

1. Data on Goan Iron Ore Exports

Source : GMOEA Selected Statistics														Remarks
Units	2004-05 SS 2010	2005-06 SS 2010	2006-07 SS 2010	2007-08 SS 2010	2008-09 SS 2010	2009-10 SS 2010	2010-11 SS 2011	2011-12 SS 2012	2012-13 Awaited					
Goan iron ore exports	23,308.033	25,537.924	30,893.953	33,434.429	38,075.223	45,686.900	48,846.383	38,252.554		This became "Registered Ore" from 2011 onwards				
Non-Goan iron ore exports	9,280.138	10,753.726	9,642.721	6,117.626	7,513.548	7,443.102	7,578.466	5,028.793		This became "Non-Registered Ore" from 2011 onwards				
Total iron ore exports	32,588.171	36,271.650	40,536.674	39,552.055	45,588.771	53,132.002	54,424.849	43,279.347						
Goan ore as % of total	72%	70%	76%	85%	83.5%	86.0%	86.1%	88.4%		Calculated				
Goan iron ore production	21,705.667	25,440.925	30,738.191	31,327.805	32,720.536	41,038.392				Not available after 2010				
Goan production / exports	93%	100%	99%	94%	86%	90%	0%	0%		Calculated				
Unaccounted for Goan ore	1,602.366	96,999	155,762	2,106.624	5,354.687	4,648.508				Calculated. Cannot be calculated after 2010				
Unaccounted for Goan ore	7%	0%	1%	7%	16%	11%				Calculated. Cannot be calculated after 2010				
Sesa exports (Goan ore)	4,288.326	4,830.205	4,802.390	7,529.441	10,210.820	11,293.978	11,778.513	11,379.975						
VS Dempo exports (Goan ore)	3,853.138	3,445.994	3,998.095	3,644.954	4,347.543	4,715.265	4,169.373	3,551.804						
Total Sesa group exports (Goan ore)	8,141.464	8,276.199	8,800.485	11,174.395	14,558.363	16,009.243	15,947.886	14,931.779		Calculated				
Sesa group as % to Goa	35%	32%	28%	33%	38%	35%	34%	39%		Calculated				
Scaling factor (Sesa to Goa total)	2.86	3.09	3.51	2.99	2.62	2.85	2.94	2.56		Calculated				
Total Sales (incl Dempo from 2009-10)	9,810.000	9,558.000	10,871.000	12,391.000	15,103.000	21,410.000	18,100.000	16,000.000	3,100.000					
Goan ore Sales (incl Dempo from 2009-10)	7,114.000	6,968.000	7,366.000	8,989.000	10,102.000	15,570.000	14,300.000	13,300.000	3,000.000					
Non-Goan ore Sales (Karnataka & Orissa)	2,696.000	2,590.000	3,505.000	3,402.000	5,001.000	5,840.000	3,800.000	2,700.000	100.000					
Total Sales (excl Dempo)	9,810.000	9,558.000	10,871.000	12,391.000	15,103.000	16,875.000	14,700.000	12,700.000	2,500.000	All from Sesa Goa figures				
Dempo Sales (assumed all exported)		-	-	-	-	4,535.000	3,400.000	3,300.000	600.000					
Total exports (excl Dempo)	9,319.000	8,988.000	10,123.000	11,587.000	14,494.000	15,744.000	12,500.000	9,700.000	2,200.000					
Total exports (incl Dempo)	9,319.000	8,988.000	10,123.000	11,587.000	14,494.000	20,279.000	15,900.000	13,000.000	2,800.000					
Sesa exports as per GMOEA	4,288.326	4,830.205	4,802.390	7,529.441	10,210.820	11,293.978	11,778.513	11,379.975	-					
Dempo exports as per GMOEA						4,715.265	4,169.373	3,551.804	-	All from GMOEA Selected Statistics above				
Total Sesa Group exports as per GMOEA	4,288.326	4,830.205	4,802.390	7,529.441	10,210.820	16,009.243	15,947.886	14,931.779	-					
Difference in exports between Sesa & GMOEA	5,030.674	4,157.795	5,320.610	4,057.559	4,283.180	4,269.757	(47.886)	(1,931.779)		How is there this difference ?				
Difference as a % of Sesa sales	51%	44%	49%	33%	28%	20%	0%	-12%		How is there this difference ?				

2. Data on Goa State Finances

Year	Total Revenue Receipts	Mines Dept Revenue Receipts	%
2000-01	1,483.23	15.96	1.08%
2001-02	1,872.53	13.13	0.70%
2002-03	1,833.01	15.78	0.86%
2003-04	1,623.12	19.39	1.19%
2004-05	1,820.02	26.41	1.45%
2005-06	2,168.87	27.15	1.25%
2006-07	2,609.76	34.30	1.31%
2007-08	2,943.90	36.40	1.24%
2008-09	3,528.27	36.35	1.03%
2009-10	4,100.27	292.25	7.13%
2010-11	5,441.94	983.73	18.08%
2011-12	4,788.83	950.82	19.86%
2012-13	5,393.41	339.23	6.29%
<b>Total</b>	<b>39,607.16</b>	<b>2,790.90</b>	<b>7.05%</b>
<b>Source and Notes</b>	CAG Reports, Budget 2013-14	PAC Report upto 2010-11. Budget 2013 14 for 2011-12. AG	

