

Appendix A

Classifications and Official Sources

The mining sector is made up of several sub-sectors of which the most important are oil and gas, metals mining, quarrying, and other mineral extraction. In the ANZSIC industry classification used by Statistics New Zealand, there are four “levels” of disaggregation for which codes are allocated. Older industry statistics used the 1996 version, ANZSIC 96; current statistics use ANZSIC 2006. The national accounts also use the NAWI classification. The coding and correspondence of these is shown in Table A1.

Table A1: ANZSIC codes for Division B, “Mining”

NAWI	ANZSIC 96 levels:				ANZSIC 2006 levels:				Descriptors
	1	2	3	4	1	2	3	4	
	B				B				Mining
B011		B11				B06			Coal Mining
							B060		Coal Mining
				B110100 & B110200				B060000	Coal Mining
B021		B12				B07			Oil and Gas Extraction
			B120				B070		Oil and Gas Extraction
				B120000				B070000	Oil and Gas Extraction
B019		B13				B08			Metal Ore Mining
			B131				B080		Metal Ore Mining
				B131100				B080100	Iron Ore Mining
				B131200				B080200	Bauxite Mining
				B131300				B080300	Copper Ore Mining
				B131400				B080400	Gold Ore Mining
				B131500				B080500	Mineral Sand Mining
				B131600				B080600	Nickel Ore Mining
				B131700				B080700	Silver-Lead-Zinc Ore Mining
				B131900				B080900	Other Metal Ore Mining
B019		B14				B09			Non-Metallic Mineral Mining and Quarrying
			B141				B091		Construction Material Mining
				B141100				B091100	Gravel and Sand Quarrying
				B141900				B091900	Other Construction Material Mining
							B099		Other Non-Metallic Mineral Mining and Quarrying
								B099000	Other Non-Metallic Mineral Mining and Quarrying
		B15				B10			Exploration and Other Mining Support Services
			B151				B101		Exploration
B021				B151100 & B151200				B101100	Petroleum Exploration
				B151400				B101200	Mineral Exploration
B012			B152				B109		Other Mining Support Services
				B152000				B109000	Other Mining Support Services

It is necessary to bear in mind the relevant coding when interpreting any numbers sourced from Statistics New Zealand, because different aggregations and disaggregations are used in different datasets, constructed from detailed data which is treated as confidential.

Ideally, it would be possible to access official data at ANZSIC levels 3 and 4 for industry revenues, employment, itemized costs, tax payments, and other information required for a full economic accounting of sectoral contributions to the New Zealand economy. In practice, disaggregation beyond level 1 requires a good deal of research and the making of some assumptions.

The National Accounts published by Statistics New Zealand¹ separate out “oil and gas exploration and extraction” (NAWI B021, equivalent to ANZSIC06 B07 + B101100) from “mining and quarrying” (all the rest of division B) but do not disaggregate the latter amongst coal mining, metals mining, quarrying, and services to mining (which appear to have been growing rapidly in recent years). The inter-industry tables for 1996² show “coal mining”, “services to mining”, “other mining and quarrying”, “oil and gas extraction”, and “oil and gas exploration”, but still leave metals mining combined with quarrying in the third of these. The 2003 inter-industry tables³ have only two sectors: “mining and quarrying” and “oil and gas exploration and extraction”. The published tables from the Linked Employer-Employee database (LEED)⁴ show jobs and earnings figures only for aggregated “mining”, but the LEED data on Infoshare⁵ has a breakdown that separates “construction material mining” (i.e., quarrying) from “coal, oil, gas and metal ore mining” which are aggregated. The Annual Enterprise Survey published tables⁶ treat mining as a single aggregated sector, as do the Business Demographic Statistics⁷.

Fuller detail is available in the overseas trade statistics, which show exports by six-digit Harmonised System coding,⁸ and in the mining output statistics⁹. Individual mining company information is available from annual accounts on their websites,¹⁰ and from annual financial statements filed with the Companies Office¹¹.

¹ <http://search.stats.govt.nz/search?w=national%20accounts>

² http://www.stats.govt.nz/methods_and_services/access-data/tables/inter-industry-study.aspx

³ http://www.stats.govt.nz/methods_and_services/access-data/tables/supply-use.aspx

⁴ <http://www.stats.govt.nz/publications/workknowledgeandskills/leed.aspx>

⁵ <http://www.stats.govt.nz/infoshare/SelectVariables.aspx?pxID=81c60c4e-9ec4-48ab-b39f-7070b1120d14>, Infoshare table reference LED020AA.

