

# The Goa Foundation

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Shri Narendra Singh Tomar  
Hon ' ble Union Minister of Mines  
Room No 101, ' C ' -Wing,  
Shastri Bhawan  
New Delhi 110011

Re : Amendments to the MMDR Act, 1957

Dear Sir,

We are an environmental NGO based in Goa with a long history of work on the environmental impacts of mining. We are also the petitioner in the PIL at the Supreme Court in the matter of mining in Goa (SC WP (C) 435 of 2012) in which judgement was delivered on 21.4.2014.

Recently, the press<sup>1</sup> has reported that the Center has sought views of the States on amendments to the MMDR Act and Rules. We draw your attention to a few major changes required to be made to the governance framework concerning mining. These are necessary to fully implement Constitutional provisions, Supreme Court judgements, as well as to bring good governance in the minerals sector. These changes are imperative as there continue to be a large number of illegal mining incidents and scams reported from all across India.

1. **Mineral resources are the property of the State**, not the land owner or even the mining lease holder. The Government is the public trustee of these resources on behalf of the people.

Under Article 294 of the Constitution, sub-soil minerals are owned by the States. Similarly, under Article 295 of the Constitution, the Center owns offshore minerals. The Supreme Court has repeatedly held that natural resources are owned by the people and that the Government only acts as a trustee. As a trustee, it is the duty of the Government to recover the full value of the resource for public welfare. In the Meerut Development Authority case [(2009) 6 SCC 171], the Court held:

*“It is well said that the struggle to get for the State the full value of its resources is particularly pronounced in the sale of State owned natural assets to the private sector. Whenever the Government or the authorities get less than the full value of the asset, the country is being cheated; there is a simple transfer of wealth from the citizens as a whole to whoever gets the assets `at a discount'.”*

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<sup>1</sup> <http://www.thehindu.com/news/national/tomar-seeks-cms-views-on-mines-act/article6172917.ece>

In the 2G case (CPIIL & Ors vs UoI & Ors, (2012) 3 SCC 1), Supreme Court has held that,

*“Natural resources belong to the people but the State legally owns them on behalf of its people... The State is empowered to distribute natural resources. However, as they constitute public property/national asset, while distributing natural resources, the State is bound to act in consonance with the principles of equality and public trust and ensure that no action is taken which may be detrimental to public interest. Like any other State action, constitutionalism must be reflected at every stage of the distribution of natural resources.”*

Further, in the said case, the Supreme Court held:

*“As natural resources are public goods, the doctrine of equality, which emerges from the concepts of justice and fairness, must guide the State in determining the actual mechanism for distribution of natural resources. In this regard, the doctrine of equality has two aspects: first, it regulates the rights and obligations of the State vis-a-vis its people and demands that the people be granted equitable access to natural resources and/or its products and that they are adequately compensated for the transfer of the resource to the private domain; and second, it regulates the rights and obligations of the State vis-a-vis private parties seeking to acquire/use the resource and demands that the procedure adopted for distribution is just, non-arbitrary and transparent and that it does not discriminate between similarly placed private parties.”*

In the Presidential Reference on the issue of Alienation of Natural Resources (2012) 10 SCC 1, the Supreme Court has held that when:

*“precious and scarce natural resources are alienated for commercial pursuits of profit maximizing private entrepreneurs, adoption of means other than those that are competitive and maximize revenue may be arbitrary and face the wrath of Article 14 of the Constitution.”*

From the above, a few recommendations emerge:

### **A. Public Disclosure**

a) It is clear that mineral resources are extremely valuable assets of the people. As trustee for the public, it is the duty of the State to provide the public with adequate information about their assets, viz., known sub-soil and offshore minerals. There should be a requirement in the MMDR and other relevant acts for all Governments to provide a detailed estimate of the assets of the people - all mineral deposits and minerals within leases, giving volume, quality and estimated value of the mineral reserve. Similarly, all mineral lease holders should have an obligation to make similar disclosures on an annual basis, as often these estimates are revised.