### 3. Historical Analysis

<b>Calculations for Sesa Goa only</b>		<b>Units</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>Total</b>	<b>Source or Basis</b>
Sesa Ore revenues		Rs. Cr	1,037	1,498	1,796	3,290	4,308	5,241	8,594	7,516	<b>33,280</b>	From Sesa Goa annual report
Sesa ore EBIT		Rs. Cr	450	772	847	2,045	2,171	2,869	4,819	3,246	<b>17,218</b>	From Sesa Goa annual report
Sesa effective tax rate (corporate)		%	34%	33%	33%	33%	26%	23%	24%	34%	<b>25%</b>	From Sesa Goa annual report
Sesa ore tax		Rs. Cr	151	255	276	683	573	671	1,159	1,105	<b>4,872</b>	Ore revenues x effective tax rate
Sesa ore PAT		Rs. Cr	299	517	571	1,362	1,598	2,198	3,660	2,141	<b>12,346</b>	EBIT - Tax (no interest expense)
Sesa Export Duty paid		Rs. Cr	-	-	-	159	216	148	662	1,623	<b>2,808</b>	From Sesa Goa annual report
Sesa Royalty, cesses and other taxes paid		Rs. Cr	7	8	10	12	22	170	335	326	<b>889</b>	From Sesa Goa annual report
Sesa total indirect taxes paid		Rs. Cr	7	8	10	171	237	317	997	1,949	<b>3,697</b>	Addition of export duty, royalty, etc.
Sesa effective indirect tax rate (on revenues)		%	1%	1%	1%	5%	6%	6%	12%	26%	<b>11%</b>	Indirect taxes / ore revenues
Net assets of ore business segment		Rs. Cr	324	431	536	733	636	728	2,043	763	<b>6,194</b>	From Sesa Goa annual report
<b>Return on Net Assets</b>		%	92%	120%	107%	186%	251%	302%	179%	281%	<b>199%</b>	Sesa ore PAT / Sesa ore assets
Asset Turnover Ratio		Times	3.20	3.47	3.35	4.49	6.78	7.20	4.21	9.85	<b>5.37</b>	Sesa ore revenues / Sesa ore assets
Earned profit (Return on Net Assets of 20%)		Rs. Cr	65	86	107	147	127	146	409	153	<b>1,239</b>	Sesa ore assets x 20%
<b>Unearned profit (return on net assets &gt; 20%)</b>		Rs. Cr	234	431	464	1,216	1,471	2,052	3,251	1,989	<b>11,108</b>	Sesa ore PAT - earned profit
Truck expense		Rs. Cr	159	212	272	294	512	661	741	643	<b>3,493</b>	From Sesa Goa annual report
Hire charges for barges		Rs. Cr	21	24	27	31	42	82	81	51	<b>358</b>	From Sesa Goa annual report
Total truck + barge		Rs. Cr	179	235	299	325	554	743	821	694	<b>3,852</b>	Addition of truck expense and hire charges for barges
Total employee expense		Rs. Cr	49	52	64	68	100	169	207	268	<b>978</b>	From Sesa Goa annual report
<b>Total Mining Dependent expense</b>		Rs. Cr	229	287	363	394	654	912	1,028	963	<b>4,829</b>	Addition of truck, barge & employee expenses
Other Costs		Rs. Cr	351	431	577	681	1,248	1,143	1,749	1,358	<b>7,535</b>	Expenses other than taxes - mining dependent expense
Total Expenses (other than taxes, etc)		Rs. Cr	579	718	940	1,075	1,900	2,055	2,777	2,321	<b>12,365</b>	Revenues - EBIT - total indirect taxes