⁶ http://www.stats.govt.nz/browse_for_stats/businesses/business_finance/annual-enterprise-survey_hotp08provisional.aspx

⁷ Downloadable from http://www.stats.govt.nz/browse_for_stats/businesses/business_characteristics/businessdemographicstatistics_hotpfeb09.aspx

⁸ <http://www.stats.govt.nz/infoshare/TradeVariables.aspx?DataType=TEX>, Infoshare table ref. TEX003F.

⁹ <http://www.crownminerals.govt.nz/cms/minerals/facts-and-figures> and <http://www.crownminerals.govt.nz/cms/coal/facts-and-figures>.

¹⁰ Major websites include <http://www.coalnz.com/index.cfm/1,186,393,0.html/Annual-Report>; <http://www.oceanagold.co.nz/> and <http://www.oceanagold.com/>;

<http://www.marthamine.co.nz/> and <http://www.newmont.com/>.

¹¹ http://www.companies.govt.nz/cms/banner_template/CNAME.

Appendix B
National Accounts Data on Mining
Table B1: Mining Contribution to GDP

	Gross Domestic Product - product measure							Total mining at constant prices, \$million
	Current Prices							
	Mining and Quarrying		Oil & Gas Exploration & Extraction		Total mining		NZ GDP \$million	
March years	\$million	% of GDP	\$million		\$million			
1972					49	0.72		
1973					56	0.72		
1974					53	0.58		
1975					72	0.72		
1976					91	0.81		
1977					164	1.19		
1978					231	1.50		
1979					203	1.16		
1980					176	0.86		
1981					236	1.00		
1982					310	1.08		
1983					434	1.33		
1984					448	1.24		
1985					574	1.40		
1986					796	1.68		
1987	216	0.38	582	1.03	798	1.41	56,770	
1988	187	0.29	735	1.15	922	1.44	63,817	1,052
1989	164	0.24	721	1.05	885	1.29	68,647	1,060
1990	228	0.31	669	0.92	896	1.23	72,651	882
1991	237	0.32	987	1.33	1,224	1.64	74,468	1,059
1992	255	0.34	883	1.19	1,139	1.53	74,323	1,111
1993	310	0.40	895	1.17	1,205	1.57	76,632	1,136
1994	342	0.41	833	1.01	1,175	1.42	82,861	1,193
1995	388	0.44	718	0.81	1,106	1.24	88,878	1,078
1996	437	0.46	654	0.69	1,091	1.15	94,545	1,091
1997	414	0.42	847	0.85	1,261	1.27	99,171	1,350
1998	365	0.35	891	0.87	1,255	1.22	102,855	1,356
1999	312	0.30	831	0.79	1,143	1.09	104,638	1,347
2000	358	0.32	844	0.76	1,202	1.08	110,902	1,255
2001	419	0.36	970	0.83	1,388	1.18	117,165	1,290
2002	485	0.39	952	0.76	1,437	1.14	125,882	1,244
2003	503	0.38	986	0.74	1,489	1.12	132,425	1,265
2004	464	0.33	876	0.62	1,339	0.94	141,702	1,083
2005	583	0.38	970	0.64	1,553	1.02	151,701	1,056
2006	795	0.50	1,035	0.65	1,830	1.14	160,273	1,142
2007	890	0.53	1,157	0.69	2,047	1.22	168,328	1,083
2008								1,546
2009								1,523
SNCA series	S1NB01B01T4		S1NB01B02T4		S1NB01BAT4		S1NB01	
Infoshare table								SNC005AA

Source: Statistics New Zealand, [National Accounts: Year ended March 2009 – GDP breakdown – Tables](http://www.stats.govt.nz/browse_for_stats/economic_indicators/nationalaccounts/nationalaccounts_hotpyemar09.aspx), http://www.stats.govt.nz/browse_for_stats/economic_indicators/nationalaccounts/nationalaccounts_hotpyemar09.aspx downloaded 21 April 2010, for current-price data; and Infoshare for constant-price data.