There are established methodologies for valuing mineral reserves, as these often constitute the bulk of the value of a mining company. In India, the Ministry of Statistics and Programme Implementation has recently published its framework for Green National Accounts in India<sup>2</sup>, which includes a section on valuing mineral reserves. India may

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<sup>2</sup> [http://mospi.nic.in/mospi\\_new/upload/Green\\_National\\_Accounts\\_in\\_India\\_1may13.pdf](http://mospi.nic.in/mospi_new/upload/Green_National_Accounts_in_India_1may13.pdf)

consider joining the Wealth Accounting and the Valuation of Ecosystem Services (WAVES)<sup>3</sup> partnership. Since 2010, the WAVES partnership has 70 countries and numerous private sector organizations<sup>4</sup> supporting Natural Capital Accounting. For reporting mineral reserves, India may consider joining the Committee for Mineral Reserves International Reporting Standards (CRIRSCO) and adopt the CRIRSCO International Reporting Template<sup>5</sup>.

The Norwegian Petroleum Directorate (NPD) provides some examples of good governance in this connection. The NPD report, “Petroleum Resources on the Norwegian continental shelf 2014 - Fields and discoveries”<sup>6</sup> deals with resources in fields and discoveries on the Norwegian continental shelf (NCS) and the NPD’s assessment of opportunities for realising the greatest possible value from these.

The Ministry of Petroleum and Energy of Norway, in cooperation with the NPD, publishes an annual book on the Norwegian petroleum sector, Facts 2014<sup>7</sup>. The publication gives a comprehensive overview of the petroleum activity on the Norwegian continental shelf (NCS). The Norwegian Petroleum Facts app<sup>8</sup> has also been developed by the NPD and the Ministry of Petroleum and Energy for use on iOS, Android and Windows mobiles and tablets and has detailed information publicly available on every oil field and lease on Norwegian territory.

## **B. Maximum Capture of Value of Ore or Natural Resource**

b) As Public Trustee of the natural resources, the State through Government must ensure that the maximum amount of the value of the mineral be captured through whatever legal and contractual structures it may choose. This needs to be explicitly incorporated into the objects of the MMDR Act.

The effectiveness of the Government can be measured by the Capture Rate. This is a division of (i) the inflows to the state from the extraction of the mineral resources, by (ii) the value of the mineral resources in the ground. The Capture Rate has been calculated by the World Bank for a number of countries around the world. Best practice is to capture over 90% of the value of the mineral resources<sup>9</sup> through appropriate legal structures.

## **C. Valuing the Mineral Resource**

*Technically, the value of the mineral resource (or “rent”) is the difference between the price paid in the market for the ore versus the total cost of producing it (including a proper return on capital). If we take gold as an example, we can sell 24-carat gold for Rs. 33,000 per 10 grams. Now, it would be foolish to suggest that gold ore underground is also worth Rs. 33,000 per equivalent 10 grams because it costs money to transform gold ore into gold. The owner of the gold ore can use competitive bidding to hire a*

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<sup>3</sup> <http://www.wavespartnership.org/>

<sup>4</sup> <https://www.wavespartnership.org/sites/waves/files/documents/NCA%20supporters%20060314.pdf>

<sup>5</sup> <http://www.crirSCO.com/template.asp>

<sup>6</sup> <http://www.npd.no/en/Publications/Resource-Reports/2014/>

<sup>7</sup> <http://www.npd.no/en/Publications/Facts/Facts-2014/>

<sup>8</sup> <http://www.regjeringen.no/en/dep/oed/whats-new/news/2014/Facts-2014--All-you-need-to-know-about-Norwegian-petroleum-activities.html?id=758351>

<sup>9</sup> See Rents to Riches, Annex 4.3 on page 162.

