap-frogging in this aspect is immense and IFSCA recognises the various factors that will help India move forward in this sector. Some of the plans, base for which is already existing in the current ecosystem are:

1. Foreign banks participation as Trading & Clearing members on the IIBX, which has been enabled by IFSCA.
2. It is envisaged that hedge funds shall look to

purchase gold and silver from IIBX which has the backing of the actual bullion bars which are stored in regulated vaults in IFSC and other SEZs.

3. With this, IFSC is expected to become the bullion storage hub primarily and initially for South Asia & South East Asia region and may be of the World.
4. IFSCA expects large scale participation from funds on Gold and Silver ETFs as and when they absorb the regulations which are already in place.
5. Activities such as bullion leasing, gold loans, financing against BDRs, project financing for doré (raw gold) and Gold Savings accounts / Gold accumulation plans, etc., can further lead to making GIFT-IFSC as a hub for various Gold related products.

Even as IIBX has facilitated some transactions of import by QJs during the trial phase, we are looking to provide more clarity through SOPs and guidelines including those related to enabling a remote access – limited purpose mode of participation by certain QJs on the buy side and certain suppliers on 'sell' side – based on some additional eligibility criteria. While we expect that at least a few IFSC Banking Units of foreign banks will soon see value in becoming TCM/ TMs on IIBX, we'd like to provide the additional facility of remote access, with proper safeguards and risk management in place, to ensure an early participation by a wider set of eligible entities.

We'd also like to formulate a gold leasing framework through IIBX so that the QJs as well as the financiers/ suppliers may be able to replicate the gold loan transactions they undertake in the OTC market, on an exchange platform with necessary modifications.

Further, once the T+0 contract mainly for facilitating the gold import by QJs in India gets a firm footing, the IFSCA shall look to take calibrated steps towards introducing other contracts, including derivatives contracts, in consultation and coordination with the domestic regulators such as the RBI and SEBI and other stakeholders.

I would like to provide some more insight into IFSCA's future plans on the development of a comprehensive precious metal ecosystem, in the medium to long term.

1. IBUs as Trading members

IFSCA is aware that banks across the world play a key role in the precious metals business which include various components such as gold savings accounts, gold deposits, financing, trading both proprietary and on behalf of their customers, & treasury management (ALM, risk etc.).

We have already enabled the bank's branches i.e., the International Banking Units to become trading cum clearing members of the IIBX, apart from the Broker-Dealers on IFSC stock exchanges grandfathered as TCMs on IIBX. Apart from some IBUs of foreign banks, we expect that if and when the RBI permits, some IBUs of strong Indian banks may also become TMs / TCMs on IIBX.

2. Export from Domestic Area through existing refining capacity

In India, there are 41 refineries certified by the Bureau of India Standards (BIS). The Capex of these refiners could range between 50 lakhs to 250 crores and capacity to refine gold bullion anywhere between 8 tonnes to 300 tonnes per annum. This means an annual capacity of easily 2000 tonnes can be expected from these refiners. However, out of this list, most of the refiners are accredited by BIS technical standards.

Thus, not many amongst these refiners have been associated with Responsible Sourcing as per the OECD-DDG guidance. It is imperative that these refiners associate themselves to the norms under the Five Step framework of the OECD.

India must leverage these capacities which are already in place and build new capacities at GIFT-IFSC to encourage it to become a refining and storage hub of the world's gold.

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Conclusion:

The journey of IFSC with the launch of the India International Bullion Exchange has only begun and on a right footing.

We hope to scale newer heights to create a precious metals ecosystem as part of a broader financial system in IFSC to support the evolution of a gamut of financial products and services helping the investor find appropriate value at a competitive cost when compared to other financial jurisdictions.

We hope that after 10 years when we look back, we see the peaks scaled were focused on helping India achieve greater integration with the global financial markets.

I thank the audience for a patient hearing. And once again a big thanks to the organisers.

■■■

Inaugural Speech

Mr Prithviraj Kothari, National President, India Bullion & Jewellers Association (IBJA)



Mr Prithviraj Kothari
National President,
India Bullion & Jewellers Association (IBJA)

A few major initiatives of IBJA:

(a) We plan to open IBJA Stores in every district of India. It's our goal to have 3500 stores across India over the next decade. (b) IBJA Jewellers Connect and Buyer Bazaar are our flagship B2B programmes for the jewellery sector. (c) IBJA Jewellery and Knowledge Park are being launched on August 5, 2022. It will come up on 87 acres of land in Navi Mumbai (opp. Juhinagar station), with a state-of-the-art manufacturing facility and 120,000 ft convention centre. It will also house a skill development centre for the gem and jewellery sector.

Opening up the mining sector and setting up a bullion bank are much-needed reforms. These are in alignment with the 'Vocal for Local' and 'Make in India' programmes of the government. IBJA can bring overseas investors into the mining sector. IBJA membership has shown strong growth, thanks to state presidents and their efforts. I take this opportunity to offer 200 platinum memberships by invitation in IBJA to industry participants. IBJA platinum members will hold a 30% equity stake in the proposed NSE-IBJA spot gold exchange being set up with a capital base of Rs. 125 cr.

The future growth of the industry depends on transparency from the industry and commitment from the government.

■■■

In 2022, Gold prices got support from the ongoing conflict in Russia and Ukraine, the trade restrictions on Russia and the increase in prices of all major commodities - crude oil, natural gas, copper, grains, edible oils, etc., leading to record high inflation. We believe high inflation will remain for at least one more year. The price of gold is caught between high inflation and recession.

As India celebrates its 75th year of independence, we also want independence from the import of gold. The government of India is taking various initiatives towards this. We at IBJA are supporting the government on all its initiatives. The government wants transparency, and the industry wants ease of

doing business. IBJA proposed two model institutions to Niti Aayog and other bodies. One was IIBX and the other was the domestic spot gold exchange (DSGE). IIBX will bring complete transparency to the way India imports gold. Honourable PM Shri Narendra Modi inaugurated IIBX yesterday. DSGE is a game-changer. EGR is a one-of-a-kind product that converts gold into security for perpetuity. EGR is a reversible product, provides a robust settlement system, deliverable at multiple delivery centres, facilitates goods recycling, promotes greater integration with the financial market and assures delivery of certified goods. It would also give a fillip to GMS going forward.

Mr Vikas Singh, MD & CEO, MMTC PAMP India Pvt Limited



Mr Vikas Singh

MD & CEO, MMTC PAMP India Pvt Limited

At MMTC-PAMP, we see a very different world today. Paradigms have changed radically. Inflation rates in the US and the UK have surpassed India's inflation. It changes the way India sees the world and the world sees India. To top it all, India is the fastest growing economy in the world. While stagflation is tearing the world apart, India has been navigating it well so far. The strong government at the centre is striving to place India firmly on the global map. FTA with UAE is a new development for the bullion sector and hopefully, it would change the trade flows for the better. All these collectively present a unique opportunity to the sector. Our possibility to contribute to the GDP growth of the country is humongous and time is appropriate to harness the same.

At MMTC PAMP, we try and continue to raise the bar in whatever we do. We are trying to be the first player to create a truly circular economy in India in the precious metals sector. To put it simply, starting from

refining to minting to recovery, thereby completing the full cycle. Through this initiative and many others, we would like to be a responsible contributor to the Indian economy. We have also started the process for ESG certification 2030 in conjunction with SBTi targets. It is a long process but our journey has begun.

■ ■ ■

**Mr Jayantilal J Challani,
President, The Jewellers and Diamond
Traders Association, Madras**



Mr Jayantilal J Challani

President, The Jewellers and Diamond Traders Association, Madras

We are very happy to host India Gold Conference in Chennai. Such activities will make the southern gold and jewellery market strong. We welcome all of you here and hope you have two very good days of conferencing.

■ ■ ■

**Live Telecast of Inauguration of IIBX
by Honourable Prime Minister of India, Shri Narendra Modi
at GIFT CITY, Gandhinagar, India**



Mr Shivanshu Mehta Head – Bullion, MCX



Mr Shivanshu Mehta
Head – Bullion MCX

Gold proved itself yet again during the covid times. The gem and jewelry sector contributes 7% to GDP and 15% to merchandise export. It is selectively organized. It got the impetus from SEBI and IFSCA recently. As a Market Intermediary institution (MII), we consider it our responsibility to continue to innovate to bring useful products and services for risk management. The world's one and only one-gram deliverable product saw over 61,000 units delivered. Likewise, 131 tonnes got delivered in silver one kg contract. The gold options launched in 2017, recently touched 4000 cr in May 2022. On the regulatory front, I place on record the incredible framework put in place by our regulatory, IFSCA. The Qualified Jewellers framework is one fine example of it. Through our reach out, 61 participants have become QJs. On the domestic side, SEBI has been proactive on spot gold exchange. We have realized that the industry participants must have the

benefit of all these products on one platform. We are actively working on the same. EGR leads to the financialization of gold. This would enable institutions such as mutual funds to tap into creating portfolios and innovative products.

■ ■ ■

Excerpts of Online Speech by Mr David Gornall Senior Consultant, LBMA



Mr David Gornall
Senior Consultant, LBMA

Congratulations to all the stakeholders for making IIBX go live. The launch of the exchange marks an important milestone which reinforces India's position as the major consumer of gold apart from providing greater and wider market access. Bringing the consumer and suppliers under the regulated exchange framework would transform IIBX as an official marketplace.

It is worth mentioning that this is the first time that any gold exchange has introduced pre-funded metal

and currency accounts in order to bring about the idea of the same day based settlements. LBMA hopes to have a second London Good Delivery refiner along with a bullion bank that participates in gold auctions which is yet to be realized.

After receiving and reviewing the feedback from potential refiners on non-technical eligibility criteria for LBMA London Good Delivery Status a review of these criteria would be conducted in the coming months that will include the current £15 million total net worth level.

Alongside the annual ten metric ton production floor for those gold refiners who also produce a significant tonnage of silver would be looked into. To make LBMA membership more relevant in global precious metal space membership criteria would also be looked into.

Three months pilot scheme of the Gold Bar Integrity Programme jointly implemented by LBMA and WGC which aims at increasing transparency, accessibility, and fungibility of gold across the industry has been completed involvement of a selected group of mines, refiners, mints, banks, and vaults, as well as one exchange and a retailer in order to test the attributes of the two block chain-based systems being trialed. Gold Bar Integrity Programme would not be limited to just London large bars but will also be extended to all production from LBMA good delivery refiners

Another initiative between LBMA and WGC is to establish a working group with key industry definition of sustainability for the industry. The association would like to see more of you within the membership and the good delivery list as you are and will remain a hugely important part of the market.

Thank you and all the best to you

■■■

Excerpts of Presentation Made by Shri V S Sundaresan, Executive Director, Securities & Exchange Board of India (SEBI)



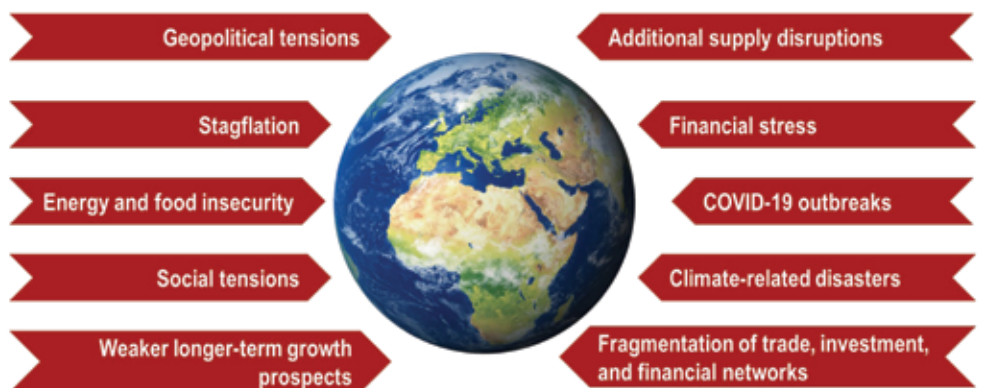
Shri V S Sundaresan

Executive Director, Securities & Exchange Board of India (SEBI)

India Gold Conference



Risks Mutually Amplifying Downside Risks



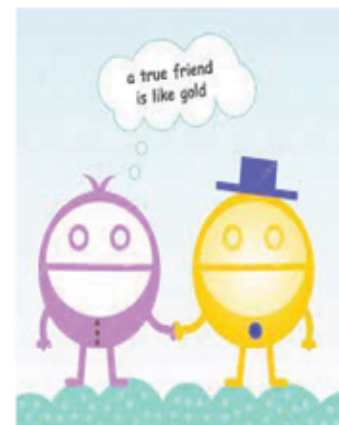
Source: World Bank, *Global Economic Prospects*, June 2022.

Gold prices in last 3 years



Fundamentals

- Gold supply in India is primarily met through imports
 - less than 1% coming from local mining
 - about 11% from recycling
 - Imports consist of gold in refined and in doré form
- India is the second largest gold market accounting for 25% of world's gold demand
- Demand → jewellery, coins, industrial, ETFs and bullion
- An asset class that maintains its value and purchasing power during inflationary periods



• Sukh Dukh ka Saathi

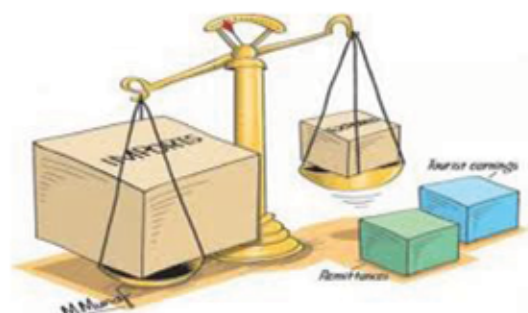
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Gold Imports

- Since domestic production of gold is minimal, demand is met largely through imports. This large demand on gold imports has an adverse impact on the CAD and further implications on the external sector stability.
- The recent trends in Gold imports have been on an uptrend

Trends in Gold Imports		
Gold Imports	INR crore	USD million
2019-20	1,99,250	28,230
2020-21	2,54,288	34,604
2021-22	3,44,094	46,166
2022-23 (upto June)	81,120	10,490

Source: Deptt. Of Commerce, Ministry of Commerce & Industry



India and China have doubled their gold market share in less than two decades

Emerging market economic development has created consumer demand and increased market share in India and China*



*As of 31 December 2020. Consumer demand is defined as the sum of jewellery, bar and coin demand. On Goldhub.com see: Gold Demand Trends. Sources: Metals Focus, Refinitiv GFMS, World Gold Council; Disclaimer

Comparison of returns

India

	10y CAGR	1-year
MCX Gold	5.63%	9.02%
BBG 1-3Y Indian Tsy	7.44%	2.15%
S&P BSE Govt Bonds	8.24%	1.20%
MSCI EM	7.13%	-20.37%
S&P BSE Sensex	13.26%	2.22%
BBG Commodities (INR)	2.73%	31.93%

Chart notes: * Indicates incomplete data set

Data based on INR. Data as of 30 Jun, 2022

Sources: Bloomberg, ICE Benchmark Administration, World Gold Council; Disclaimer: <https://www.gold.org/terms-and-conditions#proprietary-rights>

Recent Developments

- The 3 largest NBFC offering gold loans saw their assets jump by 32%, 25% and 61% year on year, respectively, in 2020
- Gold's appeal as a safe haven is only rising:
 - as tensions escalated in Ukraine, its price approached records
 - savings stashed away, as idle gold could be put to more productive use elsewhere
- Indian households hold 22,500 tonnes of the physical metal – five times the stock in American's bullion depository at Fort Knox and worth \$1.4trn at

current prices. The average family has 11% of its wealth in gold (against 5% in financial assets)

- Gold demand increased by 43% to 171 tonnes in April – June 2022, compared to 120 tonnes in previous year



Initiatives by Government of India

- Five Focus Areas as identified by Niti Aayog Report titled "Transforming India's Gold Market", 2018 are as follows:



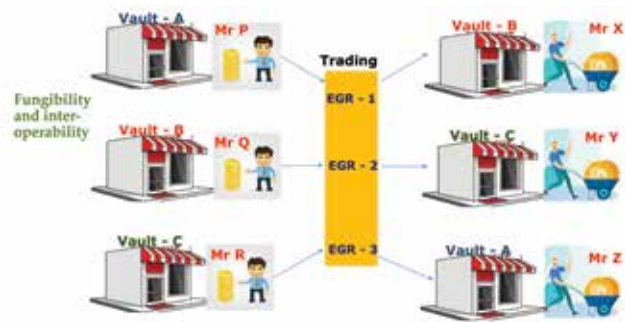
- Revamped Gold monetization scheme
- W.e.f 1st July, 2022, India's gold import duty increased by 4.25%, with consumers now paying 18.45% tax for refined gold compared to 14.07% previously.

Looking forward

- Technology allowed the world to continue functioning uninterrupted during Covid-19
- Pandemic gave rise to webex / zoom calls and new platforms for selling online gold as well
- Launch of IIBX is historic step and will facilitate
 - efficient price discovery
 - responsible sourcing
 - assurance on quality
 - impetus to financialization of gold in India
 - enable greater integration with other segments of financial markets
 - establish India's position as a dominant trading hub in the World



Framework for EGR Segment



Framework for EGR Segment

- **Withdrawal Center** → All existing branches of vault managers are allowed
- **Storage (vaulting) and Withdrawal Charges** → To be levied by the vault managers and be collected by the depository
- **Empanelment of assaying agencies:** Clearing Corporations to empanel
- **Logistic service providers:** Investors encouraged to utilize their own trusted means of transportation for movement of gold from vaults to their preferred location

Electronic Gold Receipt - Transaction Flow



Framework for EGR Segment

- **Who can launch** → New and existing recognized stock exchanges may launch and deal in EGRs, in a new segment
- **Structure of the transactions:**
 - First Tranche: Creation of EGR
 - Second Tranche: Trading of EGR on stock exchange/s
 - Third Tranche: Conversion of EGR into Physical Gold
- **Product denomination:** Different denomination allowed for trading and / or conversion of EGR into gold



Thank you



■■■

THINK GOLD. THINK BSE.



TRADE GOLD MINI OPTIONS

Benefits

- Cost-efficient
- Greater flexibility
- Better leverage
- Minimal risk

Empanelled refiners

- Augmont Enterprises Pvt. Ltd.
 - M D Enterprises Pvt. Ltd.
- Parker Precious Metals LLP
 - Sovereign Metals Limited
- Kundan Care Products Limited
- GGC Gujarat Gold Centre Pvt. Ltd.



INVEST IN EGR (ELECTRONIC GOLD RECEIPTS) A revolutionary way to invest in Gold

Benefits

- Transparent electronic platform
- Efficient price discovery & standardization
 - Assurance in the quality of gold
- Settlement guarantee to the investors
 - Fungibility of the gold delivery
- Hassle free owning and storing gold

Features

- New segment at BSE
 - Extended market timings (9:00 AM to 9:30 PM)
- Option of depositing and withdrawing physical gold
- Trading unit of 100 milligram, 1 gram and 10 grams
 - Accepted as collateral

Special Session for Jewellers Curated by MMTC-PAMP

A SCIENTIFIC APPROACH FOR INVESTMENT CASTING



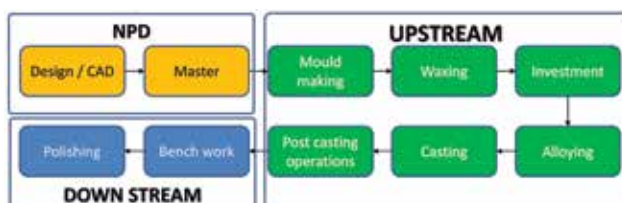
Mr Arun Brakash

Senior Manager Upstream
Titan Company Limited - Jewellery Division

Flow of Presentation

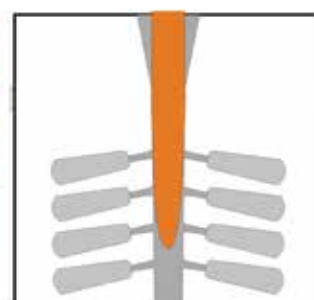
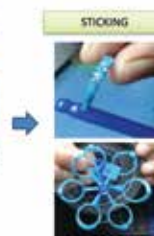
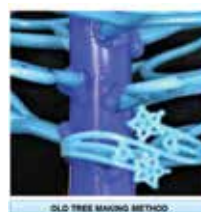
- Wax tree making
 - Investment inclusion problem
 - Increase yield
- Investment
 - Complete wax burnout
 - Silicosis
- Alloying
 - Avoid oxidation
- Casting
 - Low flask & metal temperature

Jewellery making process

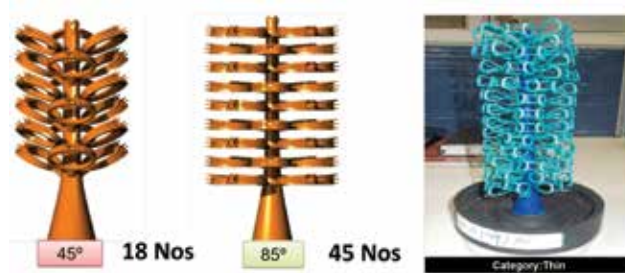


Investment inclusion

Waxing

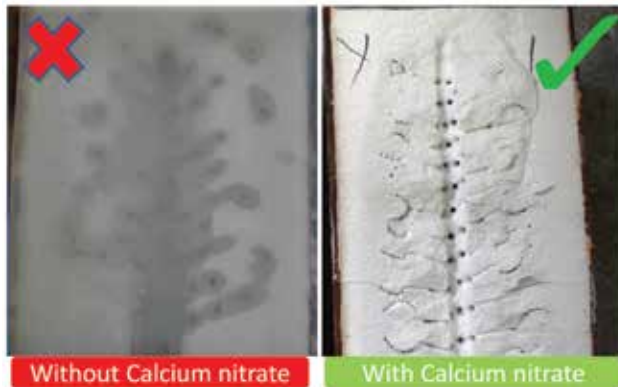


Increasing yield



Complete wax burnout

Investment



- Stone in place casting
- Enriching oxygen -Calcium nitrate
- Addition of 20g per liter of water
- Decomposes at around 500oC/932oF) by the following

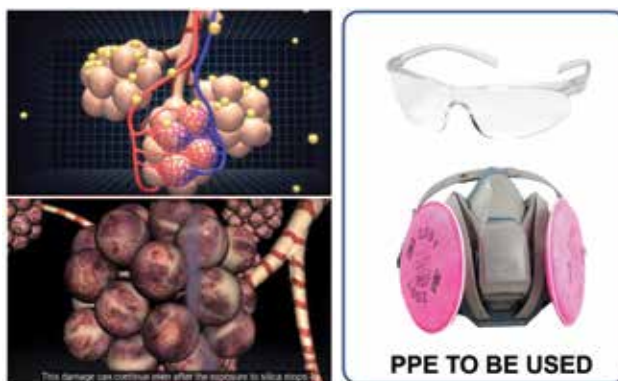
equation:



- oxygen is set free during that reaction.