Table B2

	Gross value added at constant prices				
	Total mining \$million	NZ GDP at market prices \$million	Total mining % of GDP	% change in value added	
				Mining	NZ GDP
1988	1,052	80,786	1.30		
1989	1,060	80,665	1.31	0.8	-0.1
1990	882	81,102	1.09	-16.8	0.5
1991	1,059	81,132	1.31	20.1	0.0
1992	1,111	80,081	1.39	4.9	-1.3
1993	1,136	80,979	1.40	2.3	1.1
1994	1,193	86,140	1.38	5.0	6.4
1995	1,078	90,695	1.19	-9.6	5.3
1996	1,091	94,545	1.15	1.2	4.2
1997	1,350	97,774	1.38	23.7	3.4
1998	1,356	99,433	1.36	0.4	1.7
1999	1,347	99,946	1.35	-0.7	0.5
2000	1,255	105,212	1.19	-6.8	5.3
2001	1,290	107,691	1.20	2.8	2.4
2002	1,244	111,470	1.12	-3.6	3.5
2003	1,265	116,913	1.08	1.7	4.9
2004	1,083	121,931	0.89	-14.4	4.3
2005	1,056	126,393	0.84	-2.5	3.7
2006	1,142	130,375	0.88	8.1	3.2
2007	1,083	131,491	0.82	-5.2	0.9
2008	1,546	135,290	1.14	42.8	2.9
2009	1,523	133,342	1.14	-1.5	-1.4
Infoshare ref	SNC005AA	SNC046AA			

Appendix C
Mining output and exports
Table C1: Metals output, tonnes

	Precious metals			Iron ores			Other metals						Total
	Gold	Silver	Total	Magnetite (ironsand)	Other Iron Ore	Total	Cad - miu m	Co p- per	Lead	Tun gs- ten Ore	Zinc	Total	
1970	0.351	0.511	0.862	143,435	684	144,119	10	47	778	5	1,459	2,299	146,418
1971	0.293	2.065	2.358	575,880	93	575,974	14	85	1,246	7	1,969	3,321	579,295
1972	0.420	0.973	1.393	1,380,261	358	1,380,619	14	123	1,157	13	1,656	2,963	1,383,583
1973	0.344	1.530	1.873	2,181,164	466	2,181,630	4	43	319	2	605	973	2,182,605
1974	0.147	0.056	0.203	2,352,653	219	2,352,872	0	0	0	7	0	7	2,352,879
1975	0.085	0.062	0.147	2,297,056	329	2,297,385	0	0	0	0	0	0	2,297,385
1976	0.102	0.016	0.117	2,473,487	185	2,473,672	0	0	0	14	0	14	2,473,686
1977	0.223	0.236	0.458	2,954,394	0	2,954,394	0	0	0	11	0	11	2,954,405
1978	0.219	0.063	0.282	3,946,350	130	3,946,480	0	0	0	16	0	16	3,946,496
1979	0.218	0.051	0.269	3,527,348	127	3,527,475	0	0	0	15	0	15	3,527,491
1980	0.200	0.023	0.223	3,389,497	72	3,389,569	0	0	0	102	0	102	3,389,672
1981	0.189	0.000	0.189	3,025,921	197	3,026,118	0	0	0	10	0	10	3,026,128
1982	0.242	0.000	0.242	2,621,125	166	2,621,291	0	0	0	14	0	14	2,621,306
1983	0.301	0.001	0.302	2,203,235	156	2,203,391	0	0	0	0	0	0	2,203,391