3. Historical Analysis

<b>Calculations for Goan ore industry</b>		<b>Units</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>Total</b>	<b>Source or Basis</b>
Goan iron ore exports (GMOEA)		Mn Tons	23.31	25.54	30.89	33.43	38.08	45.69	46.85	38.25	<b>282.04</b>	From GMOEA data
Sesa ore sales		Mn Tons	9.81	9.56	10.87	12.39	15.10	21.41	18.10	16.00	<b>113.24</b>	From Sesa Goa annual report
Goan industry - Sesa Goan ore		Ratio	2.38	2.67	2.84	2.70	2.52	2.13	2.59	2.39	<b>2.49</b>	Goan iron ore exports / Sesa ore sales
Goan ore revenues		Rs. Cr	2,463	4,002	5,105	8,878	10,861	11,184	22,242	17,969	<b>82,704</b>	Sesa ore figures x (ratio of goan industry to sesa ore business)
Goan ore EBIT		Rs. Cr	1,068	2,062	2,407	5,518	5,473	6,121	12,473	7,761	<b>42,884</b>	Sesa ore figures x (ratio of goan industry to sesa ore business)
Goan ore direct taxes		Rs. Cr	358	681	784	1,842	1,445	1,432	3,000	2,641	<b>12,182</b>	Sesa ore figures x (ratio of goan industry to sesa ore business)
<b>Goan PAT</b>		Rs. Cr	710	1,381	1,623	3,676	4,029	4,690	9,473	5,120	<b>30,701</b>	Sesa ore figures x (ratio of goan industry to sesa ore business)
Goa Export Duty		Rs. Cr	-	-	-	429	544	315	1,713	3,881	<b>6,882</b>	Sesa ore figures x (ratio of goan industry to sesa ore business)
Goa Royalty, cesses and other taxes		Rs. Cr	18	22	27	31	54	362	868	779	<b>2,162</b>	Sesa ore figures x (ratio of goan industry to sesa ore business)
Actual Royalty Receipts reported		Rs. Cr	26	27	34	36	36	292	984	951	<b>2,387</b>	<b>Actuals from Goa Government data</b>
Indirect taxes paid by Goan ore industry		Rs. Cr	26	27	34	466	580	607	2,697	4,832	<b>9,270</b>	Goa export duty + actual royalties
<b>Total taxes paid by Goan ore industry</b>		Rs. Cr	384	708	819	2,307	2,025	2,039	5,697	7,473	<b>21,452</b>	Goan indirect taxes + Goan direct taxes
Goan ore assets		Rs. Cr	770	1,152	1,523	1,977	1,602	1,554	5,288	1,825		Sesa ore figures x (ratio of goan industry to sesa ore business)
Earned profit (Return on Net Assets of 20%)		Rs. Cr	154	230	305	395	320	311	1,058	365	<b>3,138</b>	Goan ore assets x 20%
<b>Unearned profit (return on net assets &gt; 20%)</b>		Rs. Cr	556	1,151	1,318	3,281	3,708	4,379	8,415	4,755	<b>27,563</b>	Sesa ore figures x (ratio of goan industry to sesa ore business)
<b>Value of the Ore before extraction (owned by Goans)</b>		Rs. Cr	941	1,859	2,136	5,588	5,733	6,418	14,112	12,228	<b>49,015</b>	Total taxes paid by Goan ore industry + Unearned Profit
Total Capture Rate by State and Center		%	41%	38%	38%	41%	35%	32%	40%	61%	<b>44%</b>	Total taxes paid by Goan ore industry / Value of the ore
<b>Goa Capture Rate</b>		%	3%	1%	2%	1%	1%	5%	7%	8%	<b>4%</b>	Royalty received by Goa / Value of the ore
Goan truck expense		Rs. Cr	377	565	774	794	1,290	1,411	1,917	1,537	<b>8,666</b>	Sesa ore figures x (ratio of goan industry to sesa ore business)
Goan hire charges for barges		Rs. Cr	49	63	77	84	106	174	209	122	<b>885</b>	Sesa ore figures x (ratio of goan industry to sesa ore business)
Total Goan truck + barge		Rs. Cr	426	629	851	878	1,396	1,585	2,126	1,660	<b>9,551</b>	Addition of truck expense and hire charges for barges
Total employee expense		Rs. Cr	117	139	181	185	252	361	536	642	<b>2,412</b>	Sesa ore figures x (ratio of goan industry to sesa ore business)
<b>Total Mining Dependent expense</b>		Rs. Cr	544	767	1,032	1,063	1,648	1,946	2,662	2,301	<b>11,962</b>	Addition of truck, barge & employee expenses
Other Costs		Rs. Cr	833	1,150	1,639	1,837	3,141	2,440	4,527	3,247	<b>18,814</b>	Expenses other than taxes - mining dependent expense
<b>Total Expenses</b>		Rs. Cr	1,377	1,918	2,671	2,900	4,789	4,386	7,188	5,548	<b>30,776</b>	Sesa ore figures x (ratio of goan industry to sesa ore business)

3. Historical Analysis

<b>Per ton calculations</b>		<b>Units</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>Total</b>	<b>Source or Basis</b>
Goan ore revenues		Rs. / ton	1,057	1,567	1,652	2,655	2,852	2,448	4,748	4,698	<b>2,932</b>	Figures for Goan ore industry / Goan ore volumes
Goan ore EBIT		Rs. / ton	458	807	779	1,650	1,438	1,340	2,662	2,029	<b>1,521</b>	Figures for Goan ore industry / Goan ore volumes
Goan direct taxes		Rs. / ton	154	267	254	551	379	313	640	691	<b>432</b>	Figures for Goan ore industry / Goan ore volumes
<b>Goan PAT</b>		Rs. / ton	305	541	525	1,099	1,058	1,027	2,022	1,338	<b>1,089</b>	Figures for Goan ore industry / Goan ore volumes
Indirect taxes paid by Goan ore industry		Rs. / ton	11	11	11	139	152	133	576	1,263	<b>329</b>	Figures for Goan ore industry / Goan ore volumes
<b>Total taxes paid by Goan ore industry</b>		Rs. / ton	165	277	265	690	532	446	1,216	1,954	<b>761</b>	Figures for Goan ore industry / Goan ore volumes
<b>Unearned profit (return on net assets &gt; 20%)</b>		Rs. / ton	239	451	427	981	974	959	1,796	1,243	<b>977</b>	Figures for Goan ore industry / Goan ore volumes
Goan truck expense		Rs. / ton	162	221	251	238	339	309	409	402	<b>307</b>	Figures for Goan ore industry / Goan ore volumes
Goan hire charges for barges		Rs. / ton	21	25	25	25	28	38	45	32	<b>31</b>	Figures for Goan ore industry / Goan ore volumes
Total Goan truck + barge		Rs. / ton	183	246	275	263	367	347	454	434	<b>339</b>	Figures for Goan ore industry / Goan ore volumes
Total employee expense		Rs. / ton	50	54	59	55	66	79	114	168	<b>86</b>	Figures for Goan ore industry / Goan ore volumes
<b>Total Mining Dependent expense</b>		Rs. / ton	233	300	334	318	433	426	568	602	<b>424</b>	addition of truck, barge & employee expenses on a per ton basis

