

The Goenchi Mati Permanent Iron Ore Fund

Proposal submitted by the Goa Foundation to the Goa Government

Summary

The Constitution of India embodies two fundamental principles, among others – Public Trusteeship of the State of its minerals and the principle of Intergenerational Equity. Public Trusteeship requires that the State maximizes what it receives when it sells off the people’s assets, such as mineral resources.

Intergenerational equity can be simply stated as the principle that future generations need to have access to resources that is at least equal to what is available to the present generation. The most commonly articulated version of this principle is provided by what is known as “Hartwick’s rule”. Hartwick’s rule dictates that as mineral resources are depleted (i.e. extracted from the ground), investments in new productive assets need to be created at least to the same extent (in value). This ensures that future generations have as many assets as the present generation. Under the Constitution, sub-soil minerals are the property of the States (not the Centre). Therefore, responsibility for meeting Hartwick’s rule devolves on the state.

The MMDR Act, 1957 does not bar the State Government from granting leases on terms that maximize the revenue from sale of ores to the State. However, hitherto the State Government has managed to capture only a very small fraction of the value of the iron ore extracted, while most of the value of the iron ore extracted is captured by mining leaseholders, resulting in a very significant redistribution of wealth from the unprivileged citizenry as a whole to the rich. Even the small fraction captured is spent by the government to meet its regular expenditures and so nothing is saved. Thus Goa State is clearly unable to meet the demands of Hartwick’s rule.

The Supreme Court has now ruled that all leases in Goa approved or allowed to operate under the 1987 Abolition Act have finally expired in 2007. This gives the State a phenomenal opportunity to re-design its leasing system to increase the amount it receives for its mineral

resources, as well as to create a system to ensure Intergenerational Equity. The amounts at stake are huge. A well designed mineral sector could result in funds of Rs. 2,23,322 crores. This works out to Rs. 61 lakhs for a family of four.

Many countries around the world are dealing with similar issues, and some have successfully made substantial provisions for their future generations. Norway and Botswana are considered as outstanding examples. Some approaches for dealing with mineral resources in a sustainable manner are given in the Natural Resource Charter¹ as well as the World Bank in *“Rents to Riches? The political economy of natural resource-led development.”*²

A few broad principles can be enunciated. First, the State should maximize its capture of the value of the iron ore extracted – as the mineral resources are owned by the people of the state – with a target of 90%. This follows from the Public Trust Doctrine. Second, an amount equaling the value of the iron ore extracted should be invested by the State in a permanent fund. This follows from Hartwick’s rule. Best practices in the areas of regulation and monitoring, and transparency should be implemented. Lastly, performance on these aspects should be measured and reported periodically.

Basic principles

Goa commenced mining under the Portuguese Mining Code 1906. Today mining is continuing under the Mines & Minerals (Development and Regulation) Act, 1957 (the “MMDR Act”). In recent times, the thought process on use of minerals has changed all over the world, especially in light of the overall boom in commodity prices due to the growth of the Chinese economy. We rely on certain legal and customary principles in the following proposal:

1. Mineral resources are the property of the people. Under Article 294 of the Constitution, mineral resources are owned by the States. This

¹ The Natural Resource Charter “is a set of principles for governments and societies on how to best harness the opportunities created by extractive resources for development. It is not a recipe or blueprint for the policies and institutions countries must build, but instead provides the ingredients successful countries have used.” More information is at <http://www.naturalresourcecharter.org>.

² <http://documents.worldbank.org/curated/en/2011/01/15538625/rents-riches-political-economy-natural-resource-led-development>

position is consistent with The Goa, Daman and Diu Land Revenue Code, 1968 as well as the Portuguese Colonial Mining Laws, 1906. The Government is the public trustee over these resources on behalf of the people.

2. 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 their children worse off. This is the prudent thing to do. Ancient cultural and religious norms also require that our “uttaradhikari” or our “patrimony” be passed on to our children. In some ways, it harks back to the statement: “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.”

In economics, "the Hartwick 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."³ 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 – in order to keep our total capital constant, if we extract a mineral (a non-renewable resource) thereby reducing our mineral wealth, we need to create/invest in another asset at least to the value of the mineral that has been extracted. We will examine the valuation of the mineral resources more precisely later.