1984	0.672	0.000	0.672	2,414,481	2,645	2,417,126	0	0	0	0	0	0	2,417,127
1985	0.886	0.000	0.886	2,533,217	3,259	2,536,476	0	0	0	0	0	0	2,536,477
1986	1.265	0.000	1.265	2,599,259	2,086	2,601,345	0	0	0	0	0	0	2,601,347
1987	1.148	0.000	1.148	2,292,261	2,109	2,294,370	0	0	0	0	0	0	2,294,371
1988	2.404	1.845	4.248	2,351,303	290	2,351,593	0	0	0	0	0	0	2,351,597
1989	4.963	4.837	9.800	2,366,636	0	2,366,636	0	0	0	0	0	0	2,366,645
1990	4.630	4.914	9.543	2,296,153	0	2,296,153	0	0	0	0	0	0	2,296,163
1991	6.758	11.371	18.129	2,264,849	0	2,264,849	0	0	0	0	0	0	2,264,867
1992	10.531	22.413	32.944	2,934,111	0	2,934,111	0	0	0	0	0	0	2,934,144
1993	11.161	25.797	36.958	2,388,783	0	2,388,783	0	0	0	0	0	0	2,388,820
1994	10.118	27.589	37.707	2,080,115	0	2,080,115	0	0	0	0	0	0	2,080,153
1995	12.132	27.794	39.926	2,362,197	0	2,362,197	0	0	0	0	0	0	2,362,237
1996	11.571	29.340	40.911	2,333,715	0	2,333,715	0	0	0	0	0	0	2,333,756
1997	11.571	20.740	32.311	2,477,728	0	2,477,728	0	0	0	0	0	0	2,477,760
1998	7.730	22.680	30.410	2,124,330	0	2,124,330	0	0	0	0	0	0	2,124,360
1999	8.900	24.340	33.240	2,303,400	0	2,303,400	0	0	0	0	0	0	2,303,433
2000	9.880	22.890	32.770	2,691,780	0	2,691,780	0	0	0	0	0	0	2,691,813
2001	9.850	27.120	36.970	1,636,424	0	1,636,424	0	0	0	0	0	0	1,636,461
2002	9.770	28.720	38.490	1,739,950	0	1,739,950	0	0	0	0	0	0	1,739,988
2003	9.305	29.932	39.237	1,946,900	0	1,946,900	0	0	0	0	0	0	1,946,940
2004	10.151	30.084	40.235	2,329,417	0	2,329,417	0	0	0	0	0	0	2,329,457
2005	10.583	43.003	53.586	2,207,244	0	2,207,244	0	0	0	0	0	0	2,207,298
2006	10.618	27.221	37.839	2,146,496	0	2,146,496	0	0	0	0	0	0	2,146,534
2007	10.638	10.568	21.206	1,723,726	0	1,723,726	0	0	0	0	0	0	1,723,747
2008	16.274	31.017	47.291	2,020,227	0	2,020,227	0	0	0	0	0	0	2,020,274
Totals:													
1970-79	2.4	5.6	8.0	21,832,029	2,591	21,834,620	43	298	3,500	90	5,689	9,619	21,844,244
1980-89	12.3	6.7	19.0	25,796,935	10,980	25,807,915	0	0	0	126	0	126	25,808,061
1990-99	95.1	217.0	312.1	23,565,381	0	23,565,381	0	0	0	0	0	0	23,565,693
2000-08	97.1	250.6	347.6	18,442,164	0	18,442,164	0	0	0	0	0	0	18,442,513
1970-2008	206.8	479.8	686.6	89,636,509	13,571	89,650,080	43	298	3,500	216	5,689	9,746	89,660,511