<b>Unit sized calculations</b>		<b>Units</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>Total</b>	<b>Source or Basis</b>
Goan ore revenues		% of Rev	100%	100%	100%	100%	100%	100%	100%	100%	<b>100%</b>	Figures for Goan ore industry / Goan ore industry revenues
Goan ore EBIT		% of Rev	43%	52%	47%	62%	50%	55%	56%	43%	<b>52%</b>	Figures for Goan ore industry / Goan ore industry revenues
Goan direct taxes		% of Rev	15%	17%	15%	21%	13%	13%	13%	15%	<b>15%</b>	Figures for Goan ore industry / Goan ore industry revenues
<b>Goan PAT</b>		% of Rev	29%	35%	32%	41%	37%	42%	43%	28%	<b>37%</b>	Figures for Goan ore industry / Goan ore industry revenues
Indirect taxes paid by Goan ore industry		% of Rev	1%	1%	1%	5%	5%	5%	12%	27%	<b>11%</b>	Figures for Goan ore industry / Goan ore industry revenues
<b>Total taxes paid by Goan ore industry</b>		% of Rev	16%	18%	16%	26%	19%	18%	26%	42%	<b>26%</b>	Figures for Goan ore industry / Goan ore industry revenues
<b>Unearned profit (return on net assets &gt; 20%)</b>		% of Rev	23%	29%	26%	37%	34%	39%	38%	26%	<b>33%</b>	Figures for Goan ore industry / Goan ore industry revenues
Goan truck expense		% of Rev	15%	14%	15%	9%	12%	13%	9%	9%	<b>10%</b>	Figures for Goan ore industry / Goan ore industry revenues
Goan hire charges for barges		% of Rev	2%	2%	1%	1%	1%	2%	1%	1%	<b>1%</b>	Figures for Goan ore industry / Goan ore industry revenues
Total Goan truck + barge		% of Rev	17%	16%	17%	10%	13%	14%	10%	9%	<b>12%</b>	Figures for Goan ore industry / Goan ore industry revenues
Total employee expense		% of Rev	5%	3%	4%	2%	2%	3%	2%	4%	<b>3%</b>	Figures for Goan ore industry / Goan ore industry revenues
<b>Total Mining Dependent expense</b>		% of Rev	22%	19%	20%	12%	15%	17%	12%	13%	<b>14%</b>	Figures for Goan ore industry / Goan ore industry revenues

4. Analysis of the Capture Rate

1. Historical data is largely based on Sesa Annual Reports, scaled up based on volumes exported
2. Future data is largely based on the averages from the historical data