Investment powder safety

Silicosis prevention



Alloying -Oxide crack prevention

Oxide cracks

Alloying



Preventing oxidation



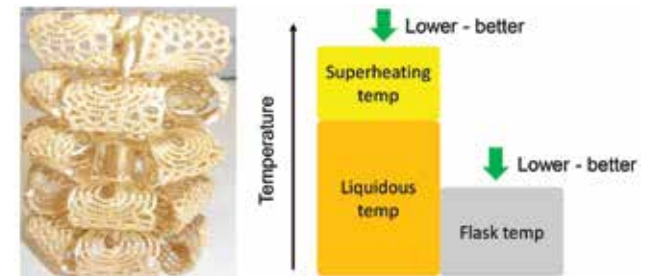
Filter the oxides



1. 50% scrap usage in casting after regrading
2. Auto-valve hole size is critical-Maximum 1.3mm
3. Helps to filter the oxides present in the scrap

Reduce metal mould reaction - gas release

Casting



Grid test



MMTC-PAMP: INTRODUCTION OF MASTER ALLOY



Mr Ankur Goyal

President (Works) MMTC-PAMP INDIA PVT. LTD.

MMTC-PAMP India Pvt. Ltd.

Introduction

A one-stop solution for Precious Metals



MMTC-PAMP: Introduction of Master Alloy

Content

- MMTC-PAMP Introduction
- Manufacturing
 - Jewellery Manufacturing –Casting and Hand-made
 - Major Defects & Cause
- Master alloys
 - What is master alloy
 - Range of Master Alloys
 - Key process steps and advantage of Master alloy
 - Properties of metal used for making master alloys
 - Major defects and remediation plan
 - Feedback from Customers related to Trees Casting
- Gold –Critical for good quality products

80 MN+
CUSTOMERS

16 TONNES
SCRAP

\$12 Mn
INVESTMENT IN
NEW PLANT

\$1 Mn
PROFIT IN TRADING

12
RETAIL CENTRES

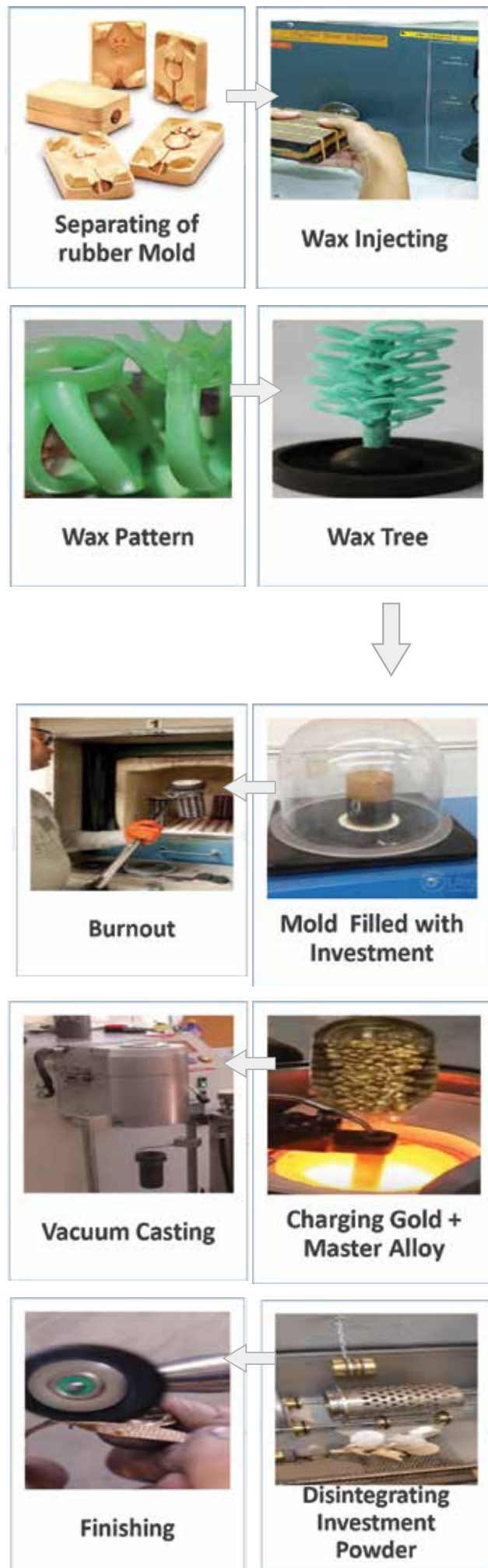
500+
EMPLOYEES

**ANNUAL INSTALLED
REFINING CAPACITY
OF
300T
GOLD &
600T
SILVER**

Jewellery Manufacturing – Casting -Handmade

Investment Casting or Lost Wax casting





Investment Casting And Handmade Process

Investment Casting Process

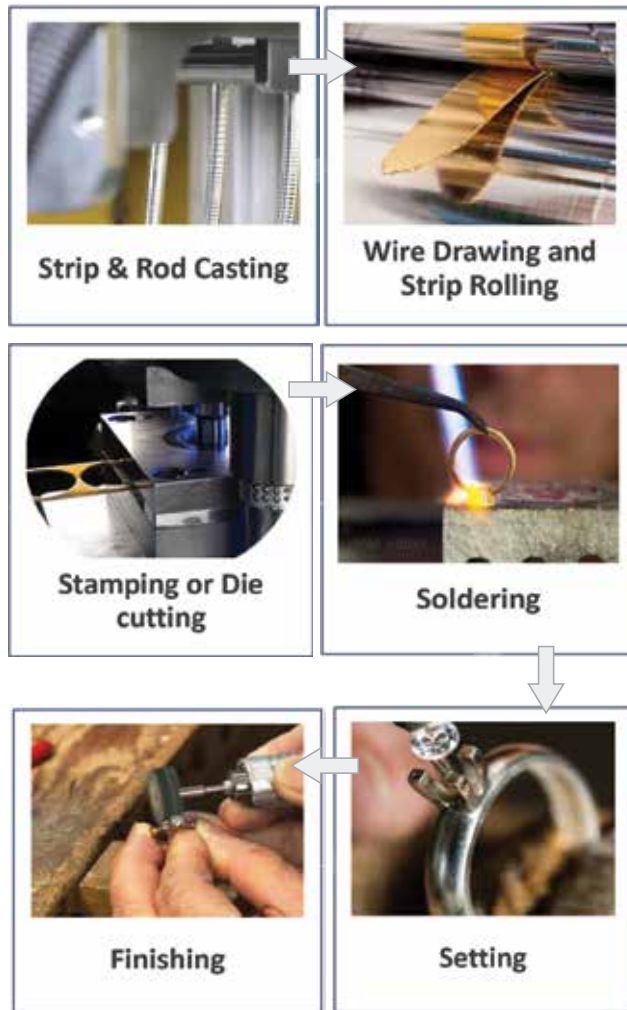
1. Master Pattern
2. Vulcanization of Rubber
3. Separating of Rubber Mold
4. Wax injecting
5. Wax Pattern
6. Wax Tree
7. Mold Filling with Investment
8. Burnout
9. Charging Gold + Master Alloy
10. Vacuum Casting
11. Disintegrating Investment Powder
12. Finishing

Major Casting Defect

1. **Porosity**
 - Si & Zn Combination helps to reduce it
 - Proper sprue location or its design can reduce it significantly
2. **Hard spot**
 - Over use of Silicon and Zinc may lead to Hard Spot also
 - **Gold Should be free from Fe & IrGroup**
3. **Cracking**
 - High Si in Alloy causes Cracking
 - Gold and Alloy should be Free From Pb, Se & Te
4. **Rough Surface**
 - High Si helps to improve fluidity during casting and reduces rough surface
5. **Oxide Inclusion**
 - Oxygen in metal can cause Copper Oxidation & lead to Inclusion
 - Excess Zn in alloy can lead to inclusion



Handmade Manufacturing Process



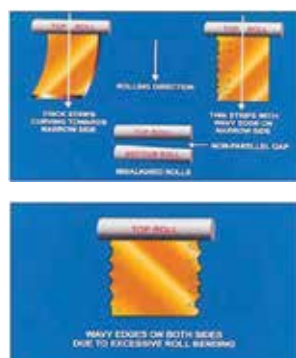
Investment Casting And Handmade Process

Handmade Process

1. Charging Gold+Master Alloy
2. Strip & Rod Casting
3. Wire Drawing & Strip Rolling
4. Stamping or Die Cutting
5. Soldering
6. Setting
7. Finishing

Major Handmade Defect

1. Roll Misalignment
 - Machine Adjustment
2. Roll bending
 - Machine Adjustment



3. Edge cracking
 - Higher Oxygen in metal
 - Higher Casting temp.
 - Si, Pb, Te & Se Should be Zero



4. Fins and laps
 - Improper Metal feeding



5. Drawing
 - Improper annealing
 - Boron as grain refiner

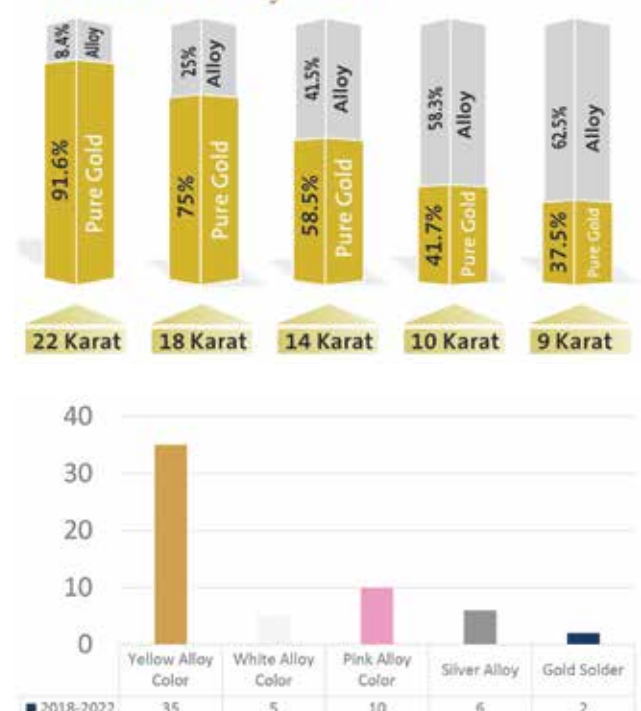


Master Alloy

What is Master Alloy

- Traditionally Jewelry is manufactured by casting in open / closed (Inert) system or handcrafting using strips or rods.
- In all the above operation, 24 karat Gold is converted to lower karatage i.e. 22kt, 18kt, 14kt, 10kt & 9kt by addition of elements like silver, copper, Zinc, other metals in small quantity which act as deoxidizer and grain refiner in the alloy. The alloyed metal used is known as **Master Alloy**.
- Master Alloys are available to produce gold of variety colors e.g. Yellow Gold, White Gold, Rose Gold, Green gold etc.

Gold Karat System



21K YELLOW GOLD CASTING & MECHANICAL ALLOY					
CODE	COLOR	KTY	APPLICATION	AGE	SPECIAL COMMENTS
Y00013	Reddish Yellow	120	Casting	8.5%	Good for Finger Work & Stone
Y00017	Red Yellow	120	Casting	6.1%	Hard alloy, Good Use
Y00019	Reddish Yellow	120	Casting	6.1%	Low Silver, High Ductility
Y00020	Red Yellow	120	Casting	40.3%	Good Silver, Low Ductility
Y00015	Reddish Yellow	120	Mechanical	4.9%	Formwork, Good for Stamp
Y00016	Reddish Yellow	120	40 purpose	10.3%	High Hard Surface Layer
Y00018	Red Yellow	120	Mechanical	12.8%	Good for Stamping, High
Y00012	Reddish Yellow	120	40 purpose	5.0%	Good for Stamping, Strip & Wire
14K-18K WHITE GOLD CASTING & MECHANICAL ALLOY					
CODE	COLOR	KTY	APPLICATION	AGE	SPECIAL COMMENTS
W00001	Off White	140	Casting	8.8%	High Ductility, Some in Place
W00003	Off White	140	Casting	13.3%	Stone in Place, Good Workability
W00002	Off White	140	Cast	10.3%	Low Nickel, High Recyclability
10K-18K WHITE GOLD CASTING ALLOY					
CODE	COLOR	KTY	APPLICATION	AGE	SPECIAL COMMENTS
W00004	Off White	9-140	Casting	1.8%	Low Silver, Soft Workability
18K-21K PINK GOLD CASTING & MECHANICAL					
CODE	COLOR	KTY	APPLICATION	AGE	SPECIAL COMMENTS
P00001	Deep Pink	180	40 purpose	8.1%	High Recyclability & Workability
P00003	Pink	9-140	Casting	8.8%	Moderate Silver, Easy Finishing
P00002	Light-Pink	9-140	Casting	13.3%	High Silver, Low Set on
P00005	Pink	9-140	Casting	6.3%	Suitable for Stone in Place
P00006	Light-Pink	9-140	Casting	6.3%	High Recyclability & Workability
P00004	Deep Pink	9-140	40 purpose	8.8%	Excellent Workability, Low Silver
P00002	Pink	9-140	40 purpose	6.3%	Low Silver, Low Nickel, Good Set on
P00011	Light-Pink	18-21K 40 purpose		16.0%	Good for Sheet, Wire, High Silver
P00012	Pink	9-140	Casting	9.0%	Very Finishing, Good Recyclability
P00013	Pink	9-140	Casting	16.0%	Good Workability & Recyclability
92.5% STERLING SILVER ALLOY					
CODE	COLOR	PURTY	APPLICATION	AGE	SPECIAL COMMENTS
S00001	White	925	Casting	62.5%	Excellent Recyclant, High Set on
S00002	White	925	Casting	67.0%	Formwork, High Ductility
S00003	White	925	Mechanical	69.0%	Excellent Recyclant, Good Set on
S00004	White	925	Mechanical	99.0%	Spring Steel Alloy, Anti-Tarnish
S00005	White	925	Casting	76.0%	High Performance & Recyclability

Min. 999.3+ Silver Purity
Applications: jewelry, bullion
Frequency: Uniform Size, Zero
Oxidation & Impurity Content as
per ASTM(B4) 1-9 (Cu<0.1%)

Engage continuously with experienced metallurgists and laboratory chemists to develop new products and solutions

Ingredient and properties of ingredient

The image displays a standard periodic table of elements, color-coded by groups. The legend at the bottom identifies the following categories:

- Alkali Metal:** Group 1 (excluding H)
- Alkaline Earth:** Group 2
- Transition Metal:** Groups 3-10
- Basic Metal:** Groups 11-12
- Semimetal:** Groups 13-14
- Nonmetal:** Groups 15-16
- Halogen:** Group 17
- Noble Gas:** Group 18
- Lanthanide:** Lanthanide Series (Groups 3-10)
- Actinide:** Actinide Series (Groups 3-10)

The periodic table includes element symbols, atomic numbers, and names. The Lanthanide and Actinide series are shown as separate rows at the bottom.

Major Elements in Master Alloy

Elements Role in Alloy

Ag	Silver - provides lustre & used to control the color for a desired appearance	Ni	Nickel a- bleaching agent and turns yellow gold into white appearance
Cu	Copper - increases hardness of the pure gold while still making it ductile for casting. Copper tends to turn gold color pink	B	Boron - deoxidiser and perhaps acts as grain refiner too via dispersion hardening
Zn	Zinc -Provides more fluidity of the melt , improves cast-ability; It improves tensile strength and improves color too	Co	Cobalt - grain refiner which increases hardness due to its dispersion effect
Si	Silicon-Increases the fluidity of the melt. It decreases the sensitivity that gold alloy has towards oxygen.	In	Indium - Increases fluidity and ductility ;lowers melting temperature
Ge	Germanium - acts as an effective de-oxidizer	Ga	Gallium –has hardening effect

General Casting Issue:

General Casting Issue	
Types of Defects	Reason
	Contribution of Alloy composition
Gas Porosity	<ul style="list-style-type: none"> Deoxidizer like Silicon in presence of Zinc produces a reciprocating effect to reduce mold-metal interface reaction time during casting by reducing surface tension. This reduces gas porosity caused by Sulphur dioxide from investment powder $\text{CaSO}_4 \rightarrow \text{CaO} + \text{SO}_2 + \frac{1}{2}\text{O}_2$; but the balance of Si, Zn in the alloy content is an important criterion else it can lead to inclusion issues. The other major contributor to gas porosity is unburnt carbon from poor burnout; In alloys with Nickel, it can lead to aggravated gas porosity
Shrinkage Porosity	<ul style="list-style-type: none"> Alloys with high Nickel or Cobalt require higher casting temperature which may attribute to this defect Flask and casting temperature combination needs to be optimized to avoid this Proper sprue location or its design can reduce it significantly
Inclusion as Hard spots	<ul style="list-style-type: none"> Oxygen in used copper and silver may lead to complex Silver copper oxide which will form hard spots Over use of Silicon and Zinc may lead to oxide too If Iridium is present in alloy as grain refiner, it may lead to hard spots if the melt is not homogenized at recommended temperature

General Casting Issue:

General Casting Issue	
Types of Defects	Reason
	Contribution of Alloy composition
Oxide Inclusion	<ul style="list-style-type: none"> The copper used in alloy making should be oxygen free and the oxygen content should be less than 10 ppm. Moreover, the silver used in alloy should have oxygen less than 50 ppm to avoid oxide formation in casting stage. Oxygen in silver leads to copper oxide inclusions, mostly as a silver/copper oxide eutectic. Following may happen due to this: - <ol style="list-style-type: none"> The inclusions cause hard spots as found during polishing Gas pores are created due to unstable oxide dissociation at solidification. Bubbles and pores are formed when copper oxide containing silver is annealed in a reducing atmosphere
Cracking	<ul style="list-style-type: none"> Imbalance between Cu : Si ratio can lead to Si segregation at grain boundary; • leading to cracking during casting; so the addition of Si is crucial and specially in which form is it added • Use of Iridium in alloys can form clusters leading to cracking during mechanical work
Roughness and oxidation	<ul style="list-style-type: none"> Small zinc additions in alloy reduce the reaction with the investment and, in this way, reduce gas porosity too. Probably, the formation of a dense layer of zinc oxide at the surface of the solidifying melt prevents the interaction of the melt with the investment This reduces surface roughness and may help in reducing gold loss during pre-polish The Jewellery surface is more lustrous and free from surface oxidation

Customer case study

Customer	1	2	3
Jewelry Manufactured	Studded 14k & 18k casting (diamonds)	CNC bangles 22K	93 Sterling Silver
Previously Using Alloy	Competitor	Copper and silver	Competitor
MMTC-PAMP Alloy used	SWY002 & SWY004	SWY017B	SWS002
Problem Faced	Microporosity	Low Lustre, Hardness in bangle	Low Hardness & low Reusability

Solution	In first interaction changed sprue location and design	In first interaction, we studied his requirements of hardness & lustre	In first interaction, we understood his requirement of hardness & reusability; did hardness testing of present sample under Vickers .
	Developed SWY002 with Si as Deoxidiser and with Silver content to meet his price expectation; colour was not acceptable	Developed SWY017B with cobalt and boron for grain refining and deoxidising; silver was kept low in order to meet his price expectation;	Developed SWS002 with higher hardness; yet there was issue in reusability such as cracking
	Changed Copper silver ratio within same price range and supplied new sample	Hardness was still required	Increased Silicon solubility by adjusting Copper Silicon ratio to reduce cracking and increased Zinc slightly to compensate for oxidation
	wanted more lustre; added Germanium and submitted new sample within two working days	We changed the copper content in order to increase solid solution hardening and supplied new sample in 3 working days	Formulation was acceptable with customer
	The formulation was successful and now commercial conversion to 10kgs per month	Acceptable for customer; commercial conversion to 10kgs per month	commercial conversion to 90-100kgs per month

What are the disadvantages of Locally refined Gold



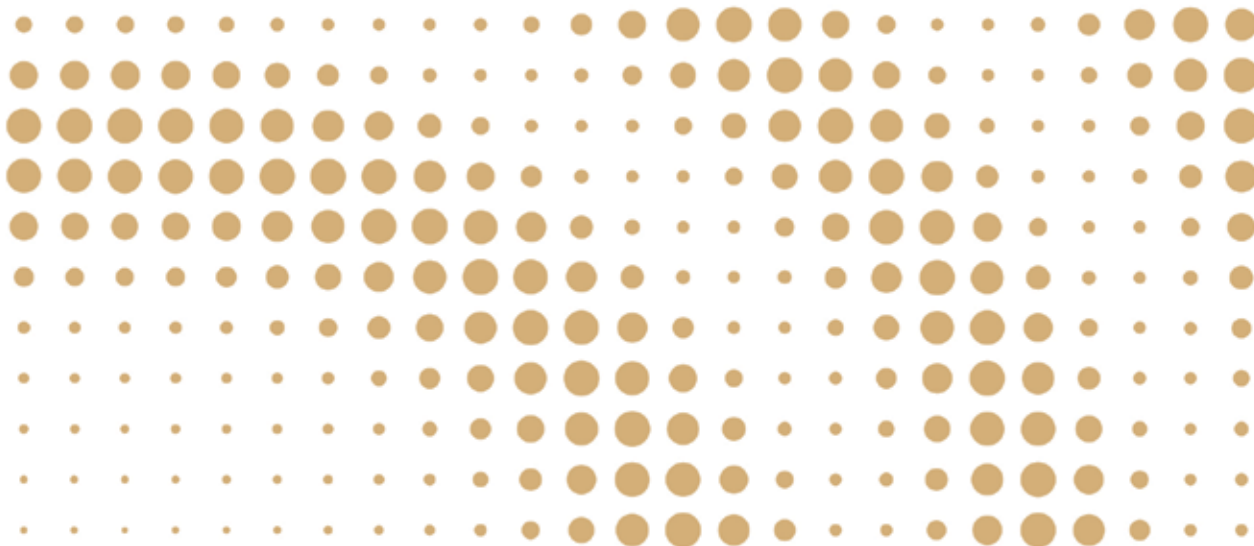
Impurities leading to poor finish and higher rejection



Chemical method if not controlled will add impurities to the Metal

Element	MMTC-PAMP Bullion			Indian Refiners			
	999.9 (Sponge)	999 (Conversion)	995 (Conversion)	Refiner 1	Refiner 2	Refiner 3	Refiner 4
Gold (Au) %	999.96	999.08	995.08	994.92	995.05	995.05	995.00
Silver (Ag) (ppm)	29	900	4903	4747.6	4791	4584	4872
Palladium (Pd)					5	38	35.5
Platinum (Pt)						11	
Aluminium (Al)					2		
Antimony (Sb)				5.5			
Arsenic (As)				6			
Copper (Cu)	11.6	14.9	13.2	161.4	98	40	14
Iron (Fe)				42	15		27
Lead (Pb)						11.5	42
Manganese (Mn)						2	
Silicon (Si)					3	4	
Tin (Sn)				89.5	15		5.8
Tellurium (Te)					5	14	3.7
Zinc (Zn)				20.8			

Give gold more byte.



Search
Gold247™

Gold247 is the World Gold Council's vision for transforming the global gold market to meet the challenges of today's consumers and investors.

Gold247 focuses on three pillars of work: integrity, accessibility and fungibility. Underpinned by the digitalisation of gold and the digital transformation of the gold market's infrastructure, this initiative aims to enhance trust in gold and, as a result, unlock substantial demand.