3. If the Government decides to extract mineral resources, it is depleting the stock of minerals. This is a reduction in the wealth of the people. Therefore, the Government must :

³ “Rents to riches? The political economy of natural resource-led development” by the World Bank, 2011

- a. As Public Trustee of the people, ensure that the maximum amount of the value of the mineral should be captured by the State through whatever legal and contractual structures it may choose. 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 resources⁴.
- b. Under the principle of Intergenerational Equity, the Government should invest all amounts received from the extraction of mineral resources into new productive assets. Many countries around the world have set up permanent funds. The most prominent example is the Norway Government Pension Fund, which has assets of \$870 billion for a population of around 5 million. Even sub-national entities like Alaska (USA) and Alberta (Canada) have set up similar funds.
- 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. Given the high inflation in India, achieving a positive real return is quite difficult. Only the income earned after inflation should be returned to the State budget as revenues available for expenditure.

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). Let’s think about gold for a minute. Say that 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 a lot of money to transform gold ore into gold. The owner of the gold ore can use competitive bidding to hire a contractor to extract the ore, refine it into gold, deal with the waste and sell the gold in the market. Assume

⁴ See Rents to Riches, Annex 4.3 on page 162.

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).⁵ 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.”⁶ The Economic Rent changes as the mineral price fluctuates on global markets and as mining technology improves.

We have looked at the Sesa Goa annual reports, and scaled up the data for 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%. Any profit over and above this 20% return on capital would be “unearned profit” and should have been captured by the State. 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.

Goa’s experience

Under the Indian Constitution (read along with the Portuguese Colonial Mining Laws, 1906), sub-soil minerals in Goa are the property of the state, not that of the central govt or the owner of the surface rights. Therefore, we ask whether mining is sustainable for Goa, i.e., is the wealth of Goa being maintained? Since the State of Goa is a public trustee for all Goan residents, the State Government should implement Hartwick’s rule by capturing the rent arising from iron ore depletion, and investing the same in a productive manner.

⁵ 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.

⁶ 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_gain_s.22_to_the_allocatees_were_1067303_crore_.28US.24160.C2.A0billion.29

As it relates to iron ore mining in Goa, there are three assets that are being utilized and depleted:

- (a) the iron ore mineral resource,
- (b) water filtration and storage functions of the iron ore and overburden, and,
- (c) the overall environment, which is being damaged at various levels.

All three are part of the inheritance from nature, and the value of their depletion should be subtracted when looking at the income of Goa (GSDP) or at the overall increase in wealth of Goa. In this paper, we are concentrating solely on the depletion of mineral resources. (The results that follow do not consider the depletion in water filtration and storage or the damage to the environment. If we examine the position including these assets, the position becomes worse.)

Mineral depletion calculations

We have analyzed the 8 year period 2004-05 till 2011-12. The results are startling, to say the least.

	Units	Total	Remarks
Captureable value	Rs. Cr	53,833	Calculated
At 90% capture rate	Rs. Cr	48,450	Captureable value x 90%
Actual Royalties (Goa)	Rs. Cr	2,387	Government data
Actual Capture rate	%	4.4%	Royalties / Captureable Value
Goa Government revenues	Rs. Cr	27,402	Government data
Royalty as % of Revenues	%	8.7%	Royalties / Goa Government Revenues

The value of the mineral resources that was extracted was Rs. 53,833 crores. Of this amount, the State managed to capture only Rs. 2,387 crores, or a miserable 4%. Had the State captured 90% of the value, it would have received Rs. 48,450 crores, or an additional Rs. 46,062 crores. Compare this with the total Goa Government revenues over this period of Rs. 27,402 crores.

Obviously, if the Goa Government revenues were only Rs. 27,402 crores, there is no way it could have created assets to the extent of the minerals depleted, viz., Rs. 53,833 crores.

Incredible private profits

It is instructive to look at Sesa Goa's figures for iron ore over the same 8 year period.