Source: Assembled from <http://www.crownminerals.govt.nz/cms/minerals/facts-and-figures>.

Table C2: Outputs from Quarrying: 000 tonnes

	Quarried rock, sand and clay for road construction, building, reclamation and fill					Limestone quarrying					Other
	Rock for reclamation & protection	Rock, sand and gravel for building	Rock, sand and gravel for roading	Rock, sand, gravel & clay for fill	Total	Limestone and marl for cement	Limestone for agriculture	Limestone for industry	Limestone for roads	Total	Building and dimension stone
1970	1,251	5,382	21,491		28,123	1,523	1,159	124	0	2,806	19
1971	2,197	5,473	20,405		28,076	1,536	1,281	116	0	2,933	31
1972	0	6,465	21,246	625	28,336	1,467	1,540	123	0	3,131	23
1973	803	6,660	22,592		30,055	1,783	1,690	238	1	3,713	37
1974	2,132	7,525	20,054		29,712	1,884	1,540	114	134	3,672	35
1975	3,296	6,523	16,092		25,912	1,838	1,502	125	242	3,708	23
1976	3,738	6,069	14,716		24,523	1,674	1,686	165	274	3,798	26
1977	4,896	6,143	15,259		26,297	1,590	1,732	170	308	3,800	17
1978	2,287	4,962	15,171		22,420	1,366	1,615	159	250	3,390	27
1979	2,428	4,652	13,189		20,269	1,268	1,773	289	289	3,618	27
1980	2,246	4,286	13,559		20,092	1,389	1,581	172	229	3,371	16
1981	2,891	4,084	13,548		20,523	1,458	1,829	178	312	3,777	31
1982	2,325	4,169	14,154		20,648	1,483	1,592	184	375	3,635	22
1983	2,254	4,359	15,489		22,102	1,497	1,460	207	274	3,436	2
1984	2,520	5,029	16,501		24,050	1,621	1,524	214	359	3,719	6
1985	1,913	6,047	17,892		25,852	1,738	1,241	269	393	3,641	7
1986	2,027	7,087	16,743		25,857	1,012	723	258	430	2,423	3
1987	1,194	5,146	13,672		20,012	1,211	823	208	323	2,565	0
1988	1,359	5,806	12,455		19,620	1,256	708	311	397	2,672	1
1989	1,543	5,172	12,577		19,292	1,408	983	314	377	3,082	1
1990	2,163	4,121	12,061		18,345	1,360	1,049	358	410	3,177	1
1991	5,238	3,486	10,460		19,185	1,390	946	364	407	3,108	0
1992	1,514	3,838	12,520		17,872	1,459	1,310	399	523	3,692	0
1993	1,680	4,942	13,502		20,124	1,577	1,689	379	597	4,242	2
1994	1,075	5,219	12,853		19,147	1,542	1,564	355	575	4,036	1
1995	1,327	5,126	16,100		22,553	1,543	1,300	387	0	3,230	4
1996	2,673	5,395	15,566		23,634	1,521	1,457	461	530	3,969	27
1997	na	na	na	na	na	na	na	na	na	na	na
1998	1,477	6,493	15,194	2,498	25,662	1,438	1,811	404	0	3,652	21
1999	774	6,546	16,377	2,793	26,491	1,583	1,993	482	0	4,057	21
2000	632	7,499	18,336	3,167	29,634	1,603	2,029	527	0	4,159	29
2001	381	6,814	19,353	2,833	29,381	1,644	2,480	622	0	4,746	30
2002	516	8,026	18,532	2,358	29,431	1,697	2,732	866	0	5,294	30
2003	609	9,268	20,520	3,768	34,164	1,652	2,557	731	0	4,940	37
2004	600	11,362	21,721	4,013	37,696	1,839	1,913	561	0	4,312	26
2005	741	10,921	24,712	4,987	41,361	1,741	2,594	892	0	5,226	29
2006	816	8,518	23,982	4,432	37,748	1,762	2,326	944	0	5,033	23
2007	329	9,601	23,782	4,704	38,416	1,965	2,215	988	0	5,168	23
2008	676	9,743	20,889	4,057	35,365	2,018	1,918	874	0	4,811	17
1970-79	23,027	59,854	180,215	625	263,722	15,929	15,519	1,623	1,498	34,569	266
1980-89	20,271	51,187	146,590	0	218,048	14,072	12,465	2,315	3,469	32,321	91
1990-99	17,921	45,167	124,633	5,291	193,012	13,413	13,119	3,587	3,043	33,163	77
2000-08	5,300	81,751	191,826	34,320	313,197	15,921	20,765	7,004	0	43,689	244
1970-2008	66,518	237,960	643,264	40,236	987,978	59,336	61,868	14,530	8,009	143,742	678

Source: Assembled from <http://www.crownminerals.govt.nz/cms/minerals/facts-and-figures>