**WORLD
GOLD
COUNCIL**

**GOLD
247™**
ENABLING
A DIGITAL FUTURE

PRODUCT COMPARISON WE STAND OUT

MMTC PAMP ALLOY

18 Y Cast tree with
MMTC -PAMP gold
free from impurities



Smooth, oxidation
free 18 K pink gold
strip casted with
MMTC-PAMP gold
having no impurity



MMTC PAMP ALLOY

Poor 18 Y tree
casted using locally
refined gold with
high impurity



18 K Strip with local
gold having oxidized
surface finish due to
high impurity content



22 K Finished ring
from MMTC-PAMP
gold having high
lustre and finish



22 K ring from local
gold having broken
shank due to
impurities



Bullion bar with
MMTC-PAMP
gold



Slags on bullion bar
with local gold



Feedback from Customers related to Trees Casting



ELECTROFORMING TECHNOLOGY



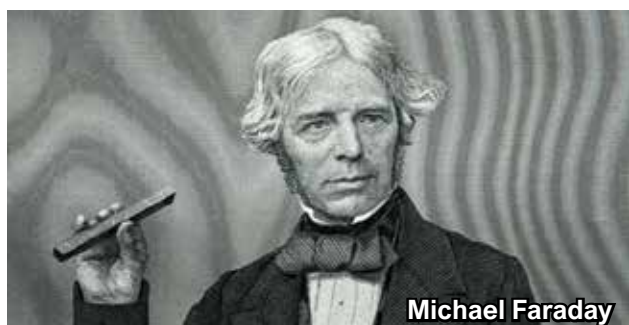
Mr G K Venkatagopal
Emerald Jewel Industry India Limited

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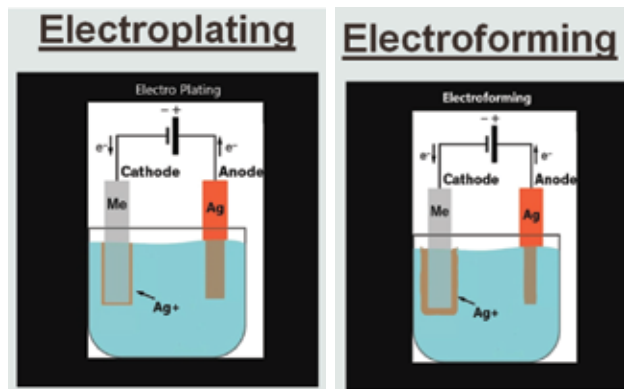
- What is Electroforming?
- Process Flow of Electroforming
- Types of Electroforming Process in Emerald
- Benefits of Electroforming products
- General problems in Electroforming
- Challenges in Electroforming production

What is electroforming?

- Electroforming Technology arises from **Electrolysis**
- **Faraday law**.....1. "The mass of a substance deposited at any electrode is directly proportional to the amount of current passed." &
- 2. "The mass of a substance deposited at any electrode on passing a certain amount of current is directly proportional to its chemical equivalent weight."



Michael Faraday



By using Faraday law one can do Electroplating and Electroforming.

- In Electroplating thickness ranges from 0.10-10 microns
- In Electroforming thickness ranges from 150-600 microns
- Electroplating is a topcoat for attaining surface strength or decorative colors and can deposit thickness ranges from 0.10-10 micron only.
- Whereas Electroforming is a far superior process used to manufacture Jewellery parts with high precision.
- We shall deposit multi layers of metal or alloy over the Mandrel (core)
- Mandrels can be made by casting with low melting alloy which can be directly used in electroforming.
- Wax Mandrel also can be used by making the surface conductive with special ink.
- We can deposit higher thickness of gold or silver ranging 150-600 microns.

Mandrel Picture (Metallic)



Mandrel Picture (Non Metallic)



Process Flow of Electroforming

- Jigging
- Cleaning Process :
 1. Ultrasonic cleaning
 2. Electrolytic Cleaning
 3. Acid Dip Cleaning
- Forming Process:
 1. Pre-plating Process
 2. Electroforming Process
- Mandrel Removing or Emptying process

Jigging

- Polished mandrels are fixed over SS sticks to form a Jig.
- Jigs are highly conductive and hold many mandrels, which are taken to further process.



Cleaning Process :

1. **Ultrasonic cleaning :**
Using soap cleaning solution with Ultrasonic Vibration is used to remove dust, dirt, fingerprint over the surface of mandrel.
2. **Electrolytic Cleaning (Cathodic):**
Using suitable alkaline solution as electrolytic cleaning media, Jewellery parts (Mandrel) are connected to cathode and applying current, electrolysis of water takes place and evolves Hydrogen gas as bubbles and cleans the surface from scales, corrosion & oil etc.,

$$4\text{H}_2\text{O} + 4\text{e}^- \longrightarrow 4\text{OH}^- + 2\text{H}_2$$

3. Acid Dip

Acid dip neutralises alkaline nature of electro cleaned Mandrels and further activates the surface for good adhesion of gold or silver.



Pre Forming Process

- Pre-Forming process is important for metal mandrel to make the surface bright, level and smooth.
- Normal Pre Forming is done by Strike Bath.



Electroforming Process:

- A unique feature of the electroforming process is that the gold alloy grows over Mandrel atom by atom and this process imparts absolute accuracy and high aspect ratio.
- In Electroforming thickness ranges from 150 micron to 600 Micron.
- The solution or bath contains the required gold & alloy metal in the form of Salts.
- The process continues until the required thickness is achieved by maintaining optimum level of bath

contents & operating parameters.

- Operating the bath is not easy but needs continuous maintenance while forming.
- Maintenance of chemical parameter is essential to control purity, rejections and surface quality.
- Of course EFM machine must be high level of accuracy with micro processor control.

Silver Electroforming



Gold Electroforming



Mandrel Removing or Emptying process :-

- Mandrel removing process is done by Two Steps
- 1. Using High precision Mechanical machines.
- 2. Chemical Treatment.



Types of Electroforming in Emerald

Gold

- 18Kt Gold Electroforming
 1. Yellow Gold Jewellery
 2. Pink Gold Jewellery
- 22Kt Gold Electroforming
 1. Yellow Gold Jewellery
- 24Kt Gold Electroforming
 1. Idols Forming 99.99
 2. Feather light Idol 99.90
 3. Jewellery 99.90 (New)
- 14kt Electroforming (New)
- 10kt Electroforming (New)



Silver

- We produce following products.....
 1. Idol
 2. Mural
 3. Garland
 4. Diya
 5. Gift Items
 6. Jewellery (New)
- Purity is always 99.90



Gold Electroforming -Products



Electro Forming Stone Rings



Electro Forming Plain Rings



Electro Forming Plain Pendant set



Electro Forming Stone Pendant Set



Electro Forming Stone Chainset



Electro Forming Stone Charms



Electro Forming Plain Chainset



Electro Forming Plain Charms



Electro Forming Plain Neck Chains



Electro Forming Stone Bangle



Electro Forming Gold Idol



Electro Forming Plain Bangle



Electro Forming Stone Neck Chains



Electro Forming Idol



Electro Forming Mural



Silver Electroforming - Product - Garland



Silver Electroforming-Products-DIYA



Silver Electroforming -Products -Gift Items



Benefits Of Electroforming Products

- We can able to produce jewellery/idols which are big in size and weighs low.
- Three dimensional(3D) complex shapedarticles shall be made using this technology with high dimensional accuracy.
- Hard and durable jewellery product with 0.15 mm (150 micron) thickness.
- Out of our 15 years of nonstop experience we can produce any thickness with absolute accuracy.
- EFM products has high shine with good strength.



Customised Products in Electroforming

- We can able produce customised products in electroforming



Weight Comparison of Silver Idols



- In Solid Idol Weight-1170gms
- In Electroforming Idol Weight-70gms



- In Solid Idol Weight-102gms
- In Electroforming Idol Weight-10gms

An opportunity to trade in Gold options

Trade on NSE, the World's largest derivatives
Exchange*



NSE launched trading in options contracts on physical gold. Gold options provide an excellent hedging and trading opportunity in volatile and uncertain times. Trade on NSE, your preferred multi asset exchange in India.

National Stock Exchange of India Ltd.

www.nseindia.com

*As per World Federation of Exchanges (WFE) for the year 2019.

Disclaimer: Investment in securities market are subject to market risks, read all the related documents carefully before investing. Client should read the Risk Disclosure Document issued by SEBI and relevant Exchanges and the terms & conditions on www.nseindia.com



- In Casting weight-17 gms
- In Electroforming weight-6 gms



- In Casting weight - 7 gms
- In Electroforming weight - 2.5 gms



- In Casting weight-4gms
- In Electroforming weight-1.5 gms



- In Casting weight-16.5 gms
- In Electroforming weight-6 gms



- In Casting weight - 4 gms
- In Electroforming weight - 1.5 gms



- In Casting weight - 17 gms
- In Electroforming weight - 8 gms

Challenges in Electroforming production

In gold electroforming majorly faced problems are.....

1. Blister/Bubble issues.
2. Roughness/Nodular deposition.
3. Purity Control.
4. Dullness.
5. Soldering property.

We are overcoming all these problems for past 15 years and attain International Product Quality.

We are striving for continuous improvement & our journey of learning is still going on.....



EMERALD

■ ■ ■

Special Session on Refining Technology

CONTROLLING LOSSES IN REFINING OPERATIONS

"Precious metals refining is both science and art"



Mr Peter Bouwer

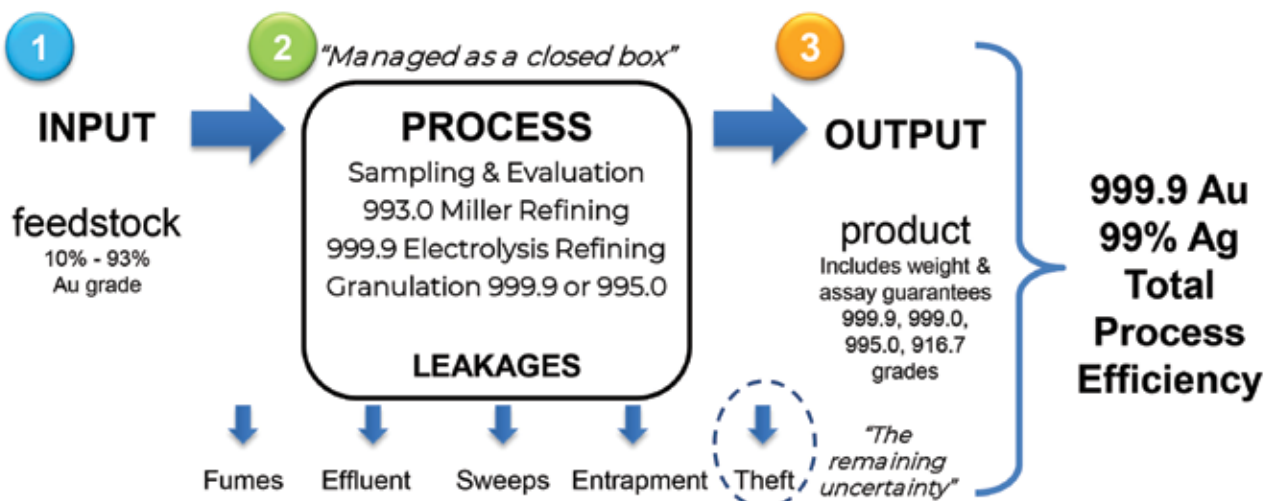
General Manager, Refinery & Fabrication
Rand Refinery, South Africa

Who is Rand Refinery

- Founded in South Africa in 1921
- Refined over 50,000 tons of gold to date
- Owned by depositing mine shareholders –so everything we do is biased towards a fair deal for the depositing mine
- 46% RSA gold mine deposits, 54% African mine deposits
- 98% mined throughput (recognising that every ounce of recycled gold was once mined –this should be added to the accumulating ESG footprint of recycled gold)
- Certifications: LBMA referee, COMEX, SGE, ISO9002, ISO14000, ISO18000, ISO17025



Basic Principle: Total Mass Balance of the Refinery



Based on the AMIRA P754 CODE for Metal Accounting Principles → Application audited!

For reference: The 10 metal accounting main principles

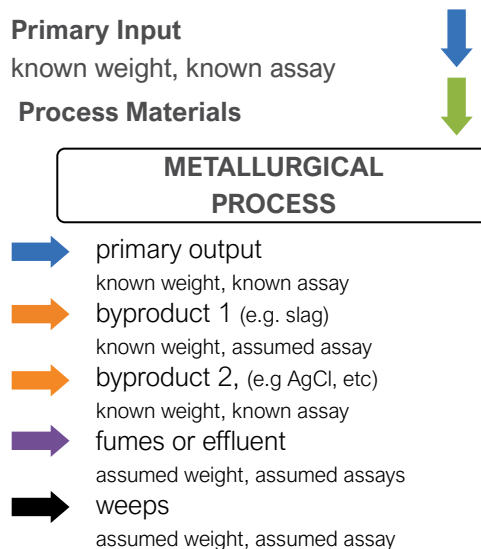
Embedded in the Rand Refinery ERP (SAP) system

1. The metal accounting system must be based on **accurate measurements of mass and metal content**. It must be based on a **full Check in-Check out system** using the Best Practices as defined in this Code, to produce an on-going metal/commodity balance for the operation. The system must be integrated with management information systems, providing a one-way transfer of information to these systems as required.
2. The system must be **consistent and transparent and** the source of **all input data to the system** must be clear and understood by all users of the system. The design and specification of the system must incorporate the outcomes of a risk assessment of all aspects of the metal accounting process.
3. **The accounting procedures must be well documented and** user friendly for easy application by plant personnel, to avoid the system becoming dependent on one person, and must incorporate **clear controls and audit trails**. Calculation procedures must be in line with the requirements set out in this Code
4. The system must be subject to **regular internal and external audits and reviews** as specified in the relevant sections of the Code to ensure compliance with all aspects of the defined procedures. These reviews must include assessments of the associated risks and recommendations for their mitigation, when the agreed risk is exceeded.
5. Accounting results must be made **available tim- eously**, to **meet operational reporting needs**, including the provision of information for other management information systems, and to facilitate corrective action or investigation. A detailed report must be issued on each investigation, together with management's response to rectify the problem. When completed, the plan and resulting action must be signed-off by the Competent Person.
6. Where provisional data has to be used to meet reporting deadlines, such as at month ends when analytical turn-around times could prevent the prompt issuing of the monthly report, **clear procedures and levels of authorisation for the subsequent replacement of the provisional data** with actual data must be defined. Where rogue data is detected, such as

incorrect data transfer or identified malfunction of equipment, the procedures to be followed together must be in place

7. The system must generate sufficient data to **allow for data verification**, the handling of metal/ commodity transfers, the reconciliation of metal/ commodity balances, and the measurement of accuracies and error detection, which should not show any consistent bias. **Measurement and computational procedures must be free of a defined critical level of bias.**
8. **Target accuracies for the mass measurements and the sampling and analyses must be identified** for each input and output stream used for accounting purposes. The actual accuracies for metal recoveries, based on the actual accuracies, as determined by statistical analysis of the raw data, achieved over a company's reporting period must be stated in the report to the Company's Audit Committee. Should these show a bias that the Company considers material to its results, the fact must be reported to shareholders.
9. **In-process inventory figures must be verified** by **physical stock-takes at prescribed intervals**, at least annually, and procedures and authority levels for stock adjustments and the treatment of unaccounted losses or gains must be clearly defined.
10. The metal accounting system must **ensure that every effort is made to identify any bias** that may occur, as rapidly as possible and eliminate or reduce to an acceptable level the source of bias from all measurement, sampling and analytical procedures, when the source is identified.

The Metal Accounting Transaction



No metal move without the above transaction and paperwork attached for check-out, check-in validation

Note: Red text - What Rand Refinery focused on

Every metal movement in the process value chain forces the above transaction with every field to be completed. Where “actual data-based” historic assumptions are used, the Metal Assurance functionary signs off on the agreed values for the year and a bias is annually reviewed

1

Feedstock –metal accuracy starts here!

representative repeatable sampling + weighing accuracy + repeatable evaluation = foundation of metal accounting

Sampling & Evaluation

Every deposit will have:

- 6 x fire assay prills to determine Au & Ag
- 2 XRF disks to confirm Au and 21 deleterious elements
- Be careful of Fe, Ni, Zn, Ir

Weight Determination

Every deposit will have:

- Customer weight
- Wet receival weight
- 3 x Dry weight (0.01%)
- Weight After Melt
- Settlement weight

Sampling theory statistical methods applied



Things to remember about mass balances

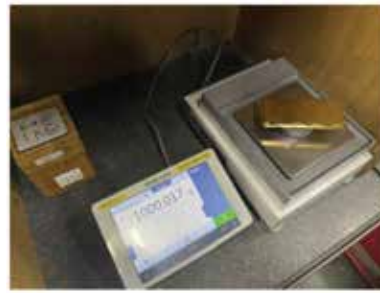
Every deposit will have:

- We employ a total of 93 mass balances throughout the operations from 1kg –1000kg
- Minimum significant numbers accepted = 5. Critical applications (buy/sell) use 7 significant numbers



Scales drift –shield from airflow changes

Measure ambient conditions and develop a calibration policy, but not less than twice a day



A mass balance must be sized correctly!

You cannot accurately weigh a 1 KiloBar on a 30kg mass balance!

Every mass balance must have it's own dedicated calibration weight that itself is calibrated annually

Our motto: “every milligram matters, every second counts”

2

Processes –Losses and where to look

Likely First Pass Efficiency

-40kg Au in 100,000kg

Bag Plant, slag, sample return

98%

Silver Chloride, pipes, refractory, scrubbers

Sampling & Evaluation

Miller refining to 993.0

Dechlorination
Silver refining

Au

80%

Electrolyte, plating in banks & tanks, pipes

-100kg Au in 100,000kg

Crucibles, fumes, equipment

Electrolysis refining to +999.9

Granulation
999.9
995.0

Alloying

-2kg Au in 100,000kg

Machine entrapment
Weight adjustment

Product
Manufacture

Some lessons that took us a long time to work out:

- If gold cathode crop or silver crystals are not perfectly dry before granulation, you may see perceived weight losses
- Installing settling tanks and recycling filter presses or catalytic recovery on EVERY effluent line out of the plant recovered, a surprising amount of gold and silver even after effluent were treated through precipitation

Gold from sweeps and scrap recovery: +50kg per 100,000kg

- Gold has the propensity to go everywhere. Every item in the refinery is treated as gold containing!
- Every movement of human and material across the high security boundary constitutes risk.
- Once in the refinery, it stays there:
 - No contractor tools go out. Remains in the refinery.
 - As much as possible equipment are fixed inside the refinery (rotasideal theft vehicle)
 - Industrial clothing remains in the refinery –incinerated at end of life
 - Everything “dies” by incineration or grinding inside the refinery to remove gold



*Sweeps crushing
and metal recovery*



*Incinerated
material for melting*



*Laundry inside –all
sumps “trapped”*



*Material for incineration
inside refinery*

3

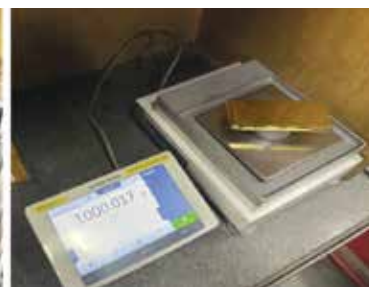
Product Output –everything is measured

- Biggest contractual risk – product movement to customer without payment release
- Biggest operational risk – weight and assay guarantees above nominal values: 25kg per 100,000kg
- E.g. 22ct KR coin guarantee is 20mg weight + assay at 91.70% = \$1.81/oz
- The above measurable product guarantees must be accounted for in the annual metal balance

Rand Refinery guarantees 1oz gold content of it's products by combined contribution of weight and assay



*Weight adjustment
of Kilobar*



Final Kilobar weight



*Precision strip rolling
to 1micron for coins*



*Coin weight sorting by
robot*

Product Output - quality control (rejects risk more losses)



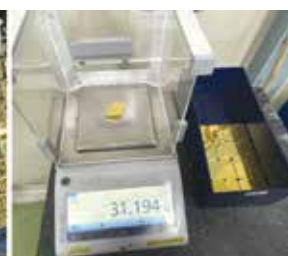
*Silver crystal – default
production is 999.9 purity
bat has produced 999.99
purity for customers*



*Gold granules of small di-
ameter at assay of +999.9
the default.
Basis for quality products*



*Kilobars from the automated
production line during QC*



*1 oz Minted Bar blank
QC before minting*

■ ■ ■



AL ETIHAD GOLD

PURITY & QUALITY AT ITS BEST

Al Etihad is a story of awe-inspiring growth and transition, a journey that has made the company one of the most recognised and trusted gold and silver brands globally.

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EVALUATION OF VARIOUS HAZARDS ASSOCIATED WITH REFINING OF GOLD



Mr. Debasish Bhattacharjee
Sr. VP (Works) MMTC-PAMP India Pvt. Ltd.

80 MN+ CUSTOMERS	12 RETAIL CENTRES
16 TONNES SCRAP	500+ EMPLOYEES
\$12 Mn INVESTMENT IN NEW PLANT	ANNUAL INSTALLED REFINING CAPACITY OF 300T GOLD & 600T SILVER
\$1 Mn PROFIT IN TRADING	

Evaluation of various Hazards associated with Refining of Gold

Introduction

- Primary Recovery and refining of gold from dore jewelry scrap and other waste involves use of Pyrometallurgical processes
- Chemical electrochemical techniques such as Inquartation Parting, Aqua regia, Electrolysis etc are then mostly used to achieve a purity of 99.9 and more
- The impurities which are usually associated with gold are varied namely Ag, Cu, Zn, Sn, Fe, Ni, Co, Bi, Al, Te, Se, Cd, Pb PGM Ir, Ru, Os) which needs to be removed to arrive at required fineness This can be estimated by proper analysis before we start the process
- The selection of the refining technique depends on various factors such as:
 - end product requirement
 - gold content and impurity content including Silver
 - physical and chemical characteristics of the material
 - Inventory holding capability
 - economic feasibility based on factors such as quantity availability location etc
 - available expertise and skills
 - safety environmental regulations

Risks associated with refining of gold



MMTC-PAMP India Pvt. Ltd.