	Units	Total	Remarks
Sesa Ore revenues (only from ore)	Rs. Cr	33,280	
Sesa ore Profit After Tax (PAT)	Rs. Cr	12,346	This is how they bought Cairn Energy.
Return on Net Assets	%	199%	Consistently, incredibly high.
PAT if Return on Net Assets were 20%	Rs. Cr	1,239	
Unearned profit	Rs. Cr	11,108	This should have come to the people of Goa
Expenses on truck + barge	Rs. Cr	3,852	
Employee expense	Rs. Cr	978	Total Sesa employee expense is not even 10% of the unearned profit.
Sesa Royalty, cesses and other taxes paid	Rs. Cr	889	Less than 10% of the unearned profit
Sesa taxes to Center	Rs. Cr	7,679	Most goes to the Center, as export duty and income tax
Total taxes paid	Rs. Cr	8,569	

The post-tax return on net assets is an astounding 199% over a 8 year period! Unearned profit is over Rs. 10,000 crores. Employee expense is less than Rs. 1,000 crores. Yet Sesa Goa wanted to retrench its employees in Goa!

Losers and Winners

This also raises the questions around the increasing inequality of the wealth distribution. Mineral depletion is a hidden poll tax – the loss of wealth on account of mineral depletion applies equally to each and every person in Goa. However, the lion's share of the mineral depletion has been captured by the miners, and others involved in facilitating this situation. With such incentives, it is not surprising that the Public

Accounts Committee (PAC) and the Shah Commission found so many large-scale illegalities.

In the Meerut Development case judgement (2009) 6 SCC 171, the Supreme Court foreshadowed this situation: *“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’.”*

So how did Goa do?

The Goa government has (so far) failed in its duty as Public Trustee by capturing only a small fraction of the large mineral depletion. Not entirely surprising as it has never been an objective in either the earlier or the current mineral policy. And obviously, the question of where to invest in alternative productive assets hasn't arisen as there hasn't been sufficient capture of mineral depletion. Finally, there has been a very large redistribution of wealth from the masses to a few rich entities.

What's happening around the world?

The issues raised in Goa have arisen around the world. The whole gamut of issues is often labelled the Resource Curse. The huge amounts of rent that have arisen from natural resources have created severe social conflicts. Even in India, it is well known that the Maoist movement is strongest in areas with a lot of mineral resources. “Blood diamonds” and “conflict minerals” are terms often used. Other than civil conflict, the boom in natural resources has led to theft of public resources in many places. It has led to large scale corruption. Economic growth becomes slow. The best and brightest in the economy are drawn to mining as it is easier to make money.

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.⁷ *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.* Had the Hartwick 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.

International Best Practices

Sustainable development of natural resources is a problem faced by numerous countries around the world due to the China boom in commodity prices. In recent years, there has been a wealth of practical research in this area. A good starting point for implementation is the Natural Resource Charter,⁸ which is being developed by a group of international experts in the field of economically sustainable resource extraction. Another useful resource is “*Rents to Riches? The political economy of natural resource-led development*”⁹ by the World Bank.

A number of international best practices have emerged to deal with the issues of the Resource Curse. Some of these focus on close monitoring of the mineral chain from the ground to the end consumer. The Kimberley process and the more recent ICGLR¹⁰ Certification Mechanism for Conflict-prone Minerals¹¹ are aimed at this area. The EITI (Extractive Industries Transparency Initiative) and EITI++ initiative of the World Bank are aimed at empowering citizens with greater information, enabling social audits and social oversight on the minerals sector. Since

⁷ See The Changing Wealth of Nations by the World Bank (2011), Page 11

⁸ The Natural Resource Charter “is a set of principles for governments and societies on how to best harness the opportunities created by extractive resources for development. It is not a recipe or blueprint for the policies and institutions countries must build, but instead provides the ingredients successful countries have used.” More information is at www.naturalresourcecharter.org.

⁹ <http://documents.worldbank.org/curated/en/2011/01/15538625/rents-riches-political-economy-natural-resource-led-development>

¹⁰ International Conference of the Great Lakes Region

¹¹ 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>

2010, the Wealth Accounting and the Valuation of Ecosystem Services (WAVES)¹² partnership has 69 countries supporting National Capital Accounting. This permits calculation of the Captureable Value. Finally, there are numerous Funds created by countries and sub-sovereigns, with the intent of either saving away the money from minerals, and reducing the variability arising from the commodity cycle.