*contractor to extract the ore, refine it into gold, deal with the waste and sell the gold in the market. Assume that the winning contractor charges Rs. 2,000 per 10 grams of gold for all these services. The value of the gold ore underground is therefore Rs. 31,000 per 10 grams (that can be extracted at Rs. 2,000 per 10 grams).<sup>10</sup> This value of the ore is essentially the international market price of the gold minus the fair cost of extracting and processing the ore to make the gold. In economic terms, this is called the “Economic Rent” or “Depletion Cost” or “Mineral Depletion.” The Economic Rent changes as the mineral price fluctuates on global markets and as mining technology improves.*

We have used publicly available data to estimate the Capture Rate for iron ore mining in Goa. We have taken data from the Sesa Goa annual reports, and scaled them up to Goan exports. In an ideal scenario, a mining company should earn enough to cover all its costs, plus a reasonable return on the capital it has invested. We have set the post tax return on capital at 20% (in comparison, Thermal Power Plants are permitted a ROI of 14%). Any profit over and above this 20% return on capital would be “unearned profit” and should have been captured by the State<sup>11</sup>. This forms part of the captureable value. The various taxes paid by the mining companies are a form of capture of value. Of these, the State principally earns royalties. The Center principally earns export duty and income tax. Since the mineral resources are owned by the State, we are interested in the income of the State, viz. royalties.

Our calculations should that for the eight year period 2004-05 till 2011-12, the state of Goa has received less than 5% of the value of its iron ore (the Center in comparison received around 35% of the value of the iron ore). 282 million tons of iron ore assets were mined, transferred to the miners. This reduced the collective wealth of the state by Rs. 53,833 crores or Rs. 3.69 lakhs per capita. In return for the huge decline in common wealth, the state received only Rs. 2,387 crores as royalty. Total government receipts for that period from all sources were only Rs. 27,402 crores.

We can look at this loss of collective wealth as a hidden tax on the people of Goa. Lakhs of rupees were lost, even from the poorest persons, without their knowledge, let alone consent. This activity is also contrary to Articles 38 & 39 of the Constitution.

We extended the analysis to estimate the total amount that would be captured by the state of Goa at the point of exhaustion of the publicly stated 1.3 bn tons of iron ore reserves. We used two scenarios - Capture Rate as historically achieved, and Capture Rate of 90%. Under the first scenario, the total amount captured by the state of Goa would be Rs. 11,004 crores. Under the 90% Capture Rate scenario, the total amount captured would be Rs. 223,322 crores. This amount works out to Rs. 15.32 lakhs per capita. Given that the Indian per capita income is around Rs. 0.75 lakhs, this works out to approximately 20 years of income for every person in the state! And this does not take into consideration ores other than iron, including bauxite, manganese, etc.

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<sup>10</sup> The rent depends on the cost of extracting and refining the gold. The cost may be only Rs. 2,000 per 10 grams for surface deposits, whereas in other places, you may need to mine deep and the costs would be higher, say Rs. 5,000 per 10 grams. Note that this example assumes that the location and quantity of gold ore are known with great precision; gold exploration costs would reduce the rent.

<sup>11</sup> The CAG (The Comptroller and Auditor General of India) used a similar methodology in its calculation of “windfall gain” in the ongoing coal block allocation investigation. See [https://en.wikipedia.org/wiki/Indian\\_coal\\_mining\\_controversy#Second\\_CAG\\_charge:\\_22windfall\\_gains.22\\_to\\_the\\_allocatees\\_were\\_1067303\\_crore\\_28US.24160.C2.A0billion.29](https://en.wikipedia.org/wiki/Indian_coal_mining_controversy#Second_CAG_charge:_22windfall_gains.22_to_the_allocatees_were_1067303_crore_28US.24160.C2.A0billion.29)

It is imperative that the MMDR Act require the Government to disclose its estimated Capture Rate from every new lease, as well as provide an annual report of the actual Capture Rate.

#### **D. Receipts from mineral ore are capital, not revenue receipts**

c) A deeper issue is the treatment of minerals in the Government finances. Mining is the point at which the title to the mineral is transferred to the lease holder. The consideration for this transfer of asset are the Receipts by a Government, and should be treated as Capital Receipts on account of the sale of an asset. At presently, these receipts by State Governments (principally in the form of “Royalties” under the MMDR Act) are incorrectly classified as Revenue Receipts.