Introduction

One-stop solution in Precious Metal Ecosystema



Major Pyrometallurgical Techniques

The main processes used for Gold Recovery and Refining are as follows:

Incineration Burning of waste material having precious metal with an aim to remove moisture and organics

Volatilization Removing all metal including silver by applying vacuum and heat

Oxidation

- (a) by air blowing or roasting selective incineration and convert the chemistry to facilitate leaching
- (b) by “bessemerizing” selective removal of copper from the alloy by blowing air
- (c) by sodium nitrate
- (d) by metallic oxides
- (e) by cupellation using lead to remove all base metal and leave gold and silver as alloy

Chlorination

Purging of pure chlorine in molten metal and base metal as insoluble chloride (Miller process)

Equipment used in Pyrometallurgical process



Incineration



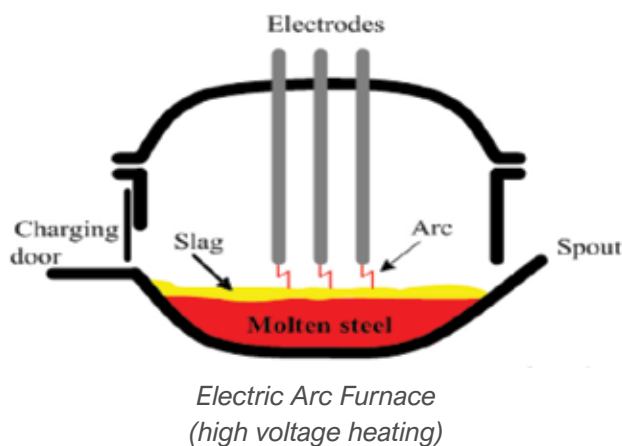
Small Resistance Furnace
(resistance heating)



Induction furnace
(Induction heating)

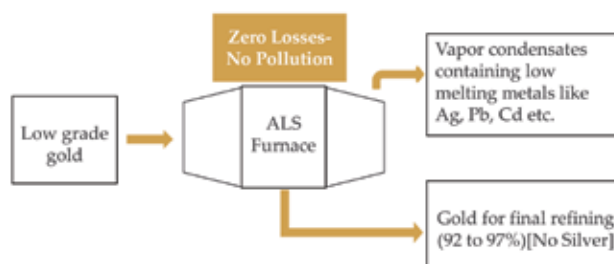


Top Blown Rotary Furnace
(fuel fired)



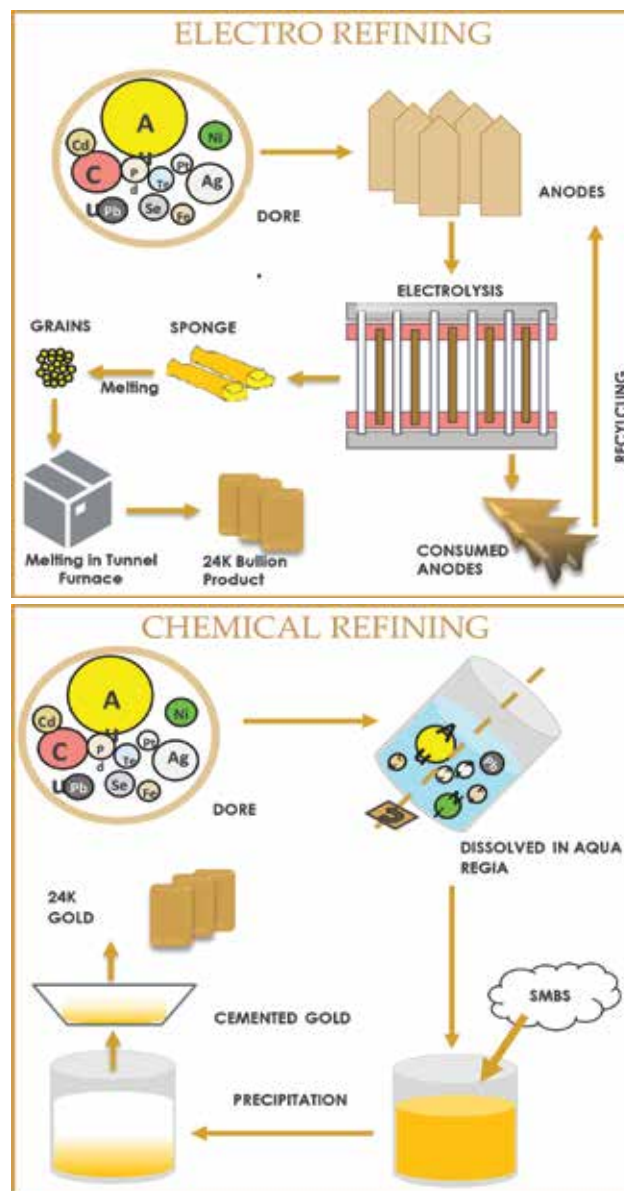
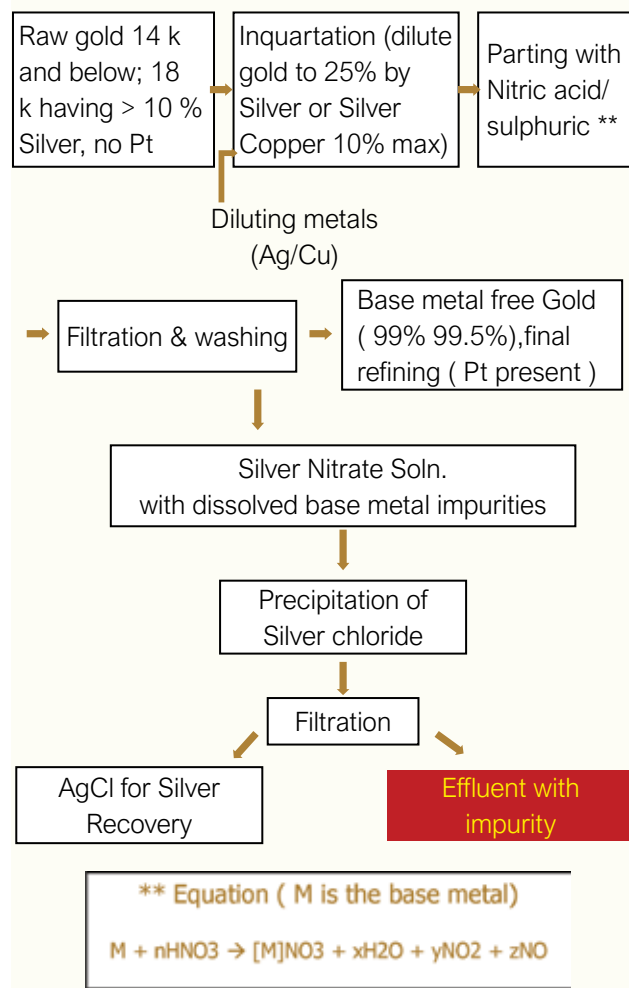
Electric Arc Furnace
(high voltage heating)

Acid less Separation (ALS) the latest technology



Major Chemical and electrochemical Techniques

1. Inquartation and Parting
2. Aqua Regia digestion and precipitation
3. Wohlwill Electrolysis process

Inquartation and Parting**Capabilities of various techniques**

REFINING TECHNIQUE	REMOVES BASE METALS	REMOVES SILVER	REMOVES PGMS	LARGE SCALE REFINERS	SMALL SCALE REFINERS
PYROMET-ALLURGICAL PROCESS					N
CUPELLATION	Y	N	N	N	Y
CHLORINATION PROCESS	Y	Y	N	Y	N
ACIDLESS REFINING	Y (w/out Cu)	Y	N	Y	N
CHEMICAL PROCESS					
INQUARTATION AND PARTING	Y	Y	N	N	Y
AQUA REGIA PROCESS	Y	Y	Y	N	Y
WOHLWILL ELECTROLYTIC PROCESS	Y	Y	Y	Y	N

Identifying the various hazards

Pyrometallurgical process

- **Fumes** having dust, untreated carbon compounds, metal oxides, heavy metal particles their treatment
- **Slags** having toxic material as waste its disposal

Chemical process

- **Fumes** having untreated acids, Nox, Sulphur dioxide, Chlorine - treatment
- **Effluents** high acidic, chemical salts of dissolved base metal - treatment
- **Sludges and salts** waste - disposal

Specific causes for fumes

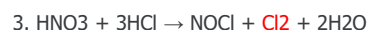
Fumes from Pyrometallurgical processes

Generated during heating and melting and may contain

untreated carbon compounds, dust particles, metal oxides, heavy metal vapours etc.; fuel fired furnaces cause more fumes

Fumes from Chemical Refining

Generated during acid digestion, gold precipitation, neutralisation and may consist of Nox, Sox, Chlorine, ammonia vapours etc. formed during reactions:

**Equipment used in Pyrometallurgical process**

ENVIRONMENTAL IMPACT CATEGORY	MEASUREMENT UNIT & DESCRIPTION
Global Warming	Carbon dioxide equivalence (CO₂ equivalence) Measuring the impact of green house gases on global warming over 100 yrs time period
Eutrophication	Nitrogen equivalence (N equivalence) Measuring the impact of nitrogen on the aquatic life
Respiratory Effects	Particulate matter 2.5 equivalence (PM_{2.5} equivalence) Measuring the impact of dust on human respiratory system due to inhalation
Ecotoxicity	Comparative toxic unit for environment (CTU_e) Measures eco impact where 50% of a species displays an adverse effect; it is measured as the potentially affected fraction of species (per kilogram of chemical emitted)
Carcinogenics	Comparative toxic unit for human (CTU_h) Estimated increase in human morbidity related to carcinogenic illnesses no of cases per kilogram of emission
Non-Carcinogenics	Comparative toxic unit for human (CTU_h) Estimated increase in morbidity of the total human population related to non-carcinogenic illnesses (expressed in cases per kilogram of emission)
Fossil Fuel Depletion	Megajoules of surplus (MJ) This measures the depletion of fossil fuel resources
Acidification	Sulphur dioxide equivalence (SO₂ equivalence) Measures impact of increasing concentrations of hydrogen ions that can cause damage to ecosystem
Photochemical Smog Formation	Ozone equivalence (O₃ equivalence) Measures the impact on human respiratory system caused by the formation of ground level ozone and also crop damage

Effects of heavy metals on human health

When the gold containing impurities is melted, metals may get carried off as particulate matter and volatile oxides along with the fumes and add to the particulate matter (PM) of the environment.

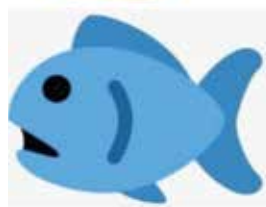
Element	Behavior in molten condition	Effect on human health
Cadmium	Forms volatile oxide	Affects the respiratory and cardiovascular system
Lead		Lead has severe effect on renal functions over long exposure impair body's ability to produce haemoglobin affect the nervous system too
Selenium & Tellurium		High exposure may lead to collection of fluid in the lungs and bronchitis
Arsenic		Arsenic trioxide may induce, vomiting, diarrhea, gastrointestinal hemorrhage, cerebral edema and hypovolemic shock
Iron, Nickel, Cobalt and Copper	Are removed as slags may also be carried as metallic particles in fume	Metallic fumes if inhaled, may lead to asthma, rhino conjunctivitis, and dermatitis.
Mercury	Vaporizes as metal at a temperature of 357 °C	Vapors can produce harmful effects on the nervous, digestive and immune systems, lungs and kidneys, and may turn fatal
Zinc	Produces bright flashes of light and dust cloud	Over exposure to zinc oxide fume may cause metal fume fever



(Table 3) Behavior of elements during melting and casting and their effects on Human being

Effects of heavy metals on environment

Element	Behavior in molten condition	Effect on Environment
Cadmium	Forms volatile oxide	When absorbed by soil and water sources, may cause growth and functional defects in living organisms
Lead		When accumulated in organisms, can cause damage to aquatic and terrestrial life forms
Selenium & Tellurium		Extremely high concentrations can cause reproductive failure and birth defects in animals
Arsenic		Inhibits photosynthesis in plants affecting their growth and survival
Iron, Nickel, Cobalt and Copper	Are removed as slags may also be carried as metallic particles in fume	No specifically mentioned effects.
Mercury	Vaporizes as metal at a temperature of 357 °C	Equally potent towards aquatic and aerial life forms.
Zinc	Produces bright flashes of light and dust cloud	Compounds of zinc metal can be toxic to the eco system



(Table 4) Behavior of elements during melting and casting and their effects on environment

Government regulations for discharged air quality (CPCB norms)

Pollutant	Time Weighted Average	Concentration in Ambient Air	
		Industrial, Residential, Rural and Other Areas	Ecologically Sensitive Area (notified by Central
Sulphur Dioxide (SO₂), µg/m³	Annual* 24 hours**	50-80	20-80
Nitrogen Dioxide (NO₂), µg/m³	Annual* 24 hours**	40-80	30-80
Particulate Matter (size less than 10 µm) or PM₁₀ µg/m³	Annual* 24 hours**	60-100	60-100
Particulate Matter (size less than 2.5 µm) or PM_{2.5} µg/m³	Annual* 24 hours**	40-60	40-60
Lead (Pb) µg/m³	Annual* 24 hours**	0.50-1.0	0.50-1.0
Arsenic (As), ng/m³	Annual*	6	60
Nickel (Ni), ng/m³	Annual*	20	20

* Annual arithmetic means of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals. ** 24 hourly or 8 hourly or 1 hourly monitored value, as applicable, shall be complied with 98% of the time, they may exceed the limits but not on two consecutive days of monitoring.
Source: National Ambient Air Quality Standards, Central Pollution Control Board Notification in the Gazette of India, Extraordinary, New Delhi, 18th November, 2009

Control measures to mitigate hazards from Pyro process fumes**Measures for mitigating risks due to hazards from Fumes from incineration, smelting and melting**

- The suction hoods should be adequately cover the furnace mouth and ensure that all fumes are trapped
- The cooled emissions then pass through series of filters which trap the air borne particulates before going to scrubber
- The scrubber units spray alkaline solution and neutralize acidity if any in the fumes The air gets washed as it flows through a column of strainers, becomes almost free from dust particles and exit through its stack
- Monitoring the quality of the scrub solution as well as avoiding accumulation of sludge in the scrubber tanks is a necessity to ensure efficient functioning of the scrubbing operation
- Stack emission sampling at frequency defined by CPCB by authorized lab only) is a mandatory exercise it will ensure that processes are well controlled and avoid non compliances during online monitoring by CPCB CEMS)

Control measures to mitigate hazard from Chemical Fumes

- The suction hoods placed close to the furnace mouth and adequately covering the mouth to ensure that all fumes are trapped
- The cooled emissions are then passed through series of filters to trap the air borne particulates before they are processed in the scrubber
- The scrubber units spray alkaline solution and neutralize acidity if any in the fumes The air gets washed as it flows through a column of strainers, becomes free from dust particles and exit through the stack
- Monitoring the quality of the scrub solution as well as avoiding accumulation of sludge in the scrubber tanks to ensure efficient functioning of the scrubbing operation
- **Use expert vendor who understands suction calculation and are savvy with pollution norms to design the scrubber for you**

Liquid Effluents from refining process

The chemical refining processes generates liquid effluents which contain impurities removed while

processing the gold. The details of the solid and liquid residues/effluents generated from the chemical and electrochemical processes are summarized in the table 6 below:

Process	Liquid effluents
Parting	Acidic solutions containing bulk of metal nitrates only
Aqua Regia	Acidic solutions containing bulk of base metal nitrates, chlorides and sulphates.
Wohlwill's process	

(Table 6) Details of liquid effluent generated from various process

- The effluent generated from above processes are highly acidic (pH. 1 or less) and also contain large quantity of deleterious metals in form of their soluble salts e.g. chlorides, nitrates, sulphates etc.
- All effluent generated need to be treated before they can be finally discharged as per CPCB norms.
- Any solid sludge generated from the treatment of the above effluents is categorized under hazardous waste and requires proper authorizations before attempting its recovery and refining.

Government regulations for Effluents (CPCB norms)

Process steps at ETP comprises of equalization, treatment with bases, bacterial treatment, sand and carbon filtration which ensure that the effluent discharge meets norms set by CPCB as mentioned below :

Sr No	Parameter	Permissible limits for disposal into surface water
1	pH	5.5 to 9.0
2	Total suspended solids (TSS)	<100 ppm
3	Oil Grease	<10 ppm
4	Biological/ biochemical oxygen demand (BOD)	<30 ppm
5	Chemical oxygen demand (COD)	<250 ppm

(Table 7) CPCB requirements for effluents disposal

Live monitoring of data and its transmission to CPCB server under OEQMS has been made mandatory and needs to be complied in order to ensure zero non compliance.

Control measures for mitigating hazard from Effluent

Measures for mitigating risk due to hazards from Effluent (Chemical processes)

- The quantity of effluent to be treated should be reduced in planned manner with stoichiometric use of chemicals
- Recycling of process water with proper study of the water parameters at all stages
- All effluent generated from the above processes are highly acidic and laden with impurity elements in form of their nitrates, chlorides, sulphates etc
- A series of processes involving resin treatment, neutralization, flocculation, settling and filtration are adopted prior to sending to ETP which ensures that the impurities and their salt are completely removed, and compliances are duly complied

Treating all effluent with due diligence is a necessity as the refining process is a hazardous activity

Conclusion

Gold recovery and refining consists of set of complex steps involving application of high heat and hazardous chemicals

Each technique described in slides above deals with hazardous chemical and by products during the entire cycle . The risks posed by those hazards have severe impact on human being and ecosystem if not mitigated with due diligence.

OSHAS guidelines of HIRA (hazard identification and risk assessment) are becoming increasingly stringent to ensure safety to our ecosystem. Hence, all refinery needs to adopt a strategy which aims to mitigate the risks fully and provide convincing evidence in a transparent manner during any audit.

Regular safety audits , proactive monitoring of specified parameters , use of correct PPE, health examination of working personnel are some of the key points to be monitored regularly.

For the sake of business continuity, refineries who have their inhouse facility may thus require are evaluation of their existing capabilities and upgrade them in order to comply with set norms.

Outsourcing the refining activity to refiners who have set the benchmark in all aspect should be considered as a part of the strategy. This can help to meet the need of green gold certification too.



SOVEREIGN METALS LIMITED

Sovereign Metals Limited is in the business of refining precious metals (gold and silver) and supplying highest and most consistent quality products and related services and solution to customers at their place of convenience by leveraging its competent and customer-focused human resources, industry-leading technology infrastructure and transparent and globally compliant-sourcing practices.

Sovereign Metals Limited would pursue environmentally sustainable manufacturing practices and would strive to be a world leader in its chosen segment from India.

www.sovereignmetals.in



Technical comparison of prevalent processes

Parameters	Electro Refining	Electro Refining	
		Aqua Regia	Inquartation & Parting
Scale of Operation	Suitable for large scale having multiple range of impurities ; Silver input 10% max. Area for large production is very low	Suitable for small scale batches having all base metal, PGM; silver content should be 10% max; Requires more area and tanks	Applicable for less than 18 K or 18 K having more than 10% Silver; not suitable for Pt & Pd , Sn, Zn containing gold alloy
Fineness of Refined Gold	99.99% & above; almost zero impurity in output gold	99.95% maximum	99.2-99.5% if properly digested
Impurities in Refined Gold	Adhering to limits as specified in ASTM B 562 on individual as well as cumulative basis	Presence of deleterious elements like Pb,Fe, Ir is common; Copper may be high is not precipitated properly; fails to meet ASTM	All base metals removed; Pt is present will not get removed;
Operating cost	Low labour and chemical cost per unit of production; electricity cost is higher	Higher operating unit; electricity cost is lower compared to electrolysis	cost than Aqua Regia; with additional cost for silver recovery Large scrubber required
Inventory in Process	Huge inventory carrying cost	Cost of inventory in WIP is much lower than electrolysis ; prone to more gold loss; depends to process and reductant	Silver inventory is higher
Effluent Generation	Per unit output generation is quiet low	Consumption of chemicals is more; generates big effluent load, final effluent per unit of production is higher	only nitrate based effluent; more Nox generation
Quality of Jewellery produced	Higher productivity and lower rejection rate due to absence of deleterious element	Manual intervention leads to presence of impurities to hard spots, oxidation, brittleness	Gold quality though of 99.5% in fineness, is quite good free from impurity

■■■

RECENT ADVANCES IN MEASURING PRECIOUS METALS IN ALLOYS



Mr Rakesh Kumar Bhan
Managing Director, Fischer Measurement
Technologies (India) Pvt. Ltd.



**Offering Innovative Solutions
for more than 70 years**

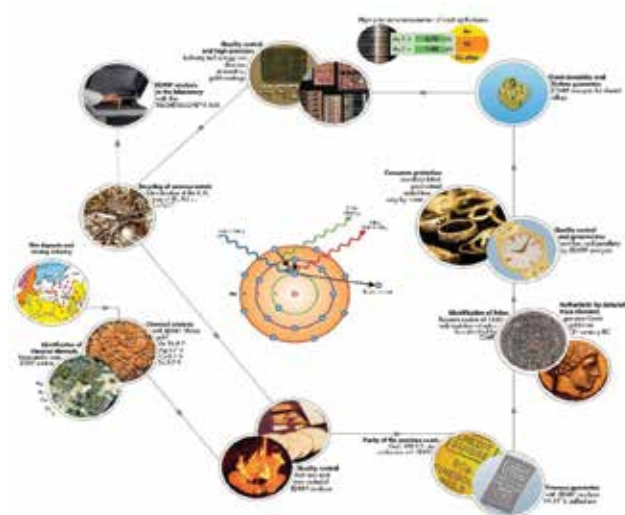


Helmut Fischer Group

- Head Quarter in Sindelfingen, Germany 25 subsidiaries worldwide, presence in more than 100 countries.
- Leading supplier of EDXRF instruments for precious metal analysis and decorative coating thickness measurement.
- Fischer India-100% subsidiary established in Year 2006.



Stages of Gold Processing



Role of Analysis

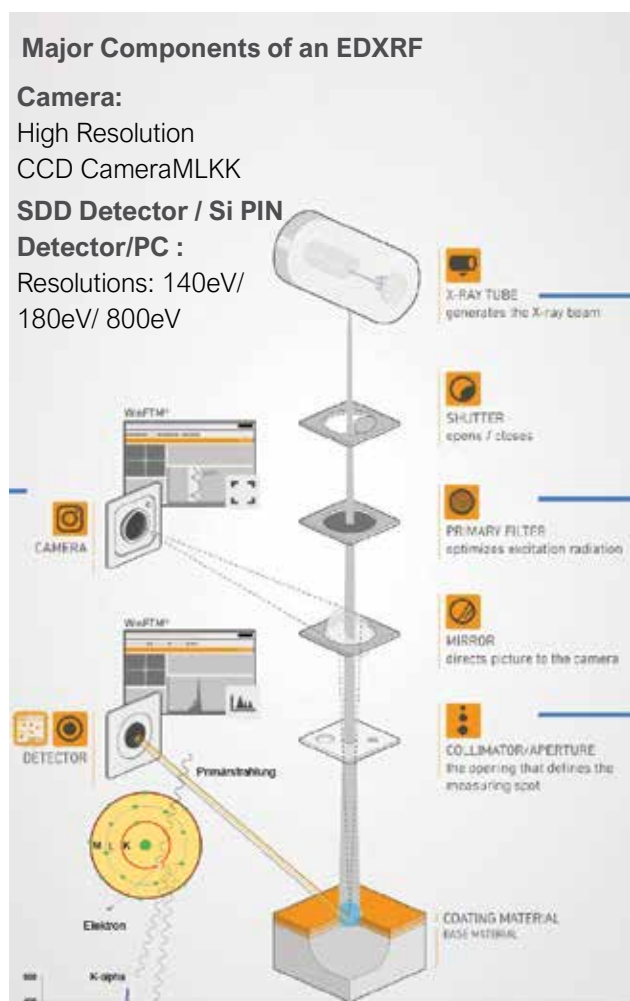
- Verifying the purity of gold and other precious metals.
- Identification of various elements within the alloy and their composition.
- Identifying the impurities for measurement of adulteration within the alloy.
- Quality and Process Control.
- Measurement of decorative coating thickness.

Analytical Methods of Precious Metal Analysis

- Various analytical methods for gold and alloy analysis
 - Acid Test
 - Fire Assaying
 - ICP-OES (requires sample to be atomized to enable excitation)
 - X-ray Fluorescence Analysis (XRF)

Why EDXRF Method ?

- Fast, Quick, Accurate and Non Destructive.
- Requires no or very less sample preparation.
- Measurement is done directly on solid sample and does not rely on acid digestion.
- Quantitative Analysis of gold alloys including Platinum Group Metals (Pt, Pd, Rh, Ru, Ir, Os).
- Easy to use and practically feasible.
- Quantification of all metals of interest in one single measurement.
- Advances in detector and signal processing sensitivity has improved precision and accuracy of the measurement comparable to fire assay method.



X-Ray tube:

Micro Focus tube with Beryllium Window

Primary Filter:

Fixed or Multiple Changeable
Filters like Nickel, Aluminum, Mylar etc.