	Units	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total		
Goan iron ore exports (GMOEA)	Mn Tons	23	26	31	33	38	46	47	38	282	Future	Remarks, Source & Basis for the Past
Average Sesa Export Price	Rs. / Ton	1,062	1,707	1,811	2,770	2,894	2,559	4,975	5,239	3,111	1,300	GMOEA Special Statistics
Total Goan iron ore exports	Rs. Cr	2,475	4,358	5,595	9,261	11,018	11,692	23,307	20,041	87,748	3,111	Calculated from Annual Reports
											404,460	Multiplication above
Total truck + barge expense	Rs. Cr	426	629	851	878	1,396	1,585	2,126	1,660	9,551	44,022	Sesa expense x Goan exports / Sesa sales
Total employee expense	Rs. Cr	117	139	181	185	262	361	536	642	2,412	11,116	Sesa expense x Goan exports / Sesa sales
Total mining dependent expense	Rs. Cr	544	767	1,032	1,063	1,648	1,946	2,662	2,301	11,962	55,138	Addition above
Other costs (other than taxes)	Rs. Cr	833	1,150	1,639	1,837	3,141	2,440	4,527	3,247	18,814	86,721	Sesa expense x Goan exports / Sesa sales
Total Expenses	Rs. Cr	1,377	1,918	2,671	2,900	4,789	4,386	7,188	5,548	30,776	141,859	Addition above
Earned profit (20% RoNA)	Rs. Cr	154	230	305	395	320	311	1,058	365	3,138	14,465	Sesa expense x Goan exports / Sesa sales
Total expenses + earned profit	Rs. Cr	1,531	2,148	2,976	3,295	5,109	4,696	8,246	5,913	33,914	156,324	Addition above
Captureable value	Rs. Cr	944	2,210	2,619	5,866	5,909	6,996	15,061	14,128	53,833	248,136	Revenues - total expenses - earned profit. This is the "captureable value"
Supreme Court 10% mandate	Rs. Cr	-	-	-	-	-	-	-	-	-	40,446	
Royalties (Goa)	Rs. Cr	26	27	34	36	36	292	984	951	2,387	11,004	PAC Report, CAG Reports. Actuals, not scaled from Sesa
Export Duty (Center) (est.)	Rs. Cr	-	-	-	429	544	315	1,713	3,881	6,882		Sesa expense x Goan exports / Sesa sales
Income Tax (Center) (est.)	Rs. Cr	358	681	784	1,942	1,445	1,432	3,000	2,641	12,182	196,686	Sesa expense x Goan exports / Sesa sales
Total Taxes	Rs. Cr	384	708	819	2,307	2,025	2,039	5,697	7,473	21,452		Addition above
Unearned Profit	Rs. Cr	560	1,502	1,801	3,658	3,864	4,957	9,364	6,655	32,381		Captureable value - total taxes
Total Capture Rate (Goa + Center)	%	40.7%	32.0%	31.3%	38.7%	34.3%	29.1%	37.8%	52.9%	33.8%		Total taxes / Captureable value
Goa Capture Rate	%	2.8%	1.2%	1.3%	0.6%	0.6%	4.2%	6.5%	6.7%	4.4%	20.7%	Royalties / Captureable value
Captureable value per ton	Rs. / Ton	405	865	848	1,784	1,552	1,531	3,215	3,693	1,909	1,909	
90% Capture Rate	Rs. Cr	850	1,989	2,357	5,369	5,318	6,296	13,555	12,715	48,450	223,322	Capture assuming a 90% Capture Rate
Additional Capture	Rs. Cr	823	1,962	2,323	5,333	5,281	6,004	12,571	11,764	46,062	171,872	Incremental Capture by Goa
Cumulative Capture	Rs. Cr	850	2,839	5,196	10,565	15,883	22,180	35,735	48,450	48,450	223,322	Interest that would be earned by the state if the GMPF were in place
3% Return on amount captured	Rs. Cr	25	85	156	317	476	685	1,072	1,453	1,453	6,700	What is at stake. This amount will be earned in perpetuity.
Govt. Revenue Receipts	Rs. Cr	1,820	2,169	2,610	2,944	3,528	4,100	5,442	4,789	27,402		If the GMPF were in place, it would already contribute very substantially
Return as % of Govt Rev	%	1%	4%	6%	11%	14%	16%	20%	30%			

SC mandates 10% of sale price to be deposited into the GMPF. We have taken final sale price, not pit-head price.

The question is which entity will get what proportion of this. State, Center or private miners. The owners are the people of Goa, represented by the State

Based on SC judgment on GMPF and existing royalties

Capture assuming a 90% Capture Rate  
Incremental Capture by Goa

What is at stake. This amount will be earned in perpetuity.

If the GMPF were in place, it would already contribute very substantially

4. Analysis of the Capture Rate

As a % of Capturable Value		Units	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total	Remarks, Source & Basis	Future	Remarks on Future
		% of Value	262%	197%	214%	155%	186%	167%	155%	142%	163%			
Total Goan Iron ore exports													163%	
Total truck + barge expense		% of Value	45%	28%	32%	15%	24%	23%	14%	12%	18%		18%	
Total employee expense		% of Value	12%	6%	7%	3%	4%	5%	4%	5%	4%		4%	
Total mining dependent expense		% of Value	58%	35%	39%	18%	28%	28%	18%	16%	22%		22%	
Other costs (other than taxes)		% of Value	88%	52%	63%	31%	53%	35%	30%	23%	35%		35%	
Total Expenses		% of Value	146%	87%	102%	49%	81%	63%	48%	36%	57%		57%	
Earned profit (20% RoNA)		% of Value	16%	10%	12%	7%	5%	4%	7%	3%	6%		6%	
Total expenses + earned profit		% of Value	162%	97%	114%	55%	86%	67%	55%	42%	63%		63%	
Capturable value		% of Value	100%	100%	100%	100%	100%	100%	100%	100%	100%		100%	
Supreme Court 10% mandate		% of Value	-	-	-	-	-	-	-	-	-		16%	100% by definition SC mandates 10% of sale price to be deposited into the GMPP
Royalties (Goa)		% of Value	3%	1%	1%	1%	1%	4%	7%	7%	4%		4%	
Export Duty (Center) (est.)		% of Value	0%	0%	0%	7%	9%	5%	11%	27%	13%			
Income Tax (Center) (est.)		% of Value	38%	31%	30%	31%	24%	20%	20%	19%	23%		79%	The question is which entity will get what proportion of this. State, Center or private miners. The owners are the people of Goa, represented by the State
Total Taxes		% of Value	41%	32%	31%	39%	34%	29%	38%	53%	40%			
Unearned Profit		% of Value	59%	68%	69%	61%	66%	71%	62%	47%	60%			
Govt. Revenue Receipts		% of Value	193%	98%	100%	49%	60%	59%	36%	34%	51%		0%	Total Government receipts were a fraction of the loss of the value of the ore
As a % of Revenues		Units	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total	Remarks, Source & Basis	Future	Remarks on Future
		% of Rev	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Total Goan Iron ore exports													100%	
Total truck + barge expense		% of Rev	17%	14%	15%	9%	13%	14%	9%	8%	11%		11%	
Total employee expense		% of Rev	5%	3%	3%	2%	2%	3%	2%	3%	3%		3%	
Total mining dependent expense		% of Rev	22%	18%	18%	11%	15%	17%	11%	11%	14%		14%	
Other costs (other than taxes)		% of Rev	34%	26%	29%	20%	29%	21%	19%	16%	21%		21%	
Total Expenses		% of Rev	56%	44%	48%	31%	43%	38%	31%	26%	35%		35%	
Earned profit (20% RoNA)		% of Rev	6%	5%	5%	4%	3%	3%	5%	2%	4%		4%	
Total expenses + earned profit		% of Rev	62%	49%	53%	36%	46%	40%	35%	30%	39%		39%	
Capturable value		% of Rev	38%	51%	47%	64%	54%	60%	65%	70%	61%		61%	
Supreme Court 10% mandate		% of Rev	-	-	-	-	-	-	-	-	-		10%	SC mandates 10% of sale price to be deposited into the GMPP
Royalties (Goa)		% of Rev	1%	1%	1%	0%	0%	2%	4%	5%	3%		3%	
Export Duty (Center) (est.)		% of Rev	0%	0%	0%	5%	5%	3%	7%	19%	8%			
Income Tax (Center) (est.)		% of Rev	14%	16%	14%	20%	13%	12%	13%	13%	14%		49%	
Total Taxes		% of Rev	16%	16%	15%	25%	18%	17%	24%	37%	24%			
Unearned Profit		% of Rev	23%	34%	32%	40%	35%	42%	40%	33%	37%			
Govt. Revenue Receipts		% of Rev	74%	50%	47%	32%	32%	35%	23%	24%	31%		0%	