All receipts from mining should be treated as Capital Receipts. However, there are quite a few consequent changes in the Government Finances generally that need to be made. An alternative may be to adopt Botswana’s approach of a Budget Sustainability Index, which essentially measures the revenue deficit after subtracting all receipts from mining. Yet another approach may be to require reporting a parallel set of accounts for information only which treat these receipts as Capital Receipts. This regime can continue for a decade, during which time the complete changeover can be planned and implemented.

d) In a private mining scenario, the lower the geological risk, the higher would be the capture rate. It is therefore imperative that for easy to locate minerals (surface deposits of iron ore or bauxite), the entire nation be surveyed in mission mode. The Act should be amended to require that the States conduct these detailed geological surveys, if available information is incomplete, prior to entering into any mining lease.

e) The MMDR Act already requires every lease holder to provide geological data on an annual basis to the Geological Survey of India. All geological data (with the possible exception of atomic minerals), should be freely published for the public to download and use. There is the famous case of Goldcorp, a Canadian gold mining company that put 50 years of its geological data online and ran a contest to find new deposits of gold within its existing lease. This was a very successful exercise. This can be replicated in India. And as far as we can tell, there is no advantage to withholding this information from the public. This should be implemented in mission mode.

f) Also deriving from the Public Trusteeship principle, from the time of enactment of the Amendment, it must be the policy of the state to terminate any and all existing leases, where legally possible, in order to enable a regime with a higher Capture Rate.

## **2. Intergenerational Equity and Sustainability**

The principle of Intergenerational Equity arises from **Article 21 of the Constitution**. A minimal formulation of Intergenerational Equity is that future generations of people should

have as much access to resources as the current generation - we should not leave our children and grandchildren worse off.

**Ancient cultural and religious customs** also require that our “uttaradhikari” or our “patrimony” be passed on to our children. In the words of Moses Henry Cass, then Australian Minister for the Environment and Conservation

*“We have not inherited this earth from our parents to do with it what we will. We have borrowed it from our children and we must be careful to use it in their interests as well as our own. Anyone who fails to recognise the basic validity of the proposition put in different ways by increasing numbers of writers, from Malthus to The Club of Rome, is either ignorant, a fool, or evil.”*

**Common sense and prudence** also requires that if we sell an asset, we buy another one - preferably income generating. If we sell our land in the village, we do not squander the money on alcohol or gambling, we buy a flat in the city or put it into a FD. This is the prudent thing to do.

**In economics**, "Hartwick's rule holds that consumption can be maintained — the definition of sustainable development — if the rents from non-renewable resources are continuously invested rather than used for consumption."<sup>12</sup> Extracting minerals reduces or depletes the available quantity of mineral resources for use by future generations. In the case of mineral resources, “rent” or “economic rent” or “mineral depletion” is the value of the mineral resources before they are extracted.

Hartwick’s rule is quite intuitive - We need to keep our total capital constant, or preferably growing. If we extract a mineral (a non-renewable resource), we reduce our mineral wealth. Therefore, we need to create/invest in another productive asset of the same value.

### 3. Steps to achieve Intergenerational Equity

If the State decides to extract mineral resources, it is depleting the stock of minerals. This activity leads to a reduction in the wealth of the people. The State must create productive assets of equivalent value. Therefore, the State must:

- a) As Public Trustee, ensure that the maximum amount of the value of the mineral is captured by it through whatever legal and contractual structures it may choose.
- b) Under the principle of Intergenerational Equity, the Government should invest all amounts received from the extraction of mineral resources into new productive assets. This helps ensure that the total wealth remains at least constant - since the Capture Rate is far below the investment requirement of 100%, the Government must still create assets over and above this to ensure total wealth remains constant.
- c) Ensure that the value of these assets remains at least constant, after adjusting for inflation. In other words, the real return on these assets must be at least zero. This is necessary if future generations are to have meaningful access to this wealth.