Collimator:

Fixed or Motorised/Changeable Collimators like -
Ø 0.2 mm (7.9 mils), Ø 0.6 mm (23.6 mils), Ø 1 mm
(39.4 mils), Ø 3 mm (118 mils) others on request

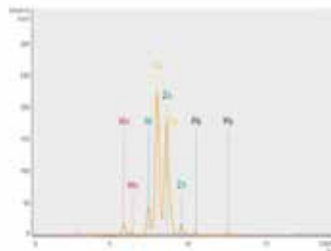
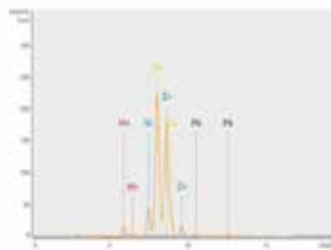
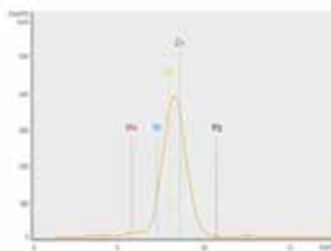
Factors Affecting Accuracy and Reproducibility of XRF Measurements

Factors related to Instrument:

- Resolution of the Detector
- Pulse Processor
- Collimator
- Measuring distance
- Measuring time
- Calibration

External Factors:

- Sample Homogeneity
- Environmental Conditions
- Positioning of the Sample
- Focusing
- Measurement Approach



Proportional Counter Detector:

- High count rates due to the big entrance window.
- E-resolution ~ 900 eV (Mn-Ka)
- Used for simple coating thickness applications.

Silicon Pin Detector:

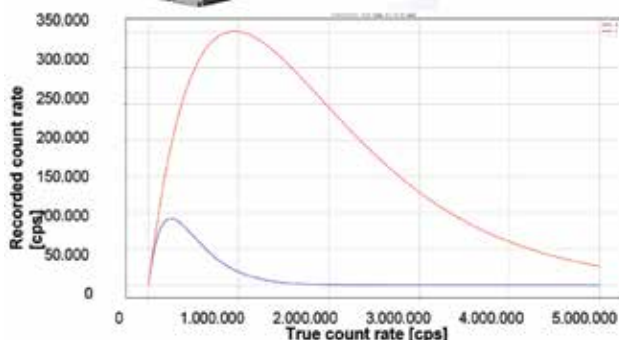
- Lower cps due to a smaller entrance window.
- E-resolution ~ 170-200 eV (Mn-Ka)
- Advantages for „complex“ applications (e.g. thin layers, trace elements, composition analysis etc.)

Silicon Drift Detector (SDD):

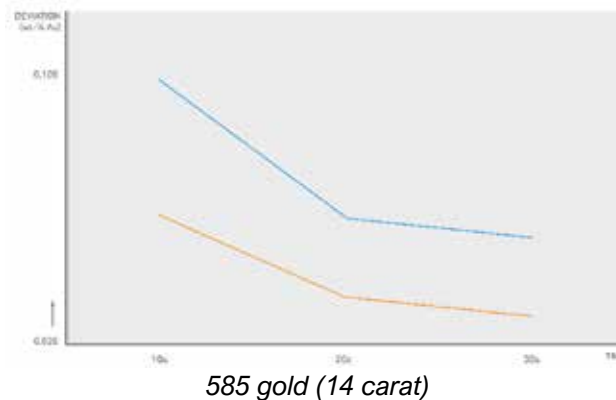
- Semiconductor device (functionality like a PIN-Diode, with a ring structure for the Si-Chip)
- Better energy resolution: ~ 135 eV for 10mm² and 30mm² Chip
- Higher count rates (optimal at ≤ 150'000 cps) while still having a good energy resolution and peak form (shape)
- Better sensitivity for light elements (at low energies)
- Applications: Thin layers, trace elements, light elements

New Detector Technology-SDD with DPP+

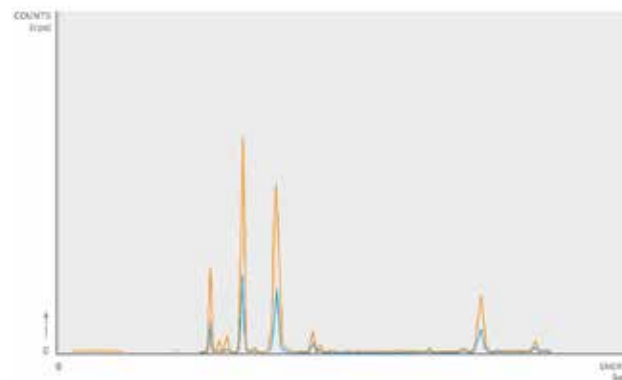
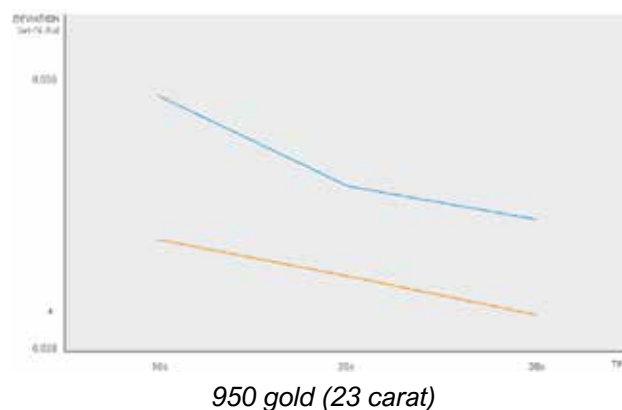
Function	Existing Setup20/30 mm2SDD + old DPP electronics	New Setup (SuperSense) SDD + DPP:DPP+
Max. energy resolution Fe55	< 165 eV	< 165 eV
Time to peak	1.6 µs	0.4 µs
Top width	0.4 µs	0.125 µs
Count rate in cps	up to 100.000	up to 500.000
Diagnostic features	BusErrors	<ul style="list-style-type: none"> • Tracking power supply • voltages and currents • BIAS voltage • cooler current • detector temperature • HT operation



Better Absolute standard deviation (precision) with high countrate and good energy resolution



- New SDD Detector with DPP+
- Old DPP



- New SDD Detector with DPP+
- Old DPP

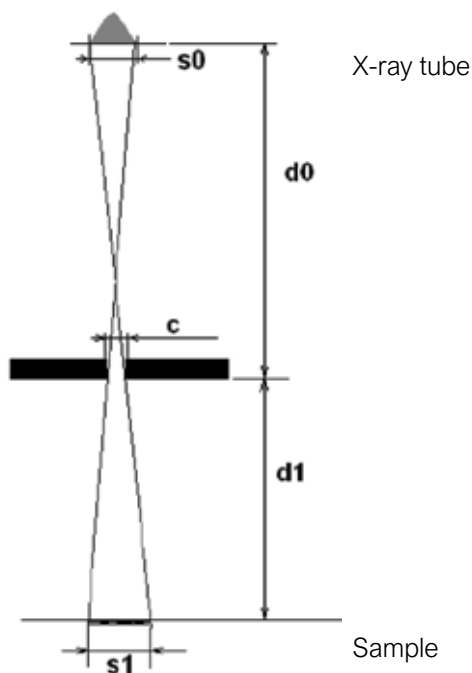
Measurement Spot Size

$$M = c \cdot (d0 + d1) / d0 + s0 \cdot d1 / d0$$

The size of the measurement spot depends on

- size of collimator c,
- focal spot of the anode s0
- ratio d0/d1.

- Small Measurement spot allows for the best determination of inhomogeneity's
- Large Measurement spot allows for low influence of inhomogeneity



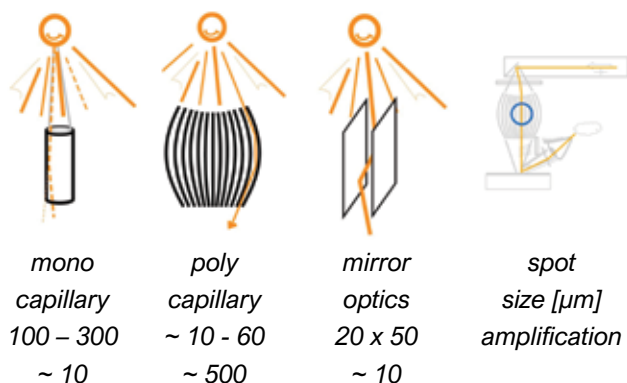
Measuring Time

- Repeatability: $s \sim \sqrt{\text{measuring time}}$
- Four times longer measuring time will improve the repeatability by a factor of 2.
- Sometimes very long measuring time will not further improve the standard deviation. It is better to utilise the mean value of several measurements
- With advances in signal processing electronics, very accurate results can be obtained with a measuring time of 15 - 30 secs.

Calibration

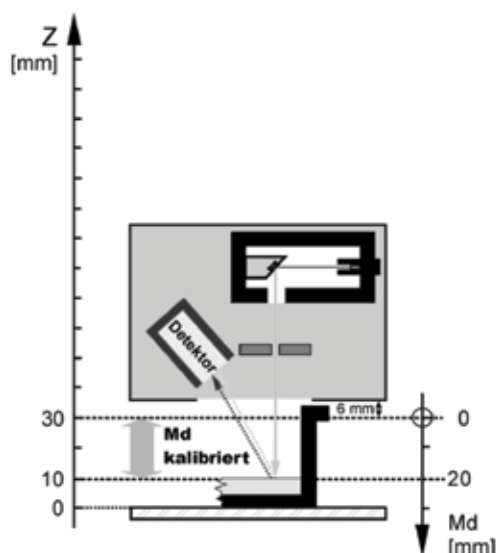
- To ensure valid results, measuring equipment shall be calibrated against measurement standards traceable to international or national measurement standards.
- Ensures Traceability of measurement results
- Helps to minimize the Systematic Error
- Integrity of the calibration standards is very important

Advanced Optical Collimation Systems



Measuring Distance -Md

- Automatic correction of the reading
- Any md in the valid calibrated range can be chosen
- Signal (count rate) $\sim 1 / (\text{measuring distance})^2$
- repeatability $\sim \sqrt{\text{count rate}}$
- →keep measuring distance small!



Rakesh Bhan

Fischer Measurement Tech. India Pvt. Ltd.

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+91 9766309851

rakesh@fischerindia.com

...

RECENT ADVANCES IN GOLD DORE REFINING



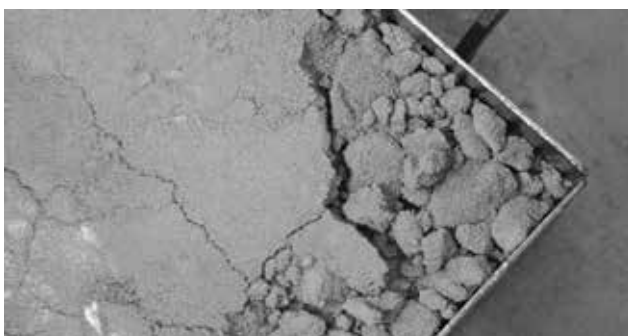
Ms Kristina Kern
Krastsvetmet



Outline



Krastsvetmet: who we are?



Recent advances in Au refining technologies



Our team & cooperation opportunities

Krastsvetmet processes primary and secondary materials and produces 8 precious metals



Key activities



Precious metals production



Industrial solutions including technical products of precious metals



Chain and bracelet production



100% of the company shares are owned by Krasnoyarsk state region



REFINING

From 99.50% to 99.99%
fineness

Products

-  **Au/Ag** Gold and silver bars, granules and powders
-  **PGMs** Platinum group metals as bars and powders
-  Precious metal compounds as solutions and powders, perhenic acid
-  Related services of logistics, customs clearance, assaying, financial instruments, IT services

 **KRASTSVETMET**



Krastsvetmet keeps the lead on the Russian precious metals market

203

tons of gold



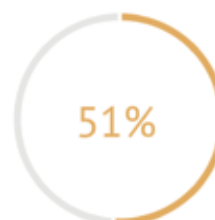
102

tons of PGMs



484

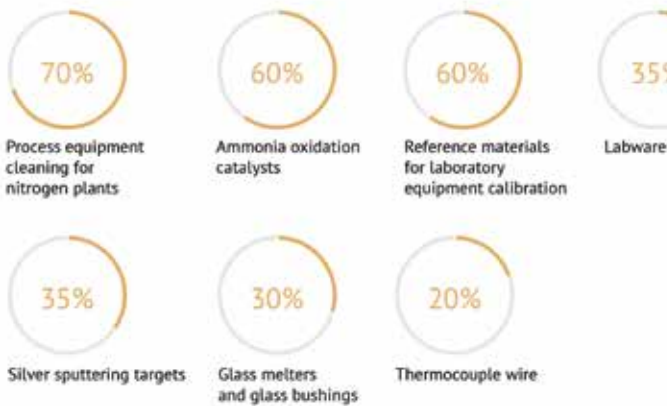
tons of silver



**INDUSTRIAL
SOLUTIONS**

Precious metal products
are used in a number of industries

Krastsvetmet's market share in Russia



Krastsvetmet implements comprehensive solutions for industrial
plants and develops a business service model in many markets

-  Nitrogen plant upgrading
-  Scrap items recycling
-  Process equipment cleaning
-  Engineering for nitrogen plants and basalt fiber manufacturers
-  Management of the Client's metals



JEWELRY

Krastsvetmet is the leader
of gold chain production in Russia

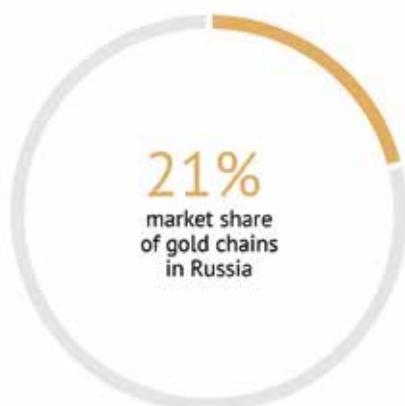
220

weave styles
of chains and
bracelets

Colors of gold



Coatings of silver



SCIENCE

Own RnD Park is working on improving
existing and development of new
refining technologies for company as
well as for commercial transfer



Precipitation



Electrochemistry



Ion-exchange



Solvent extraction



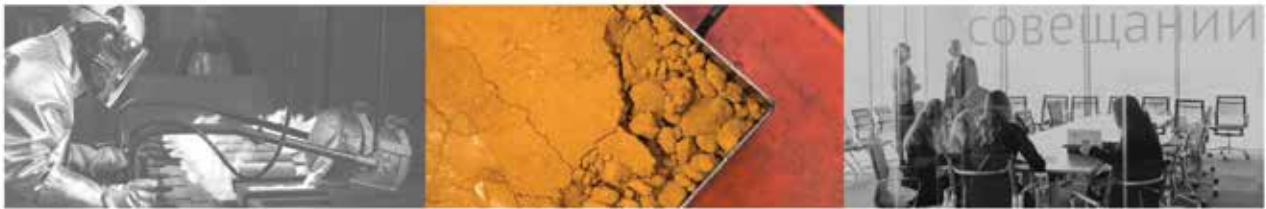
Pyrometallurgy



Synthesis of new products



Outline

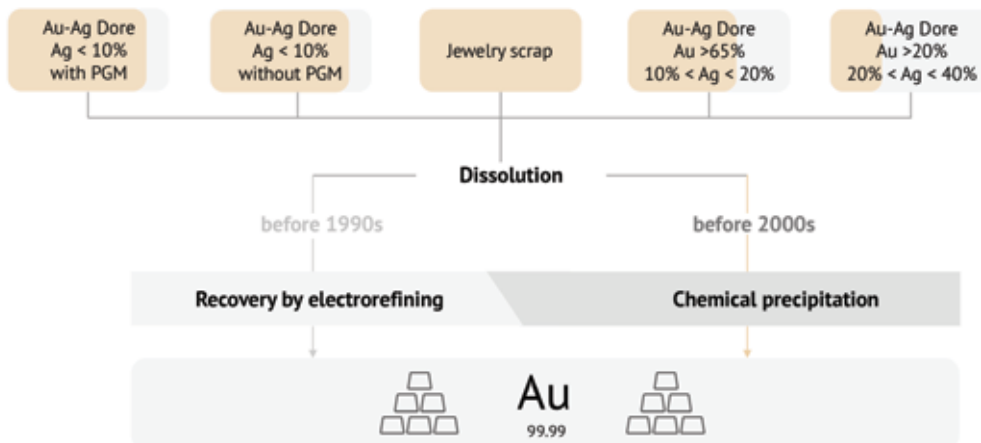


Krastsvetmet: who we are?

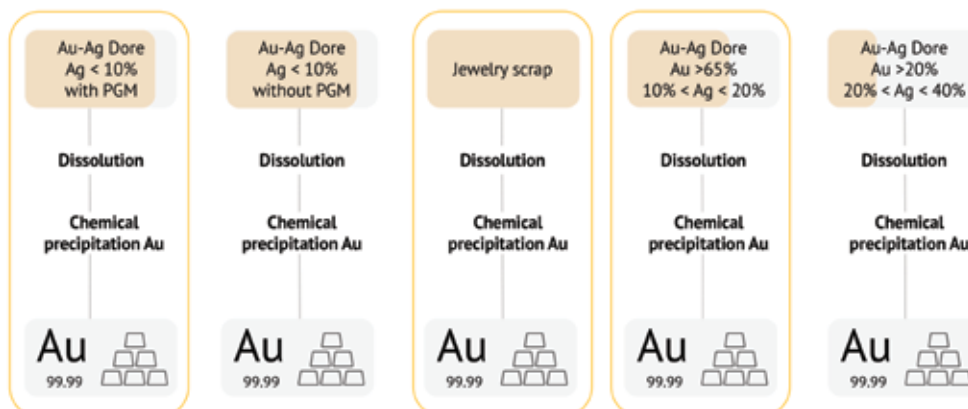
Recent advances in Au refining technologies

Our team & cooperation opportunities

Recovery of gold from the entire range of raw materials earlier

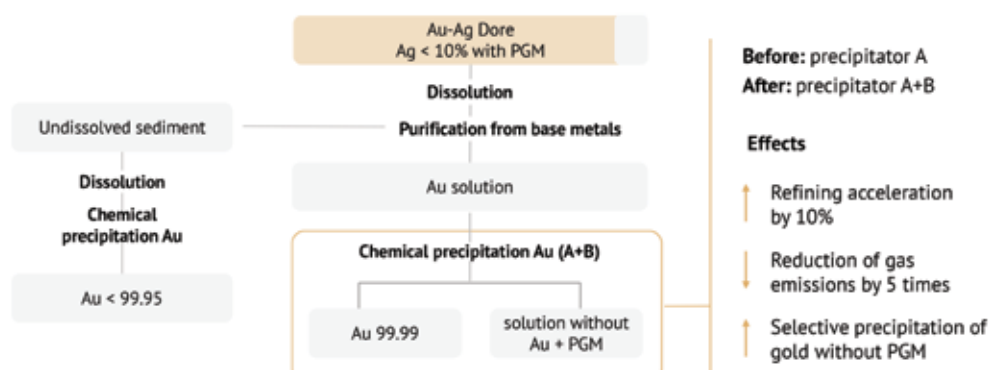


Active scientific research has led to the separation of schemes depending on the content of silver and PGM



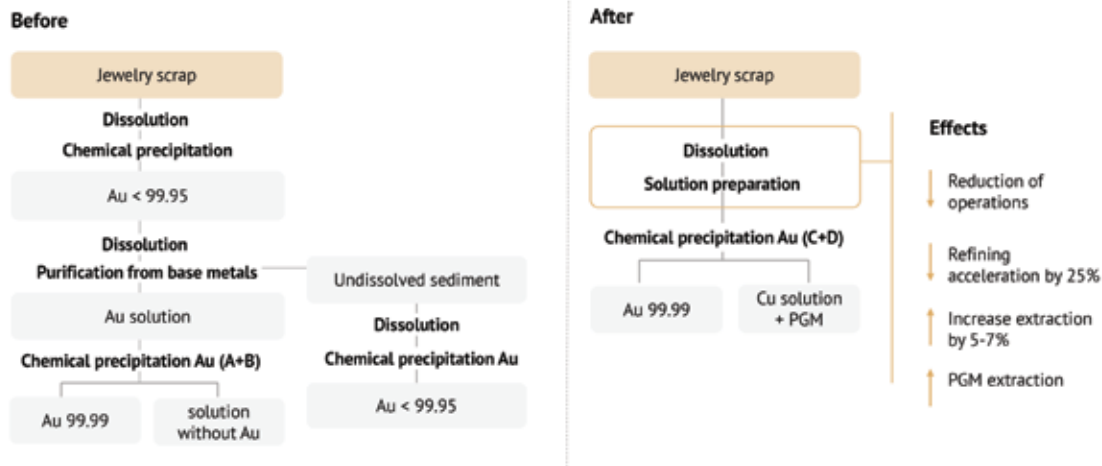
Refining of Dore with PGMs was improved at the Au recovery stage due to the use of an additional precipitator

Intellectual property of Krastsvetmet



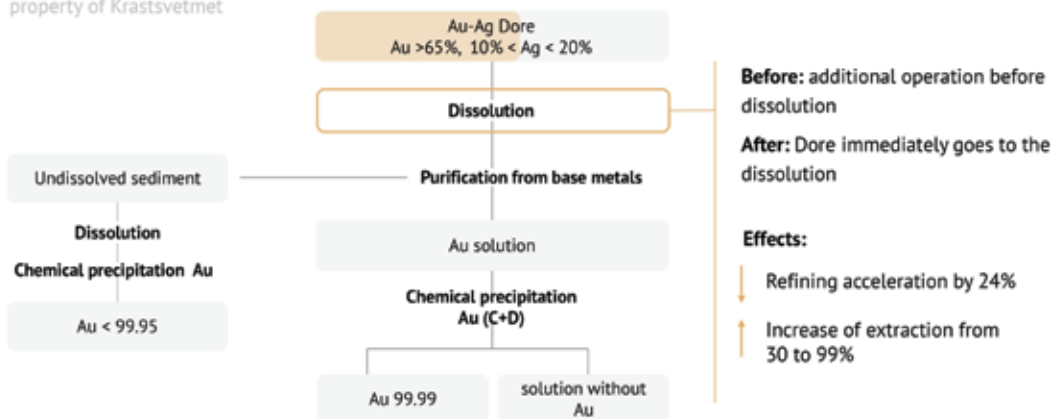
Jewelry scrap refining has been improved in terms of reducing operations

Intellectual property of Krastsvetmet

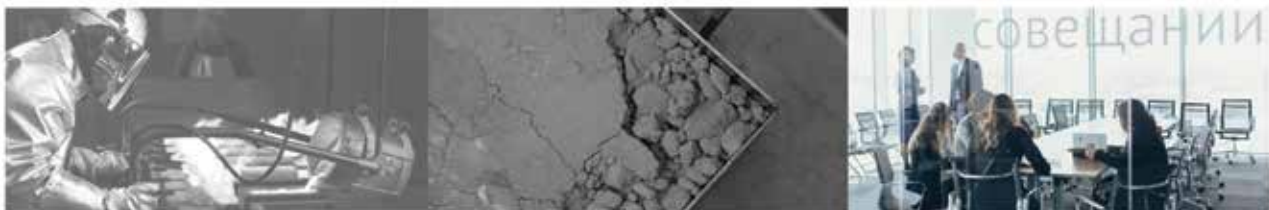


New dissolution method for the refining of 20%+ Ag Dore

Intellectual property of Krastsvetmet



Outline



Krastsvetmet: who we are?

Recent advances in Au refining technologies

Our team & cooperation opportunities

Krastsvetmet offers cooperation opportunities in terms of the transfer of advanced refining technologies

Main stages



A brief questionnaire to be sent to the client with fields to fill in.



Study of technology, equipment and work of employees at the client's site.