What's at stake in Goa

The Supreme Court judgment in the Goa Foundation's petition (WP 435 of 2012)

The judgment has the following key outcomes

1. All mining leases have expired in 2007, and need not be renewed under the MMDR Act, 1957. The process of grant of lease to private actors would take not less than 2 years since fresh environment clearances and forest clearances would be due.
2. It was found that dumps outside mining leases are illegal under the MMDR Act, 1957.
3. There are a variety of other practices that the Supreme Court found to be illegal and directed the State Government to prosecute including violations of Section 37 and 38 of the Mineral Concession Rules.
4. There are a variety of other implications from the above findings. For instance, restitution for environmental damage caused by illegal mining and illegal dumping operations can be sought.
5. The Supreme Court directed that “the State Government may grant mining leases of iron ore and other ores in Goa in accordance with its policy decision and in accordance with MMDR Act and the Rules made thereunder in consonance with the constitutional provisions.” Constitutional provisions include the Public Trusteeship principle.
6. The Supreme Court has mandated the creation of a Goan Iron Ore Permanent Fund. It has directed that “the State Government will within six months from today frame a comprehensive scheme with regard to the Goan Iron Ore Permanent Fund in consultation with the

¹² <http://www.wavespartnership.org/>

CEC for sustainable development and intergenerational equity.” Further, the Supreme Court has mandated that 10% of (a) the proceeds from e-auction of dumps (after certain deductions), and (b) the sale price of iron ore sold by mining lessees, be deposited into the Goan Iron Ore Permanent Fund.

Implications for Goa

The Goa Government has been handed a tabula rasa, a clean slate – there are no leases. It has to set all its policies anew, and decide on the optimal way to meet the Public Trusteeship and Intergenerational Equity principles of the Constitution. There are certain implications of the judgment that need highlighting:

1. The design of the new system for mining going forward will have a significant impact on intergenerational equity. We are using a figure of 1.3 billion MT for our calculations. Based on a captureable value of Rs. 1,909 / MT (the average for the 8 year period shown on page 4), and a 90% capture rate, the total captured value works out to Rs. 2,23,322 crores. This is equivalent to Rs. 61 lakhs for a family of four. An inflation adjusted rate of 3% would generate income for the state budget of Rs. 1.83 lakhs per family of four. Do note that a 1% change in the capture rate is worth Rs. 2,481 crores. If we continue to capture 4% as we did historically, we would capture only Rs. 11,004 crores. Compare that with Rs. 2,23,322 crores at a 90% capture rate. *It is worth spending time on designing the new system correctly in order to maximize the capture.*
2. Large amounts need to be recovered from mine owners on account of mining after 21-11-2007. Dumps outside lease areas need to be confiscated as they are illegal. Recoveries from the past illegalities are a complex endeavour. This would require significant financial, analytical and legal skills to investigate illegalities, apportion responsibilities to various parties, and to sue for recovery. However, the amounts at stake are enormous. Just on account of illegal mining after 20-nov-2007, the amount at stake exceeds Rs. 30,000 crores. 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.

3. A quick restart of mining is a priority in order to generate income for the mining dependents. However, restarting mining will take more than a year at best – much likely longer. Even when mining does restart, it will take time to ramp up to the cap. And when it does reach the cap, it will be well below the peak level of 46.8 million tons of exports in 2010-11. The Government needs to be honest with the population while explaining the long term benefits of the stoppage. There is an urgent need for employment generation programmes, as well as re-skilling programmes for the mining dependent population.
4. The existing mining entities are disqualified from mining, due to the large scale illegalities that have occurred. As a result, there are a large number of qualified personnel with experience in mining operations. They can be gainfully employed by a Goenchi Mati Development Corporation. This will be a win-win situation for all.
5. A large number of mines are permanently closed or abandoned. Their mine closure plans need to be implemented. This would generate significant new employment. Restoring both dumps as well as mines will create a lot of new usable land, alleviating the current shortage.