5. Impact on State Finances and on every Goan

1. This sheet analyzes Goa's situation using some of the World Bank methodology for Adjusted Net Savings.
2. Adjusted Net Savings essentially measures whether Hartwick's rule has been met (for Intergenerational Equity)
3. This uses Goa savings rate estimates from an academic paper
4. The value of the ore / mineral depletion uses the unearned profit methodology from Sesa Goa's figures
5. Conclusion is clear - Goa has become much poorer.

Value of the ore extracted	Units	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total	Source	Source
Value of Mineral Depleted	Rs. Cr	944	2,210	2,619	5,566	5,909	6,996	15,061	14,128	53,833	Taken from the Capture Rate analysis using Sesa & GMOEA data	Multiply above
Goa GSDP at Current Prices	Rs. Cr	12,713	14,327	16,523	19,565	25,414	29,126	33,605	36,025	187,297		Goa Eco Survey
Mineral Depletion / GSDP	%	7%	15%	16%	30%	23%	24%	45%	39%	29%		Calculated

Goa State Finances & Mining	Units	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total	Remarks	Source
Goa GSDP at Current Prices	Rs. Cr	12,713	14,327	16,523	19,565	25,414	29,126	33,605	36,025	187,297	2011-12 is Provisional	Goa Eco Survey
GSDP from Mining	Rs. Cr	562	670	1,547	2,533	4,279	5,003	6,706	6,200	27,499		Goa Eco Survey
Mining as a % of GSDP	%	4%	5%	9%	13%	17%	17%	20%	17%	15%		GSDP from Mining / GSDP
Govt. Revenue Receipts	Rs. Cr	1,820	2,169	2,610	2,944	3,528	4,100	5,442	4,789	27,402		CAG Reports, Budget 2013-14
Mines dept. revenue receipts	Rs. Cr	26	27	34	36	36	292	984	951	2,387		PAC Report
Mining as % of total revenue	%	1%	1%	1%	1%	1%	7%	18%	20%	9%		Revenue from Mining / Total revenue
Mineral depletion	Rs. Cr	944	2,210	2,619	5,966	5,909	6,996	15,061	14,128	53,833	This is the value of the ore exported (the ore was received by Goa)	From above
% mineral depletion captured	%	2.8%	1.2%	1.3%	0.6%	0.6%	4.2%	6.5%	6.7%	4.4%		Mining revenues / mineral depletion
Govt total expenditure	Rs. Cr	2,182	2,486	2,709	3,175	3,880	4,865	5,509	7,202	32,008		Goa Eco Survey
Fiscal Deficit	Rs. Cr	550	581	529	541	916	1,242	486	543	5,386		Goa Eco Survey
Govt outstanding debt	Rs. Cr		3,714	4,690	5,127	5,623	6,077	6,614		NA		Goa Eco Survey