The simulation model based on collected data to build effective scenarios.



The technological audit report is sent to the client in PDF format or printed form.



Preparing a license for gold refining technology.

Krastsvetmet technological solutions references are represented by the following



We are open to support your projects and ideas



Mrs Kristina Kern
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Mr Stanislav Turevich
Project Manager,
Technology development
s.turevich@krastsvetmet.ru



Gold Refining: Address Challenges and Unleashing Opportunities

CHAPTER 71 EXPORT POLICY



Mr Arjun Raghavendra M
Advocate, IGPC, IIMA

EXPORT POLICY

- Schedule 2 -Export Policy -ITC(HS) 2018
- Chapter 71
- Export Policy & Policy Condition -blank
- Notification 47/2015-2020 dated 31.01.2018
Notification of 'Indian Trade Classification (Harmonised System) of Export Items, 2018 (Schedule 2, Export Policy of ITC (HS), 2018)
- Section 5 –FTDRA 1992 (Para 2.01 of the FTP)

How to read the export policy?

- Export Policy – **Prohibited, Restricted & Free**
- **Free** - Export is permitted without a licence from DGFT. However, certain procedural conditions can be notified by DGFT time to time through Public Notice. The free exportability is, however, subject to any other law for the time being in force.
- **Policy Condition-** This column specifies the special conditions, which must be met for the export of goods in the item description column. The column may also give the nature of restriction under the broad category in the Export Policy column. The intention of incorporating this column is solely and exclusively to make the Export

Schedule self contained and user friendly.

However, this does not imply that there may be no other conditions applicable on export.

General Notes to Export Policy

- **Free Exportability**
- "All goods other than the entries in the export licensing schedule along with its appendices are freely exportable. The free exportability is, however, subject to any other law for the time being in force. **Goods not listed in the Schedule are deemed to be freely exportable without conditions under the Foreign Trade (Development and Regulations) Act, 1992** and the rules, notifications and other public notices and circulars issued there under from time to time. The export licensing policy in the schedule and its appendices does not preclude control by way of a Public Notice / Notification under the Foreign Trade (Development and Regulations) Act, 1992."

General Notes to Export Policy

- The export policy of a specific item will be determined mainly by the description and Policy Conditions in the schedule.
- Exports shall be 'Free' except when regulated by way of 'prohibition', 'restriction' or 'exclusive trading through State Trading Enterprises (STEs)' as laid down in Indian Trade Classification (Harmonised System) [ITC(HS)] of Exports and Imports. The list of 'Prohibited', 'Restricted' and 'STE' items can be viewed by clicking on 'Downloads' at <http://dgft.gov.in>.

General Notes to Export Policy

- Goods listed as "Free" in the Export Licensing Schedule may also be exported without an export licence as such but they are subject to conditions laid out against the respective entry. The fulfilment of these conditions can be checked by authorized officers in the course of export.
- Further, there are some items which are 'free' for import / export, but subject to conditions stipulated in other Acts or in law for the time being in force.

Queries – arjunr@iima.ac.in

■■■

ADDRESSING CHALLENGES AND UNLEASHING OPPORTUNITIES



Mr Suresh Kumar Banga
Vice President,
BRIGHT METAL REFINERS

Good Evening

- All of us know import of gold and gold dore bars in India is regulated by the Government with certain conditions. In the case of import of gold, the Government has nominated companies like STC, MMTC, DIL & few others. I think as of now, among nominated companies only DIL is active in import of Gold. The RBI has also authorised some of the banks through whom one can import Gold. The nominated agencies and the Banks are having their own arrangements with different suppliers in the international market for supply of Gold as per their requirement.
- The other source of gold available in the Indian market is through the Refineries established in different parts of the country. There are around 20 to 25 active Refineries in India. But 80 pct of the total refining is done by top 10 refiners. The refiners import Gold Dore Bars against the License issued to them for a specific quantity from the Office of Directorate General of Foreign Trade with the restrictions on the size and purity of the gold dore bar. The refiners also collect scraps/ old

jewellery available in the market to refine. During the first quarter of last year i.e. April-June 22 not much of the dore was imported due to the pandemic. Now after easing out the conditions, the industry has bounced back and in the first quarter of the current financial year, Gold Dore Bar to the tune of approx, 90.00 MT has arrived in India. As the conditions are improving, it is expected that the figure shall improve further.

- There are many challenges for the gold refining industry in India. First of all is that the supply of dore is not easily available and that it is not in the hands of so organised sector. To sort out this problem, I would like that the nominated banks help the industry and may make some efforts to import more of Gold Dore Bars instead of the finished Gold Bars. The Banks have the means and the expertise. They have contacts with many suppliers in the international market. Government and/or RBI can make certain changes in the regulations, required to help out the Banks in this regard.
- The other challenge is from the unorganised refining sector in India. The majority of gold recycling trade remains unorganised as accredited refineries need to show from where they had sourced the scrap and have to leave out small jewellers, who prefer cash transactions.
- Recently the hike in Custom Duty on import of Gold has given additional advantage to the parallel industry which is also a challenge to the refiners who are having an organised set up.

As of now there is a difference of .65% in the custom duty of Gold Bars and the Gold Dore Bars. Keeping in view the huge investment required to set up a refinery, Land & Building, the Plant & Machinery and the running cost, the difference in duty of .65% is not enough.

In spite of all these issues the Industry has tremendous opportunity to grow with the Government support by way of :

- To consider some more reduction in the custom duty for import of gold dore bars which will increase the import of Dore than the finished Gold. More import of Dore Bars will be a big boost to

Make in India drive of the Government and shall create more job opportunities for the skilled as well as the non-skilled workforce. Our country is recognized in the world over for its cost-competitive Manufacturing.

- Allow Refiners to import specific quantity of Duty Free Dore Bars, out of the License issued to them, to sell the Gold Bars to Jewellers in India for export purpose. The Government may keep a certain amount of security by way of Bond or Bank Guarantee, which can be released upon furnishing the documentary evidence of export as Shipping Bill and Bank Realisation Certificates in addition to all other documents, for export of Jewellery. This move will help the small jewellers, to obtain duty free Gold for export, who are not having any arrangement with the nominated agencies or the Banks.

The young generation buy the gold jewellery, not only as a mean of investment but also as a fashion statement. The holding period of jewellery will continue to decline as younger consumers look for a change in designs more frequently leading to higher level of recycling.

The country has the potential to emerge as a competitive refining hub if the next phase of bullion market reforms promotes responsible sourcing, exports of bars and consistent supply of dore or scrap.

In the end I request all the refiners to come together, discuss and take up the related issues with the concerned authorities for the growth of the Gold refining industry

■ ■ ■

Launch of SRO for Indian Gold Industry by Mr P R Somasundaram Regional CEO, India, World Gold Council



REVIVING GMS



Mr Manish Goel

Head - Bullion, ICICI Bank Ltd

Gold Monetization Scheme

- Gold Monetization Scheme is a Government of India deposit scheme. The scheme
- aims to bring back idle gold into financial system and reduce imports .
- Allows depositor to earn interest on an otherwise non-yielding physical gold.
- Minimum Investment : 10 grams; Maximum Investment : No limit
- Interest: 2.25% p.a. to 2.50% p.a.
- Tenor (MLTGD): Minimum 5 years; Maximum 15 years
- Min. Lock in period (MLTGD):



What we have done

Coverage	<ul style="list-style-type: none"> • No. of branches • Deposit acceptance at non-active locations too
Awareness	<ul style="list-style-type: none"> • Marketing Campaigns through mailers & advertisement • Awareness activities through branch
Digitization	<ul style="list-style-type: none"> • Deposit opening request can be submitted through net banking & CPTC arranges for jewels pickup.
What Next?	<ul style="list-style-type: none"> • There is more that can be done...

What more is required

Coverage	<ul style="list-style-type: none"> • Operationalize Jeweler & Refinery setup
Inconvenience	<ul style="list-style-type: none"> • Digitization • Reduce process friction
Liquidity	<ul style="list-style-type: none"> • Enabling loan against GMS deposit • Make STGD attractive for investor
STGD	<ul style="list-style-type: none"> • Remove tenure restriction and provide tax benefit for greater than 1 year • Gold collected under STGD should be eligible for CRR
Emotional Attachment	<ul style="list-style-type: none"> • Focus only on gold bought and held as investment instead of trying jewellery
Awareness	<ul style="list-style-type: none"> • Word of mouth of existing depositors • Joint awareness drives
Investment Disclosure	<ul style="list-style-type: none"> • Clarity to remove fear of taxman

Discussion: Amazing World of Indian Silver Market



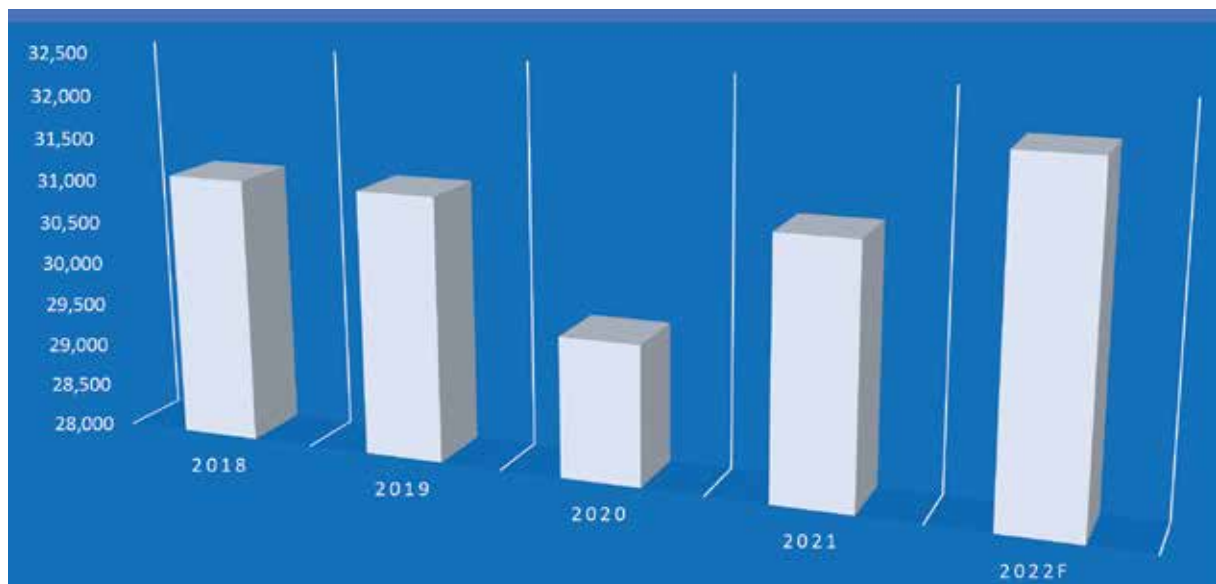
Mr Viraj Didwania
Foresight Bullion India Pvt Ltd

FORESIGHT[®]
BULLION INDIA PVT. LTD.



**THE AMAZING
WORLD OF INDIAN
SILVER MARKET**

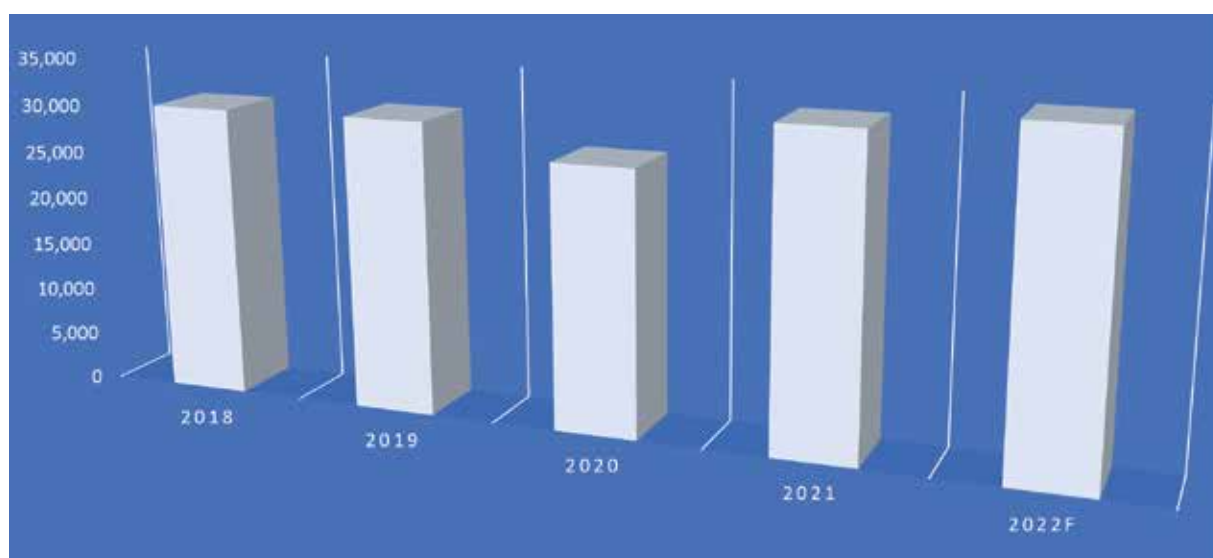
Total Global Supply



Tons	2018	2019	2020	2021	2022F
Supply					
Mine Production	26,444	25,999	24,295	25,586	26,226
Recycling	4,622	4,594	5,045	5,381	5,614
Others *	37	504	302	47	202
Total Supply	31,104	31,097	29,642	31,016	32,046

**Others include Net Hedging Supply and Net Official Sector Sales*

Total Global Demand



Tons	2018	2019	2020	2021	2022F
Demand					
Industrial	15,539	15,493	14,460	15,807	16,783
...of which photovoltaics	2,877	3,070	3,141	3,536	3,950
Photography	1,051	1,017	865	893	883
Jewelry	6,280	6,230	4,659	5,642	6,277
Silverware	2,103	1,932	1,008	1,328	1,639
Others *	5,378	5,810	6,376	8,961	8,684
Total Demand	30,348	30,481	27,371	32,628	34,270

**Others include Net Physical Investment and Net Hedging Demand*

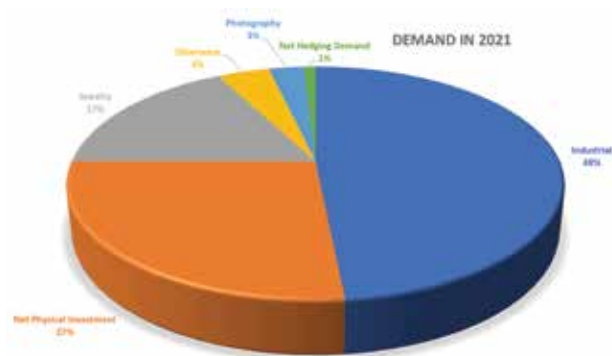
Demand of Photovoltaics in Industry

Silver now has an exciting potential in Green Energy Among the renewable energy solutions, photovoltaic (PV) power still reigns supreme. The broad consensus for a need to move towards carbon neutrality for sustainable development has led to the PV market continuing to expand and to spread geographically; there were 20 countries that achieved 1GW last year. Those record high PV installations helped silver offtake in this segment to reach 113.7Moz (3,536t) in 2021, close to 11% of total demand.

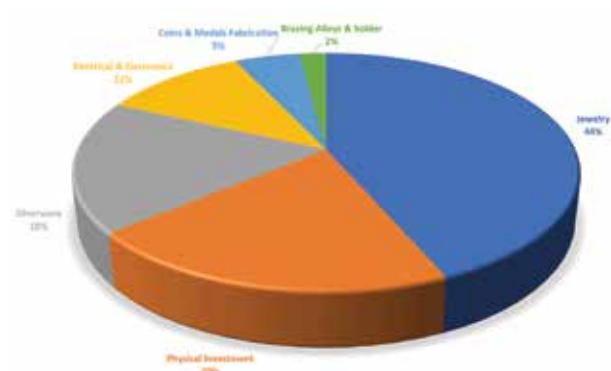
In India as well Solar PV Segment is Expected to Dominate the Market, According to the International Renewable Energy Agency (IRENA), the installed solar PV capacity in India was around 38.98 GW in 2020, up from 34.86 GW in 2019, recording a growth of around 11% during the year

As on today, demand in Photovoltaics is more if cost of Silver is less than 20USD

Total Global Demand -2021



Total Demand in India -2021



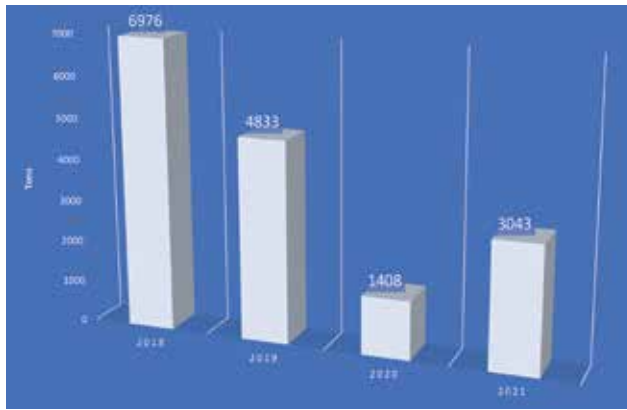
Top 10 Production Companies

Rank	Tons	2020	2021	Y/Y
1	Fresnillo	1,565	1,555	-1%
2	KGHM Polska Miedź	1,353	1,365	1%
3	Glencore	1,020	980	-4%
4	Newmont	865	977	13%
5	Codelco	765	734	-4%
6	Hindustan Zinc	672	690	3%
7	Polymetal International	585	635	8%
8	Pan American Silver	538	597	11%
9	Southern Copper	669	591	-12%
10	Volcan Cia Minera	376	467	24%

Top 10 Silver Producing Mines

Rank	Mine	Country	Ownership	2020	2021	Y/Y
1	KGHM Polska Miedź	Poland	KGHM Polska Miedź	1,219	1,303	7%
2	Peñasquito	Mexico	Newmont	961	1,064	11%
3	Dukat	Russia	Polymetal International	566	585	3%
4	Antamina	Peru	Glencore/BHP/TeckResources	510	566	11%
5	SindesarKhurd	India	Hindustan Zinc	538	551	3%
6	San Julian	Mexico	Fresnillo	414	523	26%
7	Cannington1	Australia	South32	361	448	24%
8	Saucito	Mexico	Fresnillo	482	386	-20%
9	San Cristobal	Bolivia	Sumitomo Corporation Corporation	168	376	124%
10	Fresnillo	Mexico	Fresnillo	407	373	-8%

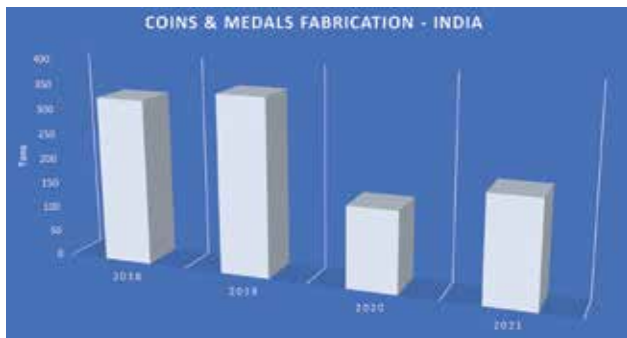
Silver Imports In India



Average price of silver on LBMA



Coins & Medals Fabrication -India



Tons	2018	2019	2020	2021
Coins & Medals Fabrication	328	351	161	210

Different ways to buy Silver



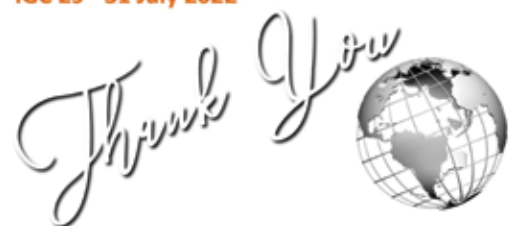
Average price of silver on LBMA



FORESIGHT[®]
BULLION INDIA PVT. LTD.

The amazing world of India silver market

IGC 29 - 31 July 2022



DISCUSSION: THE AMAZING WORLD OF INDIAN SILVER



**Mr Vijay Murthy, CEO
Silver, Lead & Minor
Metals,
Hindustan Zinc Limited:**

We are the only primary Zinc, Lead and silver mine producer in the country. Silver has been an exciting story for HZL, especially after we found

silver in Sidhedurg, near Udaipur through primary exploration. Primary exploration in precious metals is a grossly under-invested sector, unlike other sectors such as coal and oil. There is a need to bring in more investments into exploration. HZL carried out exploration between 2007 and 2012. After getting all clearances, we started operations in 2014. The ore body is rich with 100 gm silver per ton at the mine level; at the lead concentrated stage, we get about 2.3 to 2.5 kg silver per ton. HZL has been producing between 650 to 700 tonnes. Planning to move to 725 tonnes. Our focus is to grow domestic consumption. Towards that, we would love to work with players in electrical contact, silverware, conductors, cutlery or any of the upcoming applications. We are here to serve the country and work towards import substitution.

in the industrial use of silver in India. Banks are open to supporting the industry in that.



**Mr Dhiaan Srinivasan,
Director-Business
Development, Emerald
Jewels**

The end consumer is the most important person one should start with.

Young customers want a large collection of designs.

Silver, being competitively priced, lends itself to design innovation and range. While in terms of turnover silver jewellery business may be small, it provides a lot more opportunities for innovation and also gives more profits. One challenge is the tarnishing of silver jewellery over time. If we find a solution to that problem, we can take a sizeable market share from brass and copper jewellery as silver jewellery has better resale value. The growth rate in the silver jewellery business, in my view, is much higher than the growth in the gold jewellery business. With the change in demographic, the silver jewellery business has great promise. Silver is the new gold.



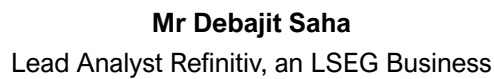
**Mr Harshit Doshi, Head-
Precious Metals, ICBC
India**

RBI has nominated a few banks to import precious metals. While we help our clients to import gold and silver, we also perform several other services. We

ensure guidelines and policies of RBI and DGFT are implemented. We also ensure GST compliance of our clients. Banks have given comfort to the suppliers. Banks have also given comfort to the customers. One recent example is the TDS collection by banks. Customers know that they would get back the TDS that we collect and remit to the government on time. Banks would soon be permitted to function at IIBX by the regulator. Through that, we can offer additional services to our customers. There is a lot more to do

Having said this, the silver jewellery business cannot be modelled the way the gold jewellery business is being done. Especially given the price of gold, inventory management always comes to mind in the gold jewellery business. So it has become volume-driven and low margin. Silver business is design-driven and high margin. When the design is the most important selection criterion, the choice of metals becomes secondary.

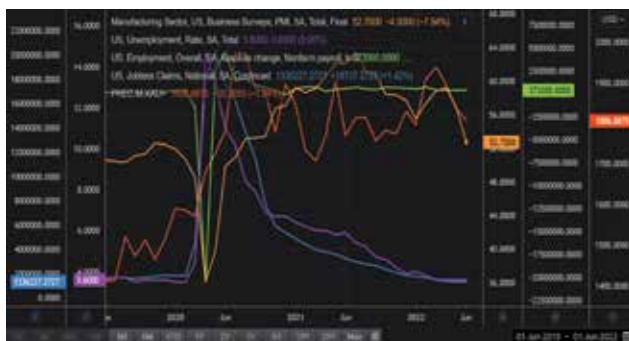
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U.S. consumer prices rose by 9.1% in June from a year earlier, the largest rise since November 1981.