Our Proposal

1. As a starting point, the Goa Government should adopt a new mineral policy that keeps Intergenerational Equity and Sustainable Development at its heart. Though these terms do now appear in the present policy notified in the gazette, it is obvious that they were hastily inserted into the document since the government was keen to present the policy in Court. Explicit targeting of Hartwick's Rule should now be incorporated into this policy. Irreparable damage to critical assets should be prohibited.
2. Drawing from the Public Trusteeship principle, there should be an explicit target to capture 90% of the mineral depletion. This is an international best practice and should be our initial target. In order to achieve this goal, the entire state should immediately be reserved for

mining exclusively by state corporations. It is in fact not possible to achieve a 90% capture rate except by mining through a Goenchi Mati Development Corporation (GMDC).

3. Also deriving from the Public Trusteeship principle, 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 of the mineral depletion.

4. The Goenchi Mati Permanent Fund

a. We recommend renaming the fund from Goan Iron Ore Permanent Fund (GIOPF) to Goenchi Mati Permanent Fund (GMPF). The primary reason for renaming it is that this fund should cover all minerals, including manganese ore and bauxite. The new name would also more closely reflect the Goan identity.

b. ALL funds from mining received by the State should be invested in the Goenchi Mati Permanent Fund (GMPF). This is the minimum required in order to achieve intergenerational equity. It would ensure meaning of “uttaradhikari” or “patrimony” is met. Anything less would be cheating our children. While the Supreme Court has directed that 10% of certain amounts should go to the GMPF, nothing prevents the State Government from deciding that 100% of funds from mining should go into the GMPF. This would bring Goa in line with global best practices.

c. This fund could be set up on the lines of the National Pension Fund. Its objectives would include earning a real return on investments of at least the GDP growth rate. Only to the extent that the Fund earns returns that exceed the inflation would these returns be used by the Goa Government as part of its revenue income. It could initially be set at 2-3%.

d. Alternatively, it can be the practice to pay equal shares of this amount annually to each person domiciled in Goa¹³. Such a

¹³ This is currently the practice in Alaska, and a similar scheme is being considered in Switzerland (except that is through the budget).

mechanism would increase the involvement of the general public in the management of our inheritance.

- e. Logically, the GMPF should also own GMDC (Goenchi Mati Development Corporation.)
5. A specific policy would need to be created to determine the rate of extraction. This would have to take into account
- a. Environmental sustainability of mining operations in Goa. Since it is a tabula rasa, the Government can define a single mine of 10 sq. km., as opposed to the 1 sq. km. limit under the Portuguese Mining Code¹⁴. This can make for efficient mining operations concentrated in one or two large mines. This could minimize damage to the environment, including the aquifers.
 - 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 Goa budget. At this point in time, the state is comfortably meeting its requirements under the Goa Fiscal Responsibility and Budget Management Act, 2006. In fact, the Act was recently amended to provide for tighter goals, including a nil revenue deficit.
 - d. The likelihood of generating real returns through the GMPF in future. Initial analysis shows that achieving real returns on a sustained basis will not be easy.
6. International best practices in minerals can be adopted in multiple areas
- a. A strong monitoring mechanism should be instituted, ideally based on the ICGLR Certification Mechanism.
 - b. Measure – it is important for the Government to measure elements like mineral depletion, capture rates, etc. What is measured is managed.

¹⁴ Under Section 66 of the Mineral Conservation Rules, 1960, all mining leaseholders are required to annually update all the geophysical data with the Department of Mines and Geology.

- c. A regime of heightened transparency should be instituted to encourage citizen's participation and oversight on the entire minerals sector. This could include adoption of EITI and EITI++.
7. Goa should consider a few additional cutting edge steps.
- a. Goa should implement Natural Resource Accounting for the state. Though a pilot study was carried out with TERI as consultant several years ago, this was not taken forward. This would provide a second level of guidance on how the state is progressing.
 - b. Australia has been producing Intergenerational Reports, which provide a perspective for the next 40 years. The latest one is titled "Australia to 2050: future challenges."¹⁵ This is a practice for the State to consider, especially taking into account the adverse demographics on account of low fertility in Goa, well below replacement rate.
 - c. As recommended in the Goa Guidelines 1988¹⁶, Goa should also consider creating an Ombudsman for future generations, emulating countries like Hungary.¹⁷
 - d. 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. Truck position data would permit more efficient operations. Traffic patterns can show the various choke points. Queues building up would trigger dispatch of policemen. Theft of trucks or iron ore would be 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 or a separate Goa Government open data portal.