### 4. Steps to implement Intergenerational Equity

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<sup>12</sup> “Rents to riches? The political economy of natural resource-led development” by the World Bank, 2011

a) **Maximize the Capture Rate:** Let's take the example of Goa. During 2004-05 to 2011-12, the state lost assets worth Rs. 53,833 crores. In order to achieve Intergenerational equity, the Goa Government is required to create new productive assets of Rs. 53,833 crores. Obviously, it did not succeed. As a practical matter, the only manner in which this can be achieved is by increasing the Capture Rate from the current dismal 4% to a much higher level. The MMDR Act must include maximizing the Capture Rate as one of its objectives, and provide both the tools as well as the safeguards to ensure this happens.

b) Under the principle of Intergenerational Equity, the Government should **invest all amounts received from the extraction of mineral resources into new productive assets**. It is tempting to believe that all this money can be invested productively. However, international experience has been to the contrary. Many countries that are dependent on the sale of their natural resources have experienced lower growth - the famous Resource Curse. Causes are many, including excessive reliance on exports of raw resources, the "Dutch Disease", excessive borrowing, high revenue volatility, conflict, corruption & the impact of resource taxation on democracy.

*“In economies that are not resource dependent, governments tax citizens. Citizens demand efficient and responsive government in return. This bargain establishes a political relationship between rulers and subjects. In resource-dominant economies, the need to tax citizens is less because governments have a "guaranteed" source of income from natural resources. The usual relationship between rulers and subjects may break down. As a result, citizens are often poorly served by governments in resource-dominant economies. Sometimes, if the citizens complain, money from the natural resources enables governments to pay for armed forces to keep the citizens in check.”*<sup>13</sup>

Soberingly, a recent World Bank study was conducted to examine whether countries around the World are following Hartwick's rule, i.e., saving enough to counter the loss of wealth on account of extraction of natural resources. The study found that countries that are more dependent on mineral rents have underinvested - their increase in wealth on account of net savings is lower. All countries where mineral rents account for 15% or more of their GDP have underinvested - their wealth has reduced.<sup>14</sup> *In other words, these countries are simply using up their natural resources to finance consumption rather than investing in productive assets, thereby making themselves poorer in aggregate*<sup>15</sup>. Had Hartwick's rule been followed, Nigeria would be five times as wealthy as it is. Gabon, Trinidad & Tobago, and Venezuela would each have per capita assets equivalent to South Korea.

As an alternative to frittering away nature's endowment of minerals, many countries around the world have set up permanent funds<sup>16</sup>. These are essentially long term investment vehicles and are often structured as pension or endowment funds. The most prominent example is the Norway Government Pension Fund<sup>17</sup>, which has assets of

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<sup>13</sup> Adapted from “The Resource Curse: Causes, Effects and Solutions” by J. Jay Park

<sup>14</sup> See The Changing Wealth of Nations by the World Bank (2011), Page 11

<sup>15</sup> This seems to be the case in Goa as well

<sup>16</sup> [https://en.wikipedia.org/wiki/Sovereign\\_wealth\\_fund#Largest\\_sovereign\\_wealth\\_funds](https://en.wikipedia.org/wiki/Sovereign_wealth_fund#Largest_sovereign_wealth_funds)

<sup>17</sup> [https://en.wikipedia.org/wiki/Government\\_Pension\\_Fund\\_of\\_Norway](https://en.wikipedia.org/wiki/Government_Pension_Fund_of_Norway)

\$870 billion for a population of around 5 million. Even sub-national entities like Alaska (USA) and Alberta (Canada) have set up similar funds.

We recommend that all States be required to set up such Pension or Endowment Funds for their people. This would ensure that the common wealth of the people is not dissipated. The Constitution may require amendment to ensure that these Funds are not subject to any charge/mortgage/lien.

Often, these Funds are also the owners of the State Mineral Development Corporations, or have stakes in mining joint ventures. This ensures part of the capture is directly by the Fund. The professional management of the Fund also brings better governance to the Mineral Development Corporations.

c) **After adjusting for inflation, the value of these assets must increase, or at least remain constant.** In other words, the real return on these assets must be at least zero. Given the high inflation in India, achieving a positive real return is quite difficult. The case of Nauru is quite instructive. The nation set up a Nauru Phosphate Royalties Fund<sup>18</sup>, but due to poor management and corruption, its immense wealth was squandered<sup>19</sup>.