— Consumer Price Index, annual pct. change

Note: Gray bars are recessions.
Source: Bureau of Labor Statistics



GOLD IN INVESTMENT PORTFOLIOS AN INDIA PERSPECTIVE

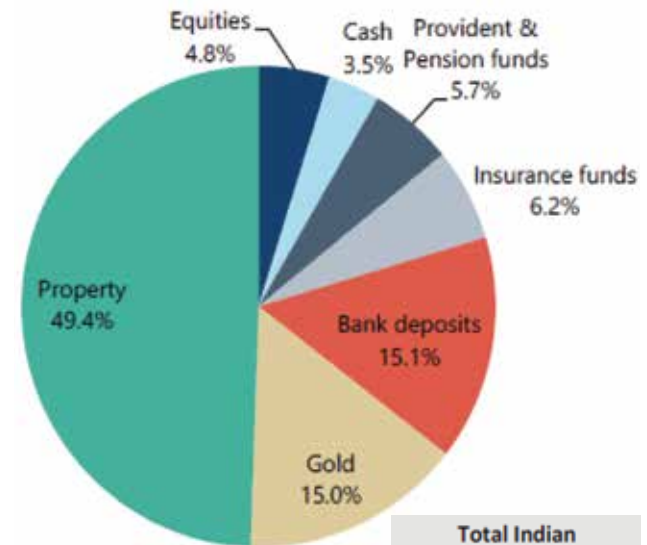


Mr Chirag Mehta

Chief Investment Officer

Quantum Asset Management Co Pvt Ltd

India's preference for gold



Data as of March 2022

Source: Jefferies

**Total Indian
Household assets
Mar'22 : US\$10.7Trn**

Indians got it right 15% allocation to gold is optimal

Portfolio	100% Equity, 0% Gold	95% Equity, 5% Gold	90% Equity, 10% Gold	85% Equity, 15% Gold	80% Equity, 20% Gold	75% Equity, 25% Gold	70% Equity, 30% Gold
Returns (CAGR)	14.0%	14.0%	14.0%	14.0%	13.9%	13.9%	13.7%
Risk (Standard Deviation)	31.3%	29.8%	28.3%	26.9%	25.4%	24.0%	22.6%
Maximum Drawdown	52.5%	48.3%	44.1%	40.0%	35.8%	31.7%	27.5%
Historical VaR (95%)	-24.6%	-21.9%	-19.1%	-17.4%	-16.3%	-15.2%	-14.1%
Historical Expected Shortfall (95%)	-52.4%	-48.3%	-44.2%	-40.1%	-36.0%	-31.9%	-27.8%
Annualized Sharpe Ratio (Rf=0%)	44.6%	47.0%	49.5%	52.1%	54.9%	57.7%	60.7%

Past performance may or may not sustain in future

Calculations are based on Sensex and Gold INR returns from 1990 to 2021

Source: Bloomberg, Quantum

Gold an effective portfolio diversifier

Year	Gold INR	Sensex	Year	Gold INR	Sensex	Year	Gold INR	Sensex
1991	31%	82%	2001	6%	-18%	2011	31%	-25%
1992	6%	37%	2002	24%	4%	2012	11%	26%
1993	28%	28%	2003	13%	73%	2013	-19%	9%
1994	-2%	17%	2004	1%	13%	2014	1%	30%
1995	13%	-21%	2005	22%	42%	2015	-6%	-5%
1996	-3%	-1%	2006	21%	47%	2016	11%	2%
1997	-15%	19%	2007	17%	47%	2017	7%	28%
1998	9%	-16%	2008	30%	-52%	2018	7%	6%
1999	3%	64%	2009	20%	81%	2019	21%	14%
2000	1%	-21%	2010	24%	81%	2020	28%	16%
When the stock markets suffered, Gold could have limited your overall losses			2021			2021	-2%	22%
			2022*	6%	-2.5%	2022*	6%	-2.5%

Past performance may or may not sustain in future; Returns indicate calendar year returns

* YTD returns until 28th July 2022

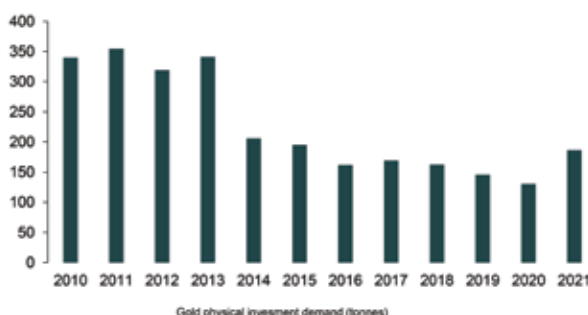
Source: Bloomberg

Rupee depreciation helped domestic gold prices

Past performance may or may not sustain in future

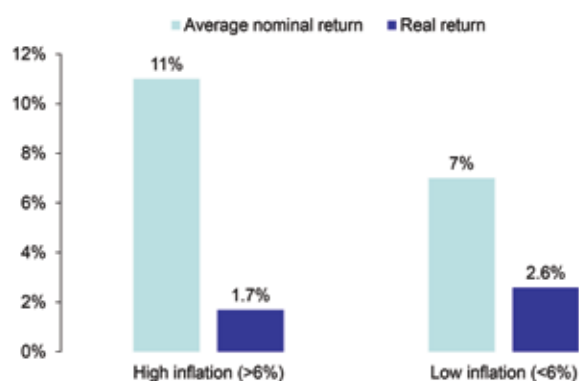
Data as of 22nd July 2022

Source: Bloomberg

Physical investment losing traction?**Gold coins and bars**

Data as of Q2.22

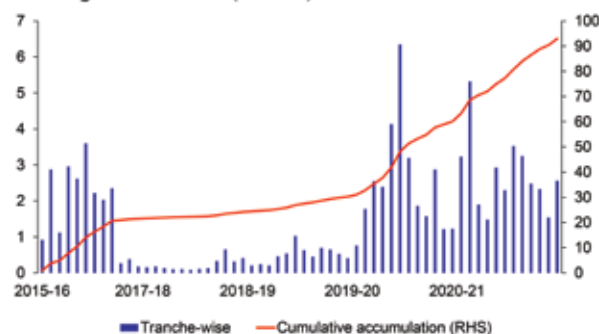
Source: World Gold Council

Gold-an excellent store of value

Calculations are based on returns of June month INR gold prices from 1980 to 2022

Past performance may or may not sustain in future

Source: Bloomberg, WGC

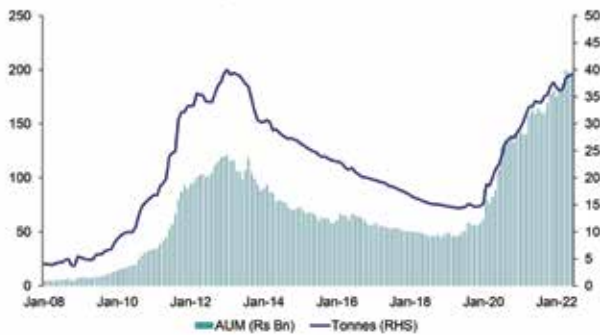
Investors moving to efficient avenues**Sovereign Gold Bonds (tonnes)**

Data as of July 2022

Source: RBI, Quantum

COVID 19 helped regain the lost sheen

Gold ETF total holdings and AUM

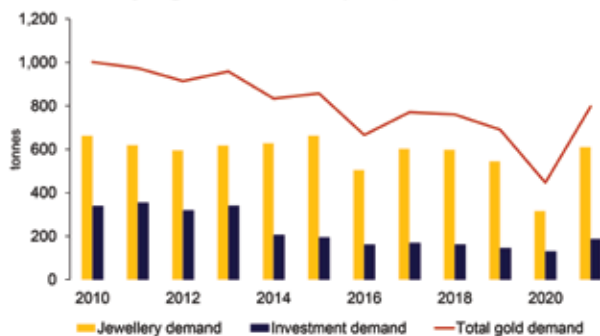


Data as of June 2022

Source: WGC, AMFI

Are we doing justice to the gold investor?

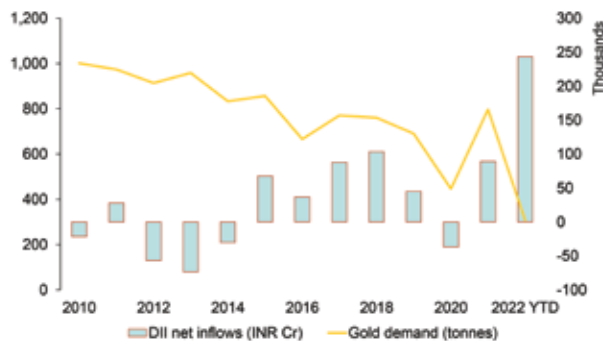
Jewellery – great for consumption, but investments?



Data as of Q2.22

Source: WGC

Are we doing justice to the gold investor?



Data as of June 2022

Source: Quantum, WGC

Government's financialization agenda

Gold Financialisation needs action

- Gold in jewellery form is far more difficult to financialize compared to efficient investment products
- More product driven innovation needed across the value chain
- Eradicate barriers of taxation and movement
- Treat it like a currency

Is the gold market prime for disruption?

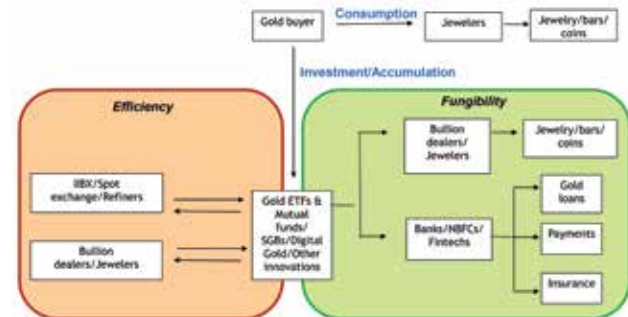
- Role of IFSCA, IIBX, and Spot Exchange
- India, one of the largest consumers of gold, can be

a price setter

- Price discovery, given the premiums and discounts in the local market
- Transparent mechanism
- Structured and organized flow of metal

Creating an integrated ecosystem

Value chain from investment to consumption



Gold price Real factors to watch out for

- The real interest rates environment
- The yield curve
- The US Dollar's strength
- Credit spreads
- The relative strength of the banking sector

Real rates in positive territory after two years

The most important driver of gold prices - US 10Y TIPS Yield



Past performance may or may not sustain in future

Data as of 28th July 2022

Source: Bloomberg

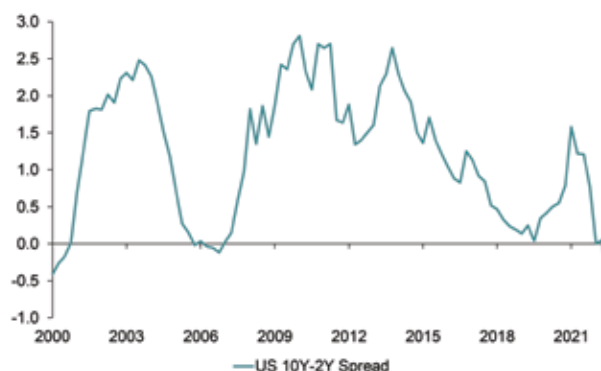
Greenback's strength hurting gold



Past performance may or may not sustain in future

Data as of 28th July 2022

Source: Bloomberg

Recession on the horizon?

Past performance may or may not sustain in future

Data as of 22nd July 2022

Source: Bloomberg

Larger credit spreads, positive sign for gold

Past performance may or may not sustain in future

Data as of 22nd July 2022

Source: Bloomberg

Banking sector and gold prices

Data as of 22nd July 2022

Source: Bloomberg

Price outlook

- Tightening of liquidity may continue to put downward pressure on gold prices in the near term
- Recessionary concerns will keep the downside capped
- Recession would mean Fed eventually pivoting to a less hawkish policy
- The Fed's U turn will be bullish for gold prices

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Dated: July 29 2022

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DISCUSSION- INDIA - UAE CEPA: OPPORTUNITIES FOR PRECIOUS METALS SECTOR

Moderator: Mr Sadi Ahmad

SAM PRECIOUS METALS

Panellists:

Mr Sanjeev Dutta, ED, DMCC

Mr Mohammed Ayyob, SAM PRECIOUS METALS

Mr Pramod Mohan, FinMet Pte Ltd

Mr Chirag Thakkar, Amrapali Industries

Mr Kinjal Shah, RJC

Mr Harish Pawani, Peekay Intermark Pvt Ltd



**Mr Sadi Ahmad, SAM
PRECIOUS METALS**

Significant events like the launch of IIBX in India and the announcement of the new policy on responsible sourcing involving refiners and importers in the UAE by the UAE Ministry of

Economy will provide a great

opportunity for precious metal trade. CEPA is hailed to boost the trade

between the two non-oil businesses. The industry must understand the advantages of CEPA and the benefits thereof. Apart from gold, the silver industry is also going to benefit from the tariff elimination scheme. CEPA has put more emphasis on responsible sourcing in the sense that, gold or silver that gets benefited under the CEPA has to be certified by UAE of India good delivery bar.



**Mr Sanjeev Dutta,
Executive Director,
Commodities & Financial
Services DMCC**

UAE has been working on creating a robust regulatory framework. Similarly, on the governance side, quite a lot of developments are shaping up. Dubai Good Delivery for which DMCC is the

custodian has been elevated as UAE good delivery with the support of key stakeholders. Another significant development is the establishment of the Emirates Bullion Committee chaired by the Minister of State for foreign trade. DMCC is working on

implementing a trading platform to track and trace gold flow. Most of the trade pacts existing or worked upon ultimately point towards multilateralism in trade.

A combination of the governance, platform and multilateral trade agreements augers well for the future of the bullion and jewellery trade. It is the time we define the standards to ensure responsible and seamless trade.

http://goldconference.in/presentation/Day2/Sanjeev_Dutta.pdf



**Mr Mohammed Ayyob,
General Manager, SAM
PRECIOUS METALS**

Under India – UAE CEPA refineries have more responsibility and a significant role to play. Dubai not only provides a very good foundation for business but also for investments to create

infrastructures. Regarding SAM Precious the company has invested heavily in infrastructure creation, and the company is well equipped to support such comprehensive agreements. SAM has created a capacity to produce 2 tons of gold per day working 24/7.

The focus should be on the quality of service and products to gain more customer confidence. SAM precious is accredited with UAE good delivery and also an RJC gold custody. Apart from quality, SAM precious is more focused on compliance and accreditations which will go a long way in supporting bi-lateral trade agreements.

http://goldconference.in/presentation/Day2/Mohammad_Ayyob.pdf



**Mr Pramod Mohan,
Managing Director,
FinMet Pte Ltd**

Under the able leadership of Mr Ahmed Bin Sulayem DMCC was the first to come out with the protocol in terms of Dubai Gold Delivery which is in line with OECD principles and global regulations.

Unlike IIBX which has ISFCA and DIFC which has DFSA as regulators, DMCC does not have regulators to oversee the enforcement. The transition from the DGD era to UAE good delivery has been significant, smooth and facilitated by the government. Recently the ministry has come out saying that all the refiners, numbering around 28 have to do responsible sourcing, failing which, they would be fined 5 million dirhams. In the UAE, with the government acting as the regulator and enforcing agency, the country would be a secure market in terms of precious metal sourcing

On providing liquidity to the UAE bullion market, DMCC was all supportive and DGCX as an exchange active in metal products realised an opportunity. They came out with a product where fresh UAE good delivery bars go directly into DGCX warrants being created and banks provide the liquidity. Now that CEPA is happening, it is now a great product for providing liquidity for UAE refiners.

http://goldconference.in/presentation/Day2/Pramod_Mohan.pdf



**Mr Chirag Thakkar,
Amrapali Industries**

To touch on the important milestones and timelines when the Indian government opened the consignment business in 1997-1998, it took 10-15 days to clear the consignment. There was no system put in place then.

In 2013 when dore imports were opened up it took around 15-20 days to clear the first shipment. These were followed by the implementation of India's good delivery standard and the recent big milestone is the launch of IIBX. The recent India – UAE CEPA is an advantage for both nations. Dubai as a nation is a very supportive partner in the bullion trade and a significant bullion exporter. Government through TRQ and qualified jeweller criteria is trying to ensure that the bullion supply under CEPA actually goes to the jeweller and sustain the entire value chain and does not get disrupted by the market forces. Silver is also going to follow the same strides as gold with the actual user/manufacturer criteria benefitting the actual manufacturing hubs.



Mr Kinjal Shah, RJC

Responsible Jewellery Council is a not-for-profit organization with the ultimate goal to uplift industry practices. RJC has two standards one is the code of practices with a main focus on ethical and sustainable management

practices and the second is a chain of custody with a focus on ethical sourcing and transparent tractability

Chain of custody is the highest category of standards which is complicated to comply with. On the commercial advantages of RJC standards, whomsoever the exchanges have accredited and eligible as India Good Delivery has placed RJC membership as a mandatory criterion. Chain of custody ensures that the process of making jewellery/ ornament follows ethical and sustainable business practices

■ ■ ■

CERTILINE PRESENTATION BY MR JACOPO MONTEFORTE SPECCHI



Mr Jacopo Monteforte Specchi
Certiline S.r.l.

We are a 25-year-old family-owned company that is into anti-counterfeiting solutions for the precious metals and the diamond industry. We started our business, offering secured solutions to the diamond industry, and then moved to have refiners, mints and other fabricators of gold and precious metals as our customers.

Why is our packaging solution accepted worldwide? It adds value to the product, protects the market and facilitates trade.

Cryptoprint is one of our security systems. Once the packaging is opened, another script will appear in this. The second security system is the UV membrane. Once the packaging is open, the UV membrane cannot be replaced, as it is very thin. Laser engraving is the third security system. Then we have a machine for sealing the packing. We have expanded our offering of secured solutions to documents, food, clothes and bags.

Now, I would like to draw your attention to the Certieye app. It is a new addition to our offering. Let me demonstrate it to you. Once I scan the packaging, I can get all the details of the product on my screen. It will show the geo-location of the product. If it is counterfeit, then it can easily be detected. So, it is easy to monitor and manage. We introduced the solution last year.

http://goldconference.in/presentation/Day2/Jacopo_Monteforte.pdf

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DISCUSSION: IIBX ECOSYSTEM THE WAY FORWARD



Moderator:
Mr P R Somasundaram,
World Gold Council

Panellists:

Mr Ashok Gautam, IIBX IFSC

Mr Anshuman Sharma, StoneX

Mr Sharad Jobanputra, Sequel Global Logistics

Mr Haresh Acharya, Parker Precious Metals

Mr Mahendran K, Karur Vysya Bank

Mr Ravi Ramakrishnan, JP Morgan

Mr P R Somasundaram: Ashok, congratulations on the launch of IIBX. Now that there is a huge responsibility, how do you see yourself resourced to handle the expectation?



Mr Ashok Gautam, MD & CEO, IIBX: Thank you all for your support that resulted in the launch of IIBX yesterday. We have the top 5 MIs as promoters. They are giving their expertise to this initiative. We also have WGC, and associations such as IBA to support us on

policy matters. On the resources part, because of the grand launch, we have started getting a lot of resumes now. We have a plan for HR, which will be calibrated. Resources also include tech (BSE Tech). There also we are working on several changes. We are tailoring the technology for spot trade and physical delivery and taxation compliance.

Mr P R Somasundaram: Anshuman, what do you think we should focus on?



Mr Anshuman Sharma,
Head Precious
Metals- Middle East &

India, StoneX: First, I would like to congratulate IIBX. From an international perspective, we would love to work with exchanges. It's a great opportunity for us.

Having said this, a lot of infrastructures have to be enabled around IIBX. We also need more visibility of the whole process.

One issue that IIBX should focus on - enabling people to come on the platform.

Mr P R Somasundaram: Sharad, you have put an excellent vaulting at IIBX. How are you going to make people aware of it?



Mr Sharad Jobanputra, Chairman, Sequel Global Logistics: We have the largest vaults. We have also invested in keyless technology. At Rs 100 per sqft for 18000 area my rentals are very high. Our monthly fixed cost is Rs. 25 lakhs. However, being the market leader,

we have to maintain competitive pricing. Our vaulting charges in IIBX are at par with that of what we charge in DTA. We have already moved a lot of cargoes from that IIBX infrastructure.

Propose to have a customer-centric approach to communicate the benefits to existing and new clients.

Mr P R Somasundaram: Haresh, you have been involved with this initiative for a long time. What is your reading?



Mr Haresh Acharya, Director, Parker Precious Metals: What we saw yesterday at IIBX was the mindset of the government. PM's vision for the industry is to make it organised. Stakeholders should prepare their minds for compliance-oriented businesses, going

forward. If we are not ready, then it will be forced on the stakeholders.

When Mr Jignesh Shah started MCX in 2003, it took nearly three years of continuous efforts to build volume. So, the exchange ecosystem takes time to grow and mature. However, when it comes to IIBX, people want everything on day-1 only. It is not possible. If we stay on and work together, then things will happen.

One thing IIBX should focus on is minimum compliance.

Mr P R Somasundaram: Mahendran, what is the way forward?



Mr Mahendran K, Head-Precious Metals Business, Karur Vysya Bank: Firstly, congratulations to Mr Ashok for the historic event. Everyone knows what needs to be done to make IIBX a success. Bullion banks have been serving the industry by importing tons

of metal over the years and ensuring compliance. It is heartening to hear from GM, and IFSCA that policy on banks' participation in IIBX will be available within the end of the year. Whenever it is ready, banks will be ready to participate. Aside from looking at it as an alternative channel of imports, we can explore newer possibilities including the export of bullion.

One thing IIBX should focus on is improving connectivity. This would expand the market.

Mr P R Somasundaram: Ravi, as an overseas supplier and a bullion bank, how do you see the development?



Mr Ravi Ramakrishnan, Head Precious Metals Trading Asia, J P Morgan: Congratulations to Ashok and his team for a great start yesterday. We are 100% supportive of the IIBX initiative. It will help both sides. The key to the market is liquidity. With the exchange

in place, there is a strong chance of both sides participating in large numbers and driving liquidity. We have opened our branch office at GIFT City yesterday. There is a push toward being a part of the GIFT city ecosystem and developing it. IIBX and bullion will form a part of these initiatives.

One thing IIBX should focus on is Liquidity. From the supplier side, we can ensure liquidity. We need someone on the demand side to match the same.



Comment from Mr Prithviraj Kothari: The supply-side should be well represented. Ease of compliance on the buyer side is needed. Also, a concession is needed as capital is blocked in the new system for 48 hours against the current system.



Mr Ashok Gautam: We are working on a model where the entire trade cycle (from remitting USD till delivery of Bullion Depository Receipt (BDR)) is compressed to under three hours. We are working on that now and hope to come up with a solution very soon.

Mr P R Somasundaram: One suggestion to IIBX; have regular interactive sessions with industry stakeholders once a fortnight for the first year. This engagement process would be effective in identifying and resolving issues.

■■■

DISCUSSION: OPPORTUNITIES IN SOUTH INDIAN GOLD / SILVER JEWELLERY MARKET

Moderator: Mr Surendra Mehta, IBJA

Panellists:

Mr Jayantilal J Challani, The Jewellers and Diamond Traders Association, Madras

Mr Sabarinath B, Coimbatore Jewellers Association

Mr Ba Ramesh, Madurai Jewellers Association

Mr Chetan Mehta, IBJA

Mr Chanda Sreenivas, IBJA- Telangana



Mr Surendra Mehta, National Secretary, IBJA: As you all know, South India is one of the largest gold jewellery markets. About 60% of India's gold jewellery is sold in South India. What is there in the South Indian gold jewellery market? Let us try to find out. Let me begin with Jayanti bhai.



