COMMENTARY

Zero Loss: The Indian Experience

Rahul Basu [*]

1. INTRODUCTION

The Supreme Court of India (SC) has ruled that, under the Public Trust Doctrine, natural resources are held by the state as a trustee for the people and especially future generations.[1] A core duty of a trustee is to maintain the *res*, the corpus value of the trust. In India, the title to subsoil minerals usually vests in the states, although there are several exceptions.[2] Since mining effectively results in the conversion of subsoil minerals into money, an important first step in achieving intergenerational equity (Hartwick 1977) and weak sustainability (Pearce and Atkinson 1993) is ensuring that there is zero loss; that is, the mineral sale proceeds received by the mineral-owning state must equal the value of the subsoil minerals. Reflecting this, the National Mineral Policy 2019 states:

> natural resources, including minerals, are a shared inheritance where the state is the trustee on behalf of the people to ensure that future generations receive the benefit of inheritance. State Governments will endeavour to ensure that the full value of the extracted minerals is received by the State.

Zero loss is achieved when the mineral sale proceeds received by the mineral owner equal the resource rent. The Zero Loss Principle can be conceptualized as the inverse of the fair compensation principle when the

[*] Research Director, Goa Foundation, G-8, St Britto's Apartments, Dangui Colony, Mapusa, Goa, India 403507; rahulbasu1@gmail.com

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[1] *Fomento Resorts and Hotels Ltd. v. Minguel Martins*, (2009) 3 SCC 571; *Mineral Area Development Authority v. SAIL*, 2024 INSC 835; *Property Owners Association v. State of Maharashtra*, 2024 INSC 835.

[2] Legally, the owner of the land owns the subsoil, unless the person has been denuded of this right by a legal process. This has happened in vast swathes of India, but not everywhere.

public acquires private property—if private property requires fair compensation, then so do public assets (Asher and Novosad 2023).

The value of the subsoil minerals (the resource rent) is the market value of the extracted mineral minus the full costs of extracting, processing, and transporting it, including a reasonable profit for the extractor. The quality of mineral deposits can vary based on geological factors (quality of the ore, ease of extraction, etc.) as well as their location vis-à-vis the market. This implies that the resource rent varies by mineral deposit: deposits that are easier to access or of a higher grade have a higher per-unit resource rent.

Historically, leases for publicly owned minerals were allotted to private parties on a first-come, first-served (FCFS) basis. The initial lease was for 20 or 30 years, renewable for subsequent periods of 20 years each. The mining leaseholder was required to "win the ore". Ownership of the extracted ore was transferred to the leaseholder at the mine gate, provided the full consideration was paid. At that time, royalty was the only consideration receivable by the mineral owner.

Under the Mines and Minerals (Development and Regulation) Act 1957 (MMDR Act), royalty rates are set by the central government. Ad valorem royalties for minerals such as iron ore are calculated based on the average sale price (ASP) of a given type and grade of ore for a particular month in a state published by the Indian Bureau of Mines (IBM). IBM calculates the ASP based on the weighted average of mine-gate prices for third-party sales reported by miners for that month in their statutory returns to IBM.[3] Since the per-unit resource rent varies by deposit, a uniform royalty rate cannot achieve zero loss for all mineral deposits.

2. EVIDENCE OF LARGE LOSSES

Since 2008, India has been shaken by a series of reports alleging very large losses when publicly owned natural resources, especially minerals, were alienated. The Karnataka Lokayukta found widespread illegalities in mining practices, including violations of mining and environmental laws (GoK 2008, 2011). In 2012, the Comptroller and Auditor General of India (CAG) estimated the loss from coal block allocations by allotment to be ₹ 1.856 lakh crore (CAG 2012). During 2012 and 2013, the Shah Commission of Inquiry reports on illegalities in the mining of iron and manganese ore in the states of Goa, Odisha, and Jharkhand documented widespread

[3] See Rule 42(3) of the Minerals (Other Than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

violations that led to large losses of public wealth as well as environmental assets (MoM n.d.). Public interest litigation ensued.

In key judgments in 2012, the SC clarified, based on the principles of equality and the common good, that when alienating natural resources (a) "there cannot be a dissipation of material resources free of cost or at a consideration lower than their actual worth"[4] and (b) the process for selecting private entities must ensure adequate compensation and must be non-arbitrary and transparent.[5] Auctions were considered one possible avenue to meet both requirements.

The immediate impact was that new mining leases could not be granted to private parties by allotment or on an FCFS basis. The MMDR Act, therefore, needed to be amended to allow for auctions. This became more urgent in 2014, when the SC ruled in the Goa mining case that a second mining lease extension cannot be automatic.[6] A large number of mining leases of important steel plants, power plants, and industrial units dated back generations and were operating on the basis of "deemed renewals"; that is, no decision was taken on the renewal application within the time specified. With this judgment, mining under these leases became illegal, as their second and subsequent renewals were struck down. Penalties for illegal mining are severe—recovery of the ore or its value, plus fines or jail terms. This judgment threatened a significant share of mineral production in the country.