Proper management of the Permanent Funds would require professional fund managers to manage such large portfolios, along with a large dollop of transparency in order to ensure citizen oversight. The National Pension Scheme offers a model of implementation. The multiple Permanent Funds offer other models to emulate.

d) **Income after adjusting for inflation to be used** : Only the income earned after inflation should be returned to the State budget as revenues available for expenditure. Alternatively, it can devolve to Districts, Panchayats or even paid out to individuals. As returns fluctuate, countries set a fixed proportion of the corpus, which is periodically adjusted based on actual realized returns. 2-3% would be a good level to target initially.

## 5. Rate of extraction of mineral resources

A specific policy would need to be created to determine the rate of extraction, taking into account:

a) Environmental sustainability of mining operations. Frequently, mining operations exceed the carrying capacity of the environment of the region.

b) Current and anticipated commodity prices. Extraction should be greatest during periods of high prices. Thought needs to be given to the creation of “swing” capacities to enable greater extraction in periods of higher prices.

c) The need for income in the Government budget.

d) The likelihood of generating real returns through the Fund in future. Initial analysis shows that achieving real returns on a sustained basis will not be easy but one has no other pathway to adopt as an alternative strategy.

<sup>18</sup> [https://en.wikipedia.org/wiki/Nauru\\_Phosphate\\_Royalties\\_Trust](https://en.wikipedia.org/wiki/Nauru_Phosphate_Royalties_Trust)

<sup>19</sup> [http://news.bbc.co.uk/2/hi/programmes/from\\_our\\_own\\_correspondent/7296832.stm](http://news.bbc.co.uk/2/hi/programmes/from_our_own_correspondent/7296832.stm)



## 6. Controlling illegal mining

Iron ore mining in Goa has stopped since Sep 2012 due to the large scale illegalities detected in the industry. The Supreme Court has ruled, inter alia, that all iron ore leases in Goa were invalid after 22-Nov-2007. Our estimates are that the profits from illegal activity for the four and a half years through 2011-12, with 12% interest till March-end 2014, works out to Rs. 35,780 crores. In other words, the amount recoverable is at least Rs. 2,45,450 per capita. Further, The Shah Commission identified Rs. 35,000 crores on account of mining outside the lease boundaries. And the amount recoverable from the 750 million tons of dumps would also run into tens of thousands of crores. This illustrates the scale of the problem.

As you are aware, there are tens of thousands of illegal mining cases detected each year. This is not surprising. The amounts at stake are enormous, and penalties are relatively light. There is a crying need to significantly increase the monitoring of mining and enforcement actions to deter illegal mining. This needs to be across all States and the Centre as much of the ore crosses state boundaries.

We have the following proposals for controlling illegal mining:

- 1) **“Sunlight is the best disinfectant”** - implying that putting as much information as possible in the public domain would help prevent corruption.
  - a. Specifically for mining, the Extractive Industries Transparency Initiative (EITI)<sup>20</sup> is well known. India should join the EITI initiative.
  - b. In addition, the World Bank has started an EITI++<sup>21</sup> (Extractive Industries Transparency Initiative Plus Plus) Initiative. India should participate in the EITI++ Initiative.
  - c. Proactive disclosure is legally required under the RTI Act, 2005 and the National Data Sharing and Accessibility Policy (NDSAP) 2012. Available historical information should be mandatorily made available online. This would help identify other illegalities or evidence.
  - d. In future, Governments must put every document and data point possible in the public domain. This would permit the general public to create their own algorithms and computer programs that can automatically flag discrepancies, anomalies and illegalities. As the adage in the world of Open Source goes, given enough eyeballs, all bugs are shallow. The implication is that since so many people are looking at the problem, a solution is quickly found. Similarly, if there is radical transparency, then illegalities would be hard to hide.

There are significant economic advantages from openly publishing real time data from trucks, barges, as well as environmental sensors both with the government as well as in the mines. Real-time truck position data would permit more efficient operations. Traffic patterns can show the various choke points. Queues building up could trigger dispatch of policemen. Theft of trucks or ore would be

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<sup>20</sup> <http://eiti.org/>

<sup>21</sup> EITI++ factsheet is at

reduced. Similarly, real-time environmental data would enable micro-climactic predictions. This would help with disaster preparedness. Over time, precision agriculture would be aided by knowing real time wind patterns or water levels for irrigation. This could be done through data.gov.in open data portal. Given the scale of India's requirements, such an initiative can be a significant boost for the Indian economy.