¹⁵ http://archive.treasury.gov.au/igr/igr2010/report/pdf/IGR_2010.pdf

¹⁶ The Goa Guidelines on inter-generational equity were adopted by the Advisory Committee to the UN University Research Project on 15 February 1988 in Goa, India. The committee that included Shri R.S. Pathak, who was the Chief Justice of India at that time.

¹⁷ Technically, Parliamentary Commissioner for Future Generations. <http://jno.hu/en/>

Additional steps that would be required

1. It is important that the GMPF be structured so that it is difficult to access the principal of the Fund. Ideally, this would be done through a Constitutional Amendment protecting the Fund from any liens or encumbrance. This is perhaps one of the demands Goa can make for inclusion in Article 371-I of the Constitution (Special Status).
2. It is important that the GMPF receive various tax and cost exemptions on the likes of the NPS. This would include inclusion in Section 10 of the Income Tax Act, 1961, among others.
3. The Goa budget may need an additional fiscal rule (which is in use in countries like Botswana.) The proposed rule is that the non-mineral revenues of the State should be equal or greater than the revenue expenditures. In other words, the budget should show a revenue surplus, after all the mineral revenues have been invested into the GMPF. These are misclassified as revenues – in reality, it is our capital being transformed from minerals into cash, and should be treated as being from “sale of assets”.

Implementation of the Goenchi Mati Permanent Fund

Much work is needed. Ideally, design of this would be done by a committee of eminent natural resource economists, investment practitioners, experts in government finances and government bureaucrats. We could draw from the experience of the Ministry of Finance, RBI and PFRDA. A separate group of geologists, environmentalists and transport engineers would have to work out the optimal lease designs and locations to minimize environmental and social impact and enable efficient extraction. Implementation would need to be done by the Government in totality. This would require a new mineral policy; the creation of entire new skills in the mining department; and possibly the formation of a state mineral corporation. It may need new laws to embed fiscal discipline and transparency.

Interim measures

It is clear that creating proper policies and implementing them would require a year or more. Certain interim measures are needed.

Revenue to the State can be met through recoveries from ore stocks, which are estimated at 15 mn tons. There may be other monies to be recovered from the mining companies on account of illegalities. The PAC Report, chaired by the current Chief Minister, estimated illegalities of Rs. 3,500 crores, enough for at least 3 years.

In order to recover money arising on account of illegalities, a separate organization may be needed. Consideration should be given to creation of an effective Whistleblower Protection Act and mechanism. Consideration should also be given to legally give rewards for information leading to recovery of money. This kind of scheme has been successfully used around the world. The reward is set at 10% for the US IRS.

However, employment and income in the mining belt are still major issues. We have a couple of suggestions.

1. First, the State creates a more comprehensive plan to deal with the mining impacted persons. This should include a comprehensive debt restructuring plan.
2. Second, most of the existing mines would need to be closed, and back-filled as per their Mine Closure Plan. There is vast rehabilitation of natural assets to be done. All this will be an enormous earth-moving task which can generate employment and income for the truck owners.

Conclusion

It is clear that the two Constitutional principles of Public Trusteeship and Intergenerational Equity were not properly implemented in the past in Goa. The recent stoppage of mining provides an opportunity to re-design the system so as to better fulfill these principles.

The test of the implementation of the Public Trusteeship principle is the Capture Rate. An explicit target of a Capture Rate of 90%, from the current 4%, would provide a meaningful goal for the State to achieve.

The adoption of Intergenerational Equity as a principle leads to the commonsensical idea behind Hartwick's Rule – if we sell off one asset,

we need to invest as much in productive assets to keep our wealth constant and thus ensure Intergenerational Equity.

There has been a lot of work on the implementation of the idea of sustainable development in the arena of natural resources, and a large number of best practices can be easily adopted by Goa. If implemented well, this will dramatically reduce the environmental burden on the state, it will provide a cushion of income for the state, and it will ensure productive employment and better prospects for those living in the mining belt.

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Dated: 15.5.2014

Annexed: Information about Permanent Funds Worldwide