3. MANDATORY AUCTIONS

In response, the government promulgated two ordinances introducing auctions for coal and major mineral leases. Parliament enacted the Coal Mines (Specific Provisions) Act and the MMDR Amendment Act in March 2015, establishing a mechanism for auctioning mining leases. Existing leases were extended until at least 31 March 2020 to prevent disruption to the economy.

The winner in the lease auctions was the entity that bid the highest auction premium. Like royalty, the auction premium was ad valorem, a percentage of the monthly IBM ASP, and payable to the subsoil mineral owner. It is important to note that the auction premium is paid in addition to the

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[4] *Natural Resources Allocation, In re,* Special Reference No. 1 of 2012, 2012 INSC 428.
[5] *CPIL & Ors v. UoI & Ors*, (2012) 3 SCC 1.
[6] *Goa Foundation v. UOI & Ors.*, WP (Civil) 435 of 2012, Supreme Court of India, judgment on 21 April 2014.

royalty, ensuring that more would be received as mineral sale proceeds than under the FCFS process.

The auctions began in 2016. Over 500 auctions of major mineral leases have been conducted so far. However, there have been differences in the implementation of the Zero Loss principle across states. We will discuss a few illustrative cases.

3.1. Telangana

Since 2014, Telangana has taken a different approach to sand mining. Major sand reaches are auctioned off to "raising contractors", who are required to extract sand and deliver it to a government-run sand depot and are paid per ton. End users purchase sand from the government at administered prices and must use a registered truck to transport it. Consequently, any sand user must be able to prove the provenance of their sand, reducing illegal sand mining. While there are still loopholes in this process, Telangana has seen receipts from sand increase from an average of ₹ 40 crore per year in the period 2007–2013 to ₹ 375 crore in 2015–2016 and to ₹ 700 crore by 2024–2025 (*The Hindu* 2023).

3.2. Goa

In its 2014 judgment, the SC ruled that all iron ore leases in Goa had expired, as their second deemed renewals were invalid. The SC also imposed an additional levy of 10%, earmarked for the new Goa Iron Ore Permanent Fund (GIOPF). Following a High Court judgment,[7] the state quickly renewed 88 leases. These renewals were also struck down by the SC in 2018.[8] Finally, starting in 2022, 12 iron ore mineral blocks have been auctioned (Table 1).

The known reserves for each mineral block are valued at the average monthly IBM ASP for the preceding 12 months to arrive at the value of estimated reserves (VER). The total VER amounts to ₹ 77,934 crore. The average auction bid, weighted by VER, was 85.51% of the IBM ASP at the time of extraction. If we add the 15% royalty and the 10% GIOPF levy, the total becomes 110.51%—over seven times the amount under the earlier, royalty-only framework. If one assumes that the VER fairly estimates values during actual extraction, the total mineral sale proceeds could be as high as ₹ 86,125 crore. The increase in mineral sale proceeds would be to the tune

[7] *M/s Lithoferro v. State of Goa*, WP 210 of 2014, Bombay High Court at Goa, judgment on 13 August 2014.

[8] *Goa Foundation v. Sesa Sterlite*, SLP(c) 32138 of 2015, Supreme Court of India, judgment on 7 February 2018.

Table 1. Mineral Block Auctions in Goa

No.	Block	Winner	Value of estimated resources (₹ crore)	Winning bid (%)	Total sale proceeds (%)	Estimated mineral sale proceeds (₹ crore)			
						Royalty (15%)	GIOPF (10%)	Auction premium	Total
1	Bicholim	Vedanta Ltd	27,167	63.55	88.55	4,075	2,717	17,265	**24,056**
2	Sirigao-Mayem	Salgaocar Shipping	7,544	99.25	124.25	1,132	754	7,488	**9,374**
3	Monte De Sirigao	Rajaram Bandekar (Shrigao) Mines	2,928	111.28	136.28	439	293	3,258	**3,990**
4	Kalay	Fomento Resources Pvt Ltd	5,549	86.40	111.40	832	555	4,794	**6,182**
5	Advalpale-Thivim	Fomento Resources Pvt Ltd	1,181	58.85	83.85	177	118	695	**990**
6	Cudnem-Cormolem	Jindal South West (JSW)	1,859	96.65	121.65	279	186	1,797	**2,262**
7	Cudnem	Vedanta Ltd	2,412	93.15	118.15	362	241	2,247	**2,850**
8	Thivim-Pirna	KAI International	338	100.12	125.12	51	34	339	**423**
9	Surla-Sonshi	Jindal South West (JSW)	6,298	109.80	134.80	945	630	6,915	**8,490**
10	Onda	Agravanshi Pvt Ltd	2,358	125.30	150.30	354	236	2,954	**3,543**
11	Curpem and Sulcorna	Agravanshi Pvt Ltd	3,851	95.00	120.00	578	385	3,658	**4,621**
12	Codli	Jindal South West (JSW)	16,449	92.60	117.60	2,467	1,645	15,232	**19,344**
	Total		**77,934**	**85.51**	**110.51**	**11,690**	**7,793**	**66,641**	**86,125**
	% Mineral sale proceeds					13.6	9.0	77.4	100.0