Data should be received and sent: (i) In a granular manner - each and every truck, train wagon, barge, ship in mining areas needs to be monitored at all points in time. The technology is available, and quite cheap. (ii) In real time, or as near to real time as possible. (iii) Using open standards / XML data schemas. (iv) Freely accessible to the general public in real time at no cost. (v) All data from relating to minerals, including environmental monitoring data, geological data, financial data, should be reported in this manner.

2) **A strong monitoring mechanism** should be legally instituted in a coordinated fashion among the States and the Center

- a. The ICGLR<sup>22</sup> Certification Mechanism for Conflict-prone Minerals (RCM)<sup>23</sup> has put in place an elaborate mechanism to manage conflict-prone minerals being mined and transported in the Great Lakes region of Africa (rare earths from Congo being the most prominent). This has been implemented in a coordinated way across twelve nations. The mechanism has a number of useful cutting edge ideas such as the system auditor and the real time database. This can be the starting point for a pan-India mineral monitoring system.
- b. Cutting edge monitoring tools such as remote sensing, LiDAR, mobile weigh-bridges, traffic cameras and environmental sensors should be used to monitor the mineral chain in near real-time. This can be done at relatively low cost.

3) **Detecting and prosecuting illegalities & recovery of amounts.**

Significant financial, analytical and legal skills are needed to investigate illegalities, apportion responsibilities to various parties, and to sue for recovery.

- a. Reward schemes should be legally instituted for information leading to recoveries.

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<sup>22</sup> International Conference of the Great Lakes Region

<sup>23</sup> Taming the Resource Curse: Implementing the ICGLR Certification Mechanism for Conflict-prone Minerals by Partnership Africa Canada is a good introduction.

<http://dspace.cigilibrary.org/jspui/bitstream/123456789/32278/1/PAC%20-%20Taming%20the%20Resource%20Curse.pdf>

- b. The Whistle Blowers Protection Act, 2011 should be strengthened to make it effective and implementable. Citizens should be rewarded as per provisions in other countries, thus providing them incentives.
- 4) **Strict penalties for offenders**, especially repeat offenders.
- a. Where substantive illegalities are found, the concerned mining leases shall be cancelled as a matter of public policy.
  - b. Since corporations (and other artificial persons) cannot be jailed, more severe punishments need to be mandated for promoters, directors, and key officers.
  - c. There needs to be a “Fit and Proper Person” test for any entity taking up mining or natural resource activities. The test should include the entity, its directors and key officers, promoters and related parties. Persistent offenders need to be precluded from mining in India.
  - d. Some other steps:
    - i. Surprise checks to ensure that systems are not tampered with.
    - ii. Systemic auditor to detect violations that may not be visible at an individual transaction level (colourable devices for example).
    - iii. Use of Aadhaar to ensure that each person involved can be traced - no benami or fly by night operators.
    - iv. Periodic open social audits should be mandated.
  - e. A lot of illegalities are committed in the initial phases of mining. Here are some recommendations for plugging specific loopholes:
    - i. Prior to an EIA commencing, people in the vicinity should be notified. The notification should report the exact nature of environmental information being collected so that the locals can corroborate the data and its collection.
    - ii. All data collected and computer programs used to process the data should be placed in the public domain so that these can be checked for accuracy.
    - iii. Gram Sabha approval should be made mandatory prior to mining.

The recommendations above have been done keeping in mind international best practices. While designing our proposal, we have kept the BJP election manifesto on natural resources in mind. Many of the elements of our proposal would also impact other mineral-rich states as well as the Centre. We enclose this proposal for your kind consideration.

We would be happy to share our calculations with you. They are also available on our website ([www.goafoundation.org/mining](http://www.goafoundation.org/mining)).

Best wishes.

A handwritten signature in black ink, appearing to read 'Dr. Alvares', with a horizontal line underneath.

(Dr. Claude Alvares)  
Director

Cc: Ministers of Mines of key mineral rich states in India including Goa.