5. Impact on State Finances and on every Goan

Goa Savings Rate		Units	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total	Remarks	Source
Goa GSDP at Current Prices		Rs. Cr	12,713	14,327	16,523	19,565	25,414	29,126	33,605	36,025	187,297	2011-12 is Provisional	Goa Eco Survey
India Gross Savings Rate		%	31%	32%	33%	34%	30%	31%	33%	29%			World Bank
Goa Gross Savings Rate		%	45.95%	47.23%	47.31%	49.95%	50.19%	48.29%	48.29%	48.39%	48.39%	Date series ends in 2009-10	IIMA Paper by Deepak Sethia, Annexure 2.9
Goa Gross Savings		Rs. Cr	5,842	6,766	7,817	9,773	12,755	14,085	16,228	17,396	90,642		GSDP * (India Gross savings rate+10%)
Goa NSDP at Current Prices		Rs. Cr	10,999	12,488	14,394	17,045	22,149	25,224	28,464	29,396	160,159		Goa Eco Survey
Depreciation		Rs. Cr	1,715	1,839	2,129	2,519	3,265	3,902	5,141	6,828	27,138		GSDP - NSDP
Goa Net Savings		Rs. Cr	4,127	4,928	5,688	7,253	9,490	10,163	11,087	10,768	63,504		Gross Savings - Depreciation
Goa Net Savings % of GDP		%	32%	34%	34%	37%	37%	35%	33%	30%	34%		Net Savings / GSDP

Goa Net Savings		Rs. Cr	4,127	4,928	5,688	7,253	9,490	10,163	11,087	10,768	63,504		From above
Dissaving (Mineral depletion)		Rs. Cr	944	2,210	2,619	5,966	5,909	6,996	15,061	14,128	53,833	Huge amounts of wealth lost to Goa	From above
Adjusted Net Saving		Rs. Cr	3,183	2,718	3,068	1,288	3,582	3,167	-3,974	-3,360	9,671	Extremely high savings rate turned negative	Calculated
Adjusted Net Saving % to GSDP		%	25%	19%	19%	7%	14%	11%	-12%	-9%	5%	This savings rate is extremely low, and negative at the end	Calculated

Per Capita Data		Units	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	Total	Source
Population		Th	1,429	1,474	1,517	1,568	1,629	1,691	1,749	1,799	NA	Goa Eco Survey
Per capita income (NSDP)		Rs	76,968	84,721	94,882	108,708	135,946	149,164	162,747	163,404	976,540	Goa Eco Survey
Per Capita Net Savings		Rs	28,881	33,431	37,493	46,258	58,258	60,099	63,391	59,856	387,667	Goa Net Savings / Population
Mineral depletion per capita		Rs.	6,608	14,993	17,267	38,046	36,271	41,372	86,114	78,533	319,204	Mineral Depletion / Population
Adjusted per capita income		Rs.	70,360	69,728	77,615	70,662	99,675	107,792	76,633	84,871	657,336	Income - Mineral Depletion

6. Recoverable from Illegal Mining

Recoverable from illegal mining		Units	2007-08	2008-09	2009-10	2010-11	2011-12	Total	Remarks / Sources
Sesa iron ore sales	Mn Tons		6.2	15.1	21.4	18.1	16.0	76.8	Sesa Goa annual accounts
Sesa iron ore sales	Rs. Cr		1,645	4,308	5,241	8,594	7,516	27,304	Sesa Goa annual accounts
Sesa iron ore EBIT	Rs. Cr		1,022	2,171	2,869	4,819	3,246	14,128	Sesa Goa annual accounts
Sesa effective tax rate	%		33%	26%	23%	24%	34%	25%	Sesa Goa annual accounts
Sesa iron ore income tax (est.)	Rs. Cr		341	573	671	1,159	1,105	3,849	Multiplying EBIT by the effective tax rate
Sesa iron ore Profit After Tax (PAT)	Rs. Cr		681	1,598	2,198	3,660	2,141	10,278	EBIT - income tax (est.)
Sesa goan iron ore sales	Mn Tons		4.5	10.1	15.6	14.3	13.3	57.8	Sesa Goa annual accounts
Sesa goan iron ore to total iron ore	%		73%	67%	73%	79%	83%	75%	
Sesa goan iron ore PAT	Rs. Cr		494	1,069	1,598	2,892	1,780	7,833	PAT x (ratio of goan iron ore to total iron ore)
Earned profit (0% RoNA)	Rs. Cr		-	-	-	-	-	-	Illegal mining. No profit from illegalities
Sesa goan iron ore recoverable amt	Rs. Cr		494	1,069	1,598	2,892	1,780	7,833	After 20-Nov-2007 to be recovered from Sesa Goa
Goan iron ore exports	Mn Tons		16.7	38.1	45.7	46.8	38.3	185.6	GMOEA Special Statistics
Sesa goan iron ore sales	Mn Tons		4.5	10.1	15.6	14.3	13.3	57.8	Sesa Goa annual accounts
Sesa as % of Goa	%		27%	27%	34%	31%	35%	31%	Sesa sales a significant part of Goa exports
Goa exports / Sesa sales			3.72	3.77	2.93	3.28	2.88	3.21	Scaling factor
Goan iron ore recoverable amount	Rs. Cr		1,838	4,029	4,690	9,473	5,120	25,149	After 20-Nov-2007 to be recovered
Recoverable amount per ton	Rs. / MT		1,099	1,058	1,027	2,022	1,338	1,355	
Goan iron ore recoverable amount	Rs. Cr		1,838	4,029	4,690	9,473	5,120	25,149	All of 2012-13 needs to be added. Penalties and interest needs to be added. Compensation for environmental damage needs to be added.
Years until 31-Mar-2014			6	5	4	3	2		
Interest @ 12% till Mar 31, 2014	Rs. Cr		1,323	2,417	2,251	3,410	1,229	10,631	Total interest due
Recoverable amount incl. Interest	Rs. Cr		3,161	6,446	6,941	12,883	6,349	35,780	Value of ore + interest
Goa Population	Lakhs							14.58	2011 Census
Recoverable amount per person	Rs.							245,450	