Source*:* The values of the estimated resources and the winning bid percentages were obtained through Right to Information requests. The author computed the remaining values.

of ₹ 74,734 crore (the GIOPF levy of ₹ 7,793 crore plus the auction premium of ₹ 66,641 crore). Compared with the royalty-only regime used earlier, the auctions are clearly a massive success in reducing losses in public wealth at the auctioning phase.

But what about the mining phase?

In Goa, most of the winners agreed to pay mineral sale proceeds higher than the average mine-gate price. Since they must pay extraction costs on top of this, they are likely to incur a loss. Despite the seeming "winner's curse", five leases have started production, and others are in various stages of implementation. How can they extract at this cost and with this price structure and still be profitable?

Three broad categories of under-reporting could occur: in the quantity of ore, its type or grade, or its mine-gate price. The Ministry of Mines (MoM) has raised questions around old leases reporting far lower grades of ore extracted after the auctions.[9] In Odisha, litigation has commenced over the misreporting of the mine-gate price.[10]

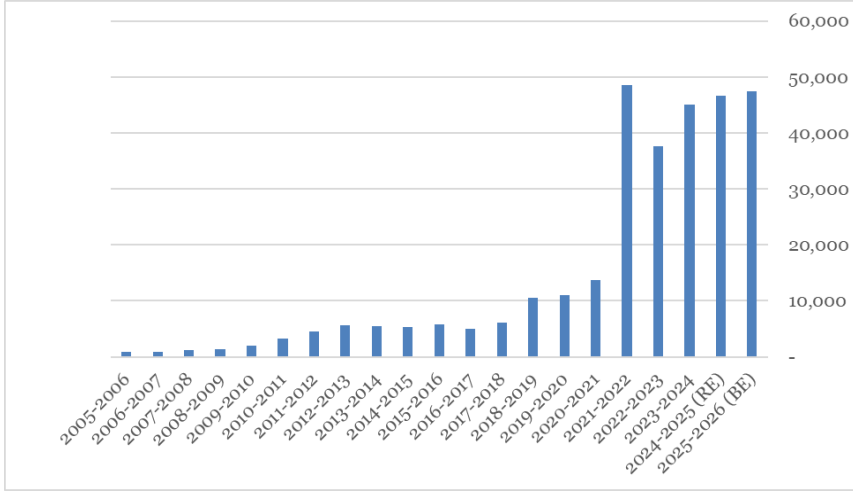
3.3. Odisha

The state with the largest mining sector, Odisha, conducted around 50 auctions for major mineral blocks, of which about 30 were held in 2020–2021 for extended working leases that expired in 2020 and could be operationalized quickly. The Odisha government reports annual mining revenue from 1973–1974. Interestingly, there was an increase in mineral sale proceeds between 2009 and 2013, when global iron ore prices rose, quantities extracted increased, and royalty rates were raised as well. Another jump is seen from 2018 to 2019, when recoveries for illegal mining were underway under another SC judgment in 2017. Finally, there is a step change in 2021–2022, when the full impact of the auctions came into effect. Mineral sale proceeds rose from ₹13,792 crore in 2020–2021 and stabilized at around ₹ 46,000 crore (Figure 1).

[9] When prices paid to subsoil mineral owners rise, less profitable ores are likely to be stranded, implying that the grade of the extracted ore should rise, not fall.

[10] *JSW v. IBM*, WP (Civil) 1363 of 2022, High Court of Odisha, judgment on 16 March 2022.

Figure 1. Odisha Annual Mining Revenue Collected (in ₹ Crore) over the years



Note: RE = revised estimates; BE = budget estimates

4. CONCLUSION

The case studies from Telangana, Goa, and Odisha demonstrate that applying the Zero Loss principle has led to very significant increases in mineral sale proceeds for the states. The SC, CAG, and civil society organizations have played a significant role in ensuring better management of mining to stem losses in mineral wealth incurred in the absence of a zero-loss framework.

Ethics Statement: This study complies with requirements of appropriate ethical guidelines.

Data Availability Statement: The table and chart are self-contained. Data is sourced from RTI requests and public documents.

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