Mr Jayantilal J Challani, President, The Jewellers and Diamond Traders Association: South Indians are very conservative. They save first and then spend the rest. For men, investment in gold means financial security. For women, gold jewellery symbolises social status. Thus,

gold jewellery purchase satisfies the requirements of both heads of the family.

Mr Surendra Mehta: Sabarinath Ji, what more can further be done to improve the jewellery market in south India?



Mr Sabarinath B, President, and Coimbatore Jewellers Association:

The South Indian jewellery market is developing fast with population. The design concept has improved a lot in the last three years. Companies such as Emerald are leading

the way in this, as they have an excellent design team. This has opened up the market for Coimbatore manufactured jewellery to other parts of India and the rest of the world.

People attach sentimental value to gold jewellery. Thus, jewellery gets passed on from one generation to another.

Mr Surendra Mehta: Ramesh sir, you have 52 retail stores and have an expansion plan. What is the reason the chain store concept does not succeed in north India? Why does it succeed in south India?



Mr Ba Ramesh, President, Madurai Jewellers Association:

I can tell why it is successful in South India. After covid, people are investing about 15 to 20% of their earnings in gold. Covid has proved the utility of gold compared to other assets such as cars, mobile

phones, etc. Second, common people in South India are not that aware of equity, mutual funds and so on. About 95% of the gold purchase is in the form of jewellery. Making a charge of 10% is affordable, as with time, gold appreciates. Last, in South India, we sell 22 kt jewellery of assured purity.

Mr Surendra Mehta: Chetan bhai, share with us something about the South Indian diamond market.



Mr Chetan Mehta,
Vice-President, IBJA:

After gold, the best quality diamond is sold in Southern India. After covid, even with the increase in the price of diamonds by 10 to 15%, the demand for diamonds has grown by over 80%. Diamonds are associated with

prosperity. We see a great future for quality diamond jewellery in Southern India. In terms of demand for higher caratage diamonds, the south is ahead of north India.

Mr Surendra Mehta: So, one thing that comes out clearly is the South Indian jewellery market is quality conscious. Chanda Srinivasan ji, why is the demand for gold jewellery less in Hyderabad?



Mr Chanda Srinivas,
President, IBJA- Telangana:

Silver is picking up very much in Telangana. Gold jewellery demand is more in Andhra compared to Telangana. In terms of investment, gold, silver, land and shares are the preference of common people. Compared

to Tamil Nadu, the demand for plain gold jewellery in Telangana is less. However, there are new stores coming up in Telangana for gold jewellery, silver jewellery and diamond jewellery. Telangana is more of a studded jewellery market.

Mr Chetan Mehta: Would like to add to Srinivasan ji point. Telangana is the place for the largest diamond sale.

Mr Surendra Mehta: How is the demand for silver jewellery? Does silver jewellery compete with gold jewellery?

Mr Ba Ramesh: Silver jewellery demand has increased very much in recent times. It is a different segment compared to the gold jewellery segment. Silver jewellery demand does not affect demand for gold jewellery.

Mr Surendra Mehta: Jayanti bhai, what should North learn from south India's success?

Mr Jayantilal J Challani: Quality of jewellery should improve in North India. For example, in North India,

silver jewellery with 30 – 40% silver content is still sold. In south India, the standard is a minimum of 87.5% silver for silver jewellery. In diamond jewellery, south India will not buy if you sell diamonds at 15,000 to 20,000/carat.

Mr Surendra Mehta: Srinivasan ji, what should North India jewellers do?

Mr Chanda Sreenivas: Transparency is important. In the South, the number of occasions for the purchase of jewellery is very high. Promotion is also high in the South.

Mr Ba Ramesh: in Tamil Nadu, there is a custom of giving 4 to 5 kgs of gold jewellery to the bride and groom at the time of marriage. In Kerala, new jewellery is bought for all close relatives also, in addition to the bride and groom.

Mr Sabarinath B: In the North, the buyback rate is also very low compared to the selling rate. In the South, it is usually weight for weight in any exchange programme.

Additional comments from Delegates:

Mr A S Sriram, President, Tamil Nadu Jewellers

Federation: In South India, the bottom pyramid is very large. Each one is buying a small quantity. In North India, the top end of the pyramid buys more gold. However, the bottom pyramid may not be buying. So, with overall economic growth in the North, there is a scope for growing the market.

Mr James Jose, President, Hallmarking

Federation of India: Every year, Kerala buys about 100 -120 tons of gold jewellery and recycles another 80 tons of gold. I have been a refiner for 27 years. About 15 years ago, the average purity of gold jewellery in Kerala used to be 82%. These days, the average purity of old gold jewellery coming to refineries from Kerala and Tamil Nadu is about 90%. It is about 75% of gold jewellery scrap coming from Bangalore and upwards even now.

■■■

DISCUSSION : BULLION TRADE AND MARKET POST DOMESTIC SPOT GOLD EXCHANGE

Moderator: Mr Harish Chopra, IGPC, IIMA

Panellists:

Mr Shivanshu Mehta, MCX

Mr Kumar Parmani, Yes Bank

Mr Deepak Gupta, Kundan Group

Mr A S Sriram, Tamil Nadu Jewellers Federation

Mr Nagendra Kumar, NSE

Mr Ranjith Singh, BSE

Mr Manish Gavaskar, Ratnakar Bank Ltd



Mr Harish Chopra, IGPC, IIMA: We just heard Mr V S Sundaresan, ED, SEBI. He has addressed many of the issues. Thank you, sir. The plans for developing the market ecosystem are very encouraging.

We have all three exchanges here. We will find out what their plans are in so far as Domestic Spot Gold Exchange (DSGE). BSE has been given in-principle approval by SEBI. Starting with Shivanshu, how soon are you planning to start the DSGE?



Mr Shivanshu Mehta, Head-Bullion, MCX: At MCX, we already have derivative products in gold, silver, and indices. We have also demonstrated our delivery capabilities. Now that SEBI has put in place a system for DSGE, we will be there very soon.

Mr Harish Chopra: Kumar Parmani, as a banker in the precious metals sector, how do you see DSGE? is it good news or a threat?



Mr Kumar Parmani, President- Trade & Bullion, Yes Bank: Any news is good news. DSGE is a good development. There is a space for everyone. We may have to realign ourselves, as banks cannot play directly in the exchange, as per the current regulation. We need to find out how we can collaborate with other partners. Banks have their strengths in financing and it will be relevant for the sector.

Mr Harish Chopra: Deepak Ji, as a refiner what are the opportunities that you see?



Mr Deepak Gupta, CEO, Kundan Group: We will get more opportunities. The idle gold with the public will come on the exchange. Second, as per the current guidelines, only India Good Delivery (IGD) refiners can deliver gold and silver into the exchange. So, as an IGD refiner, we are at an advantage and we expect our volumes to increase.

Mr Harish Chopra: Sriram sir, the ecosystem is aimed at catering to the last mile. What is going to be the role of bullion dealers/traders going forward?



Mr A S Sriram, President, Tamil Nadu Jewellers Federation: I thought of asking the same question to you. From what I have heard and read, IIBX is a good platform. It is in alignment with the Athma Nirbhar vision of the prime minister. At the end of the day, the regulations have to be pronounced. It has to be clear as to how is it going to help the stakeholders.

Mr Harish Chopra: Nagendra, can you give us an understanding as to how DSGE would help the stakeholders?



Mr Nagendra Kumar, Chief Business Officer, NSE: Even at IIBX, initially banks were not permitted. Now, we all know banks have been permitted to function as professional clearing members (PCM). Soon we believe they may be permitted to offer trading services to their clients. I expect similar developments at DSGE as well going forward.

Secondly, all of you are aware of NSE-IBJA MoU. According to this, NSE and IBJA will create DSGE, wherein 51% ownership will be with institutions (NSE owning 15% and other institutions owning the remaining. BSE and MCX can also participate in this). The balance of 49% will be owned by the industry. For the first time, we are introducing the concept of a depository. With IBJA we are planning an awareness programme. We believe the new system will change the entire delivery ecosystem, especially the B2C segment.

In the proposed exchange, there are going to be B2B as well as B2C segments where EGRs would be traded. At present, SEBI's regulations are more toward B2C. We will work with SEBI on EGR utilization for B2B.

Mr Harish Chopra: Ranjith, continuing the same subject, what do you think is a good business proposition for BSE?



Mr Ranjith Singh, Head- Commodities, BSE: Let me at the outset thank SEBI for giving us the permission. We will start DSGE as a segment of BSE. We have already conducted mock testing. SEBI did their checking last week. Once

we have all approvals in place, and clarity on some of the taxation issues, we will start. As far as viability is concerned, we see good potential. The official import

number is about 1000 tonnes a year. We are promoting this as a SIP option for retail investors as well. For jewellers, we are looking at it as a kilobar product.

Mr Harish Chopra: Deepakji, Kundan also has a digital gold business. How would DSGE affect Kundan's digital gold business?

Mr Deepak Gupta: EGR will work for limited hours. Digital gold is 24*7. So, in our view, it will co-exist. NK: In digital gold, the key is the bid-ask spread. Current spreads are very large. As against that, the bid-ask spread in gold ETFs (Exchange-traded products) is very narrow. Also, in a regulated environment, there are mechanisms to incentivise the channel. So, over a period of time, the digital gold volume will shift to exchange.

Mr Shivanshu Mehta: I agree with Nagendra's point. Our gold petal contract saw the delivery of 61,000 units. Like-wise, 130 metric tonnes of silver were delivered against the silver one-kg contract. So, exchange-traded products have an inherent advantage in terms of liquidity.

Mr Harish Chopra: Manish, how do you see banks continue working capital financing and other services?



Mr Manish Gavaskar, Senior VP & Head-Bullion Sales, Ratnakar Bank Ltd: Banks have played a variety of roles in serving the needs of customers in the current market. Even under IIBX and DSGE, banks will support and play a variety of roles. PCM at IIBX is known to

all. Likewise, it will evolve as with the evolution of the market.

Mr Kumar Parmani: As of today, banks enable importation, provide a working capital loan, run Gold Metal Loan books, and also provide loans for CAPEX. Going forward, if there is an exchange model, banks would provide an extra line of service as permitted by the regulator and as demanded by customers.

Mr Harish Chopra: Sriram sir, do you have enough information on IIBX and DSGE?

Mr A S Sriram: Not yet. But I think we will get all the information very soon. I would like to focus on the capital gains tax aspects related to exchanging old gold jewellery with new gold jewellery. Here the buyer has to pay capital gains tax on the difference between the purchase price and the resale price. If the capital gains are exempted, then it will enable the flow of old gold jewellery into the system and in some ways will reduce the import requirements. We have similar exemptions on capital gains on the sale of land or building if the proceeds are reinvested in land or building within a specified time. The regulator should kindly look into this and permit the same.

Mr Harish Chopra: Dubai has introduced some stringent measures on responsible sourcing. What is the plan of exchanges in India?

Mr Nagendra Kumar: From an operational point of view, if all three exchanges operate the same contract (EGR) and if the same refiner is empanelled with all exchanges, then we need to standardise the accreditation norms. Else, we will run into serious challenges.

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DISCUSSION ON TECH-BACKED GOLD PRODUCTS

Moderator:

Mr Sudheesh Nambiath, IGPC, IIMA

Panellists:

Mr Gaurav Mathur, Safe Gold

Mr Ketan Kothari, Augmont

Mr Ritesh Singh, Bright Metal Refiners

Mr Aditya Gupta, Rupeek

Ms Saroja Yeramilli, Melorra (Online)



Mr Sudheesh Nambiath, IGPC, IIMA:

We have entrepreneurs with us here. To start off, it has been 12 to 15 years since the launch of jewellery retailing. Many retailers are moving into brick and mortar also. We have seen valuations of some of these

companies exceed some of the traditional jewellers. What is the way forward for the sector?

Second, Digital gold is five years old. It had good growth until last year when certain regulatory provisions slowed down its progress. We have three speakers from digital gold. So let me start with them.

Gaurav, are you running a fin-tech company or a tech-fin company?



Mr Gaurav Mathur, Managing Director, Safe Gold:

About 70% of our employees are computer science graduates. So, we are a technology company. Digital gold is one of the financial products that plugin very neatly with technology platforms such as Paytm, Phonepe, etc., each

of which has over 100 million customer base. With UPI and other payment enablement, growth opportunities are immense.

Mr Sudheesh Nambiath: Ketan, what is the gap you have noticed that pushed you into digital gold?



Mr Ketan Kothari, Director, Augmont:

There is a problem in the market that is unaddressed. During festivals such as Diwali, Akshaya Tritiya etc, there is a sudden rush of customers wanting to buy. We have also noticed a lot of these customers were not

able to buy standard products such as 5 gm and 10gm coins due to the ticket size. They were keen on investing at regular intervals, but they could not locate any platform which can enable them to do so. ETFs were there but ETFs do not offer physical gold.

We were always bullion traders. We had the Spot platform, which was B2B with a pan-India presence and network. Through the spot platform, we were offering 100 gm and 1kg gold as well as one kg silver products. We do purchase gold, and leverage gold through lending and monetisations against GMS or outright sale. Having a successful B2B platform and a refinery, enabled us to offer digital gold to retail customers and thereby complete the life cycle. The products that we launched in the digital gold space are (a) loans against gold during covid and (b) deposits under GMS. Given our experience in this space and our network, we could scale in digital space.

http://goldconference.in/presentation/Day2/Ketan_Kothari.pdf

Mr Sudheesh Nambiath: Ritesh, what is the USP of your digital gold product?



Mr Ritesh Singh, CTO, Bright Metal Refiners:

We are directly backed by a refinery- Bright Metal Refinery. We offer investments starting from Rs. 10. We also offer gifting options. We have made the platform very easy for people to use. So, people with no

prior knowledge of tech can use our platform. Being a refiner-back proposition, it is cheaper for the customer. These are our USPs.

Mr Sudheesh Nambiath: Gaurav, what new things do you offer to your customers, being one of the oldest players in the industry?

Mr Gaurav Mathur: In the digital gold space, there are a bunch of companies that offer standard products- smaller investment options, delivery of physical metal, 24/7 operation, buy-sell option and so on. Moving beyond these takes a lot of time and effort. We tied up with a lot of jewellers so that your balance in Safe Gold can be redeemed against jewellery purchases or you can pay a part of your purchase through digital

gold and so on. Recently, we tied up with a credit card company where your Safe Gold balance can be used as collateral. There are six fintech companies that issue credit cards. These card companies are ok with giving a limit against your gold as collateral.

In enabling the client to lend his gold and earn interest, we are awaiting regulatory clarity on certain issues.

Mr Sudheesh Nambiath: Aditya, what is the connection between digital gold and what your company Rupeek does? Which regions are more comfortable or tech-savvy?

Mr Aditya Gupta, Rupeek: There is a bridge. Both digital gold as well as companies such as Rupeek seem to be focusing on building and setting up the gold monetisation infrastructure for the country in a holistic manner. Rupeek is the pioneer in the fintech space in asset back lending. Innovation in asset back lending has been our focus since our inception. Doorstep gold loan was our first product. Gold-backed credit card is another innovation. GTM, Digilocker and BMPL schemes are coming up. There is a strong synergy between what we try to achieve - formalising credit access and monetising the asset and objectives of digital gold.

In India, only about 10% of gold assets are leveraged for credit. The adoption of gold-backed lending is still nascent and growing. Rupeek is proud to say that we convert 60% of 'new to gold loan' category of customers. South is more amenable to asset-backed lending in terms of tech-savviness and readiness to monetise gold. North and West are showing a strong upward trend. Some pockets of the East also are growing. But the baseline case is different for different regions.

Mr Sudheesh Nambiath: Saroja, how has the journey been for you at Melorra, being an e-commerce jewellery player?



Ms Saroja Yeramilli, Founder & CEO, Melorra:

Thank you for the invitation. We are one of India's top jewellery companies online. We started Mellora seven years ago. E-commerce started in 2008 in India. Over a period of time, despite challenges, it grew from strength to strength. Today, we have 300 million online shoppers. By 2026, we will have 600 – 700 million online shoppers. Covid was an unexpected boon from an e-commerce perspective, although it was a humanitarian disaster. Covid saw large-scale adoption of e-commerce, especially in smaller towns and cities.

The young demographic plus high gold consumption lead to Mellora's journey. We may be called the only true pan India jewellery company as we have delivered jewellery to customers in over 3000 towns and cities across the length and breadth of the country in the last seven years. Beyond retailing, we deploy technology extensively at the manufacturing end, at the design and at the pricing end and across our value chain.

We follow the 'zero inventory model'. We manufacture as per customer order. So, in a way, every piece of jewellery that we sell is custom-made. Also, while hallmarking is mandatory only in 290 districts, we deliver hallmarked jewellery to every part of India, even though it is not mandatory in some places. So, we believe we are truly disrupting the jewellery retailing industry that we serve using technology and customer insights.

http://goldconference.in/presentation/Day2/Saroja_Yeramilli.pdf

Mr Sudheesh Nambiath: Digital gold has been facing regulatory challenges in the last two years. What do you plan to do in these situations?

Mr Ketan Kothari: Regulation has been different when it comes to gold. Some consider it as currency, some consider it as a commodity. Regulations increase business, as it increases trust. With Electronic Gold Receipt, the way gold will be traded will change decisively.

Mr Gaurav Mathur: We have to engage with the regulator. We have to be flexible, be able to change with regulation. Also, have an active dialogue with the regulator and have an open mind.

Aditya, do you face regulatory hurdles? How do you manage risks especially when the space is not-regulated?

Mr Aditya Gupta: Regulations have enabled innovations at Rupeek. Regulations around lending against gold in banks have been extremely enabling in the space, for not only Rupeek but also for other companies. Regulations evolve to make it easier for the customers.

Mr Sudheesh Nambiath: Saroja, as a tech company, Melorra is into AR/VR tech as well. In the process, companies are gathering a lot of private information about customers, do you see a regulatory challenge going forward?

Ms Saroja Yeramilli: We are a tech company. We take customer-privacy laws very seriously. For every action that a customer takes, we have to take consent. We take it very seriously. No AR/VR tech can be deployed without customer consent. These solutions are, in general, good and helpful for consumers. All privacy laws are strictly followed by consumers.

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Presentation by Mr Philip Newman Managing Director, Metals Focus



Mr Philip Newman
Metals Focus

Mr Philip Newman of the total global gold production, about 2123 tonnes (as on 2021) are non-captive gold, that is, gold mined in countries that permit the export of gold dore. We expect the non-captive gold to increase from 116 tonnes to 2239 tonnes by 2023, mainly from North America (+34), Oceania (+36), Central and South America (+34) and Africa (+10).

Artisanal and small-scale gold mining (ASGM) accounts for roughly 35% (about 734 tonnes) of the non-captive dore market. Africa with 471 tonnes (62%), C&S America with 197 tonnes (27%), Asia with 62 tonnes (8%), and Oceania with 4 tonnes (1%).

ESG in dore supply chain: ESG reporting is a practice in large-scale mines. Major jewellery retailers in the developed world are moving towards ESG-compliant companies with carbon neutral bars. India cannot escape some of these broader trends.

http://goldconference.in/presentation/Day2/Philip_Newman.pdf

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DISCUSSION ON ATTRACTING DORE FLOWS INTO INDIA

Moderator: Mr Philip Newman, Metals Focus

Panellists:

1. **Hon. Dr Kwabena Okyere-Darko Mensah, Government of Ghana (online)**
2. **Mr Nick Spencer, Galaxy Goldmines (online)**
3. **Mr Ramkumar Chandrasekharan, Gold Storm DMCC**



Hon. Dr Kwabena Okyere Darko Mensah: Happy to be a part of the panel. Ghana is the largest gold producer in Africa. The gold sector has a lot of social and economic impact. The sector creates employment and reduces poverty. ASM sector is an important part of the Ghana

gold sector. ASM sector has been developed since 1983. In 2017, a community mining scheme was launched. We are also bringing in a responsible sourcing program to formalize ASM and community mining.

Bank of Ghana has the first right to purchase gold through its arm Precious Minerals and Metals Corporation (PMMC). If an Indian company wants to get gold from Ghana, I urge them to consider partnering with the Bank of Ghana. Secondly, we are also looking at adding value through refining. The government of Ghana along with PMMC is considering setting up a refinery and adding value. This could be another opportunity.



Mr Nick Spencer, Galaxy Goldmines: India has a potential reserve of 500 tonnes of gold from its own mines. From 20 mines, India can produce about 100 tonnes of gold dore per year. So, try to explore this option.

Second, how do mines choose their refiners? The key is a long-term partnership that can help a mine to develop, grow and prosper together. There has to be an understanding, strong professionalism, and cultural connection. Spending time and money on the ground

with miners is critical. Refiners have to be of international standards. LBMA is desirable.

http://goldconference.in/presentation/Day2/Nick_Spencer.pdf



Mr Ramkumar Chandrasekharan, Gold Storm DMCC: We are Singapore's headquartered company with a full-fledged office in Ghana to source and export gold dore. Regulatory requirements are stringent in Ghana. We do undertake regular mine visits and have

a complete traceability system. Ghana's market is moving in an organized way. Small-scale miners have their own challenges mainly in poor cash management and book-keeping. They need financial support. Besides some require technical and operational support. Together, these could lead to a sustainable supply of gold dore. The key is "financial and technical partnerships". In a way, we are bringing LSM practices to the ASM sector.

http://goldconference.in/presentation/Day2/Ramkumar_Chandrasekharan.pdf

Mr Philip Newman: Can you please explain about Gold Storm FATE model?

Mr Ramkumar Chandrasekharan: Foundry, Analysis, Trade, and Export (FATE). We have a formal onboarding process for any mine. It involves KYC, mine-site visits, and an analysis of the challenges faced. It is not only for mines but also for aggregators and export licensed holders. It can be adapted for refiners and also for miners from other countries.

We plan to expand the model to the rest of west Africa. We plan to move to Indonesia in 2023.

Mr Philip Newman: Minister, you mentioned about Minerals Commission and Alternative Livelihood project. Could you please elaborate?

Hon. Dr Kwabena Okyere-Darko Mensah: Minerals Commission is responsible for the regulation and management of mineral resources. Alternative live-

lihood projects are programs to support small-scale miners. There is a lot of informality in the ASM sector. As a result, traceability is a challenge. Bank of Ghana's gold purchase program is one of the formalization programs to support ASM. As you are aware, there are illegal mining activities in Ghana. When we banned illegal gold mining, we had to provide an alternative mechanism for these people to support their livelihood. So, we help them with opportunities in other sectors such as afforestation, and so on. The University of Mines Technology trains Some of these people on the safe mining process, mercury-free mining, and so on.

Mr Philip Newman: Nick, where do you think the industry would be five years from now?

Mr Nick Spencer: At the moment there is only one mine. Five years from now, five mines each with a production of two tonnes each per year is a possibility. Execution is very challenging in India. India could move

to 100 tonnes per year from 20 mines 15 years down the line.

Mr Philip Newman: Minister, could you share some of the challenges faced in organizing the sector?

Hon. Dr Kwabena Okyere-Darko Mensah: The main goal of ASM, which contributes 43% of gold production in Ghana, is to create jobs. ASM creates between one million to 2 million jobs. Community mining has created 50,000 jobs.

Challenges- Some of the mines do not follow sound mining practices. The government has banned mining in riverbeds and mining in forest areas. This is to protect the environment and ensure sustainability. Investment in the ASM sector is another challenge.

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