Note : Values for 2007-08 are for four illegal months out of a eight month season

7. Scenario analysis for the Goenchi Mati Permanent Fund

This sheet gives scenarios for various levels of

1. Total reserves - we have considered the CM's statement of 1.3 billion tons of reserves
2. Capturable value per ton. To start with, we have considered the average over 2004-05 till 2011-12, viz. Rs. 1,909 per ton
3. Extraction rate - tons per annum. This is in the lower table. 20 mn is the current cap. 50 million is near the peak exports. 1 mn gives a simple rule of thumb
4. Capture rate %. Historical has been around 4.4%. With the Supreme Court permanent fund, this rises to 20.7%. Our target is 90%
5. Investment rate. What proportion of the amount captured is invested. The sheet assumes 100% investment into the GMPF.
6. Real interest rate earned - this has been taken as 3%. Note that this is to be earned over and above inflation, and after all taxes and expenses. Not trivial.
7. The population has been taken constant at the Census 2011 level of 14,57,723. Since the decadal population growth rate has declined sharply from 16% to 8%, it is possible that the population will stabilise at 2011 levels.

Goenchi Mati Permanent Fund Economics				Remarks	Source
Extractable resources	Mn MT	1,300		CM statement. May increase over time	Assumption
Captureable value per ton	Rs. / MT	1,909		Weighted average over 2004-05 - 2011-12	Calculated. =+Capture Rate*IL27
Capture rate	%	90%		International best practice	Assumption
Captured value per ton	Rs. / MT	1,718		What % of the capture is invested	Multiply above
Investment rate	%	100%		Need to check with actual performance	Assumption
Earnings (after inflation & taxes)	%	3%		Population growth stopping	Assumption
Goa population		1,457,723			Population as per Census 2011

  

Value of extractable resources	Rs. Cr.	223,322		Same as final value of the Fund	Extractable resources x captured value per ton
Annual income from Goenchi Mati Fund	Rs. Cr.	6,700			3% of the captured value
Household Fund Value	Rs.	6,127,977			Fund / population x 4
Per household annual income	Rs.	183,839			3% of the value per household

Goenchi Mati Permanent Fund at different extraction rates

Extraction Rate per year	Mn MT	1	5	10	20	50	Remarks	Source
Years before exhaustion		1,300	260	130	65	26	One generation is taken as 30 years	Division above
Captured value per year	Rs. Cr.	172	859	1,718	3,436	8,589	Value at 5 MT similar to royalties in years past	Multiply above
Annual addition to Goenchi Mati Fund	Rs. Cr.	172	859	1,718	3,436	8,589		Captured Value x Investment Rate
Annual income from Goenchi Mati Fund	Rs. Cr.	5	26	52	103	258	Every year, adjusted for inflation, in perpetuity	Addition to Fund x Earnings (after inflation and taxes)
<b>After 10 years - just a decade</b>								
Goenchi Mati Fund size	10	1,718	8,589	17,179	34,357	85,893		
Annual income from Goenchi Mati Fund	Rs. Cr.	52	258	515	1,031	2,577		
Per person Fund value	Rs.	11,785	58,923	117,846	235,691	589,229		
Per person annual income	Rs.	354	1,768	3,535	7,071	17,677		
<b>After 21 years - infant attains majority</b>								
Goenchi Mati Fund size	21	3,608	18,038	36,075	72,150	180,376		
Annual income from Goenchi Mati Fund	Rs. Cr.	108	541	1,082	2,165	5,411		
Per person Fund value	Rs.	24,748	123,738	247,476	494,952	1,237,380		
Per person annual income	Rs.	742	3,712	7,424	14,849	37,121		
<b>After 30 years - one generation</b>								
Goenchi Mati Fund size	30	5,154	25,768	51,536	103,072	257,680		
Annual income from Goenchi Mati Fund	Rs. Cr.	155	773	1,546	3,092	7,730		
Per person Fund value	Rs.	35,354	176,769	353,537	707,074	1,767,686		
Per person annual income	Rs.	1,061	5,303	10,606	21,212	53,031		
<b>Terminal value of the fund</b>								
Goenchi Mati Fund size	Rs. Cr.	223,322	223,322	223,322	223,322	223,322	Terminal values are all the same as these figures are all inflation adjusted	
Annual income from Goenchi Mati Fund	Rs. Cr.	6,700	6,700	6,700	6,700	6,700		
Per person Fund value	Rs.	1,531,994	1,531,994	1,531,994	1,531,994	1,531,994		
Per person annual income	Rs.	45,960	45,960	45,960	45,960	45,960		