Table C3: Coal output, tonnes

	Coal	Peat	Total
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1970	2,386,145	0	2,386,145
1971	2,124,240	0	2,124,240
1972	2,181,354	0	2,181,354
1973	2,468,542	0	2,468,542
1974	2,564,317	0	2,564,317
1975	2,412,393	0	2,412,393
1976	2,486,904	0	2,486,904
1977	2,368,909	0	2,368,909
1978	2,182,501	0	2,182,501
1979	1,947,599	0	1,947,599
1980	2,162,643	0	2,162,643
1981	2,196,894	0	2,196,894
1982	2,244,384	0	2,244,384
1983	2,473,531	0	2,473,531
1984	2,526,647	0	2,526,647
1985	2,390,010	0	2,390,010
1986	2,517,947	0	2,517,947
1987	2,220,996	0	2,220,996
1988	2,438,071	75,135	2,513,206
1989	2,713,016	82,160	2,795,176
1990	2,584,252	5,686	2,589,938
1991	2,684,147	94,396	2,778,543
1992	2,984,011	58,647	3,042,658
1993	3,090,779	101,476	3,192,255
1994	3,033,196	115,488	3,148,684
1995	3,445,038	107,703	3,552,741
1996	3,509,334	109,982	3,619,316
1997	3,664,034	..	..
1998	3,303,900	116,800	3,420,700
1999	3,505,730	89,500	3,595,230
2000	3,585,635	97,210	3,682,845
2001	3,911,396	81,050	3,992,446
2002	4,458,939	73,500	4,532,439
2003	5,179,900	63,260	5,243,160
2004	5,155,394	63,550	5,218,944
2005	5,267,162	0	5,267,162
2006	5,767,911	0	5,767,911
2007	4,835,408	0	4,835,408
2008	4,909,421	0	4,909,421
Totals:			
1970-79	23,122,904	0	23,122,904
1980-89	23,884,139	157,295	24,041,434
1990-99	31,804,421	799,678	32,604,099
2000-08	43,071,166	378,570	43,449,736
1970-2008	121,882,630	1,335,543	123,218,173

Table C4
Other Minerals Output, tonnes

Year	Marble	Magnesite	Perlite	Pumice	*Recycled Material	Salt	Sand for industry	Serpentine	Silica Sand	Sulphur	Talc	*Zeolite	Total
1970	0	484	2,032	19,207		52,793	196,590	196,590	135,628	122	0	0	908,187
1971	0	1,047	2,032	13,009		43,263	240,315	72,950	124,520	0	0	0	828,270
1972	0	960	2,540	129,605	0	59,436	104,864	96,175	110,069	0	0	0	737,091
1973	0	1,599	56,909	0	0	101,500	39,324	73,726	124,403	0	0	0	637,949
1974	0	826	465	70,328	0	54,864	44,451	89,069	148,633	224	0	0	713,528
1975	0	791	1,500	37,857	0	40,000	12,755	60,069	147,738	585	0	0	561,620
1976	0	805	1,500	50,232	0	41,000	88,650	71,752	142,955	825	0	0	742,966
1977	0	557	1,000	28,550	0	53,000	75,293	89,006	146,486	0	0	0	688,488
1978	0	840	558	39,468	0	65,000	71,867	115,754	127,998	0	0	0	607,799
1979	0	0	2,209	25,781	0	55,000	83,440	112,244	136,657	650	0	0	582,319
1980	0	0	999	13,463	0	5,500	115,655	80,943	135,899	0	0	0	558,019
1981	0	308	999	33,834	0	55,500	363,446	65,714	129,146	90	0	0	882,685
1982	0	0	2,163	50,183	0	70,000	245,349	45,644	160,009	156	0	0	763,593
1983	0	0	1,008	16,799	0	81,000	234,403	64,055	148,357	1,090	0	0	725,480
1984	0	0	0	15,182	0	57,000	387,209	76,900	133,235	862	0	0	915,313
1985	0	200	0	81,713	0	51,500	406,965	44,759	143,442	1,294	0	0	1,024,131
1986	0	0	0	43,771	0	0	472,362	22,362	114,189	2,389	0	0	890,448
1987	0	0	0	10,004	0	0	488,857	14,101	165,069	1,533	0	0	823,996
1988	0	0	2,938	25,003	0	0	330,042	16,042	55,201	4,323	0	0	616,755
1989	0	0	2,500	40,974	0	0	316,930	21,495	102,131	1,206	0	0	621,437
1990	0	0	0	2,521	0	0	444,986	20,157	100,280	2,689	0	0	718,943
1991	0	0	1,674	52,644	0	0	494,428	13,647	99,132	451	0	0	864,612
1992	0	0	2,000	112,476	0	0	427,714	23,786	71,940	0	0	0	770,915
1993	0	0	814	69,179	0	0	671,212	22,386	48,635	6,600	0	0	1,034,775
1994	0	0	0	116,840	0	0	323,083	8,680	37,611	2,102	0	0	626,731
1995	1,139	0	1,800	77,054	0	0	627,671	19,308	31,052	0	0	0	863,572
1996	1,500	0	1,880	90,571	0	0	508,950	15,714	23,867	0	0	0	1,048,136

Table C4 continued....

1997	0	0	0	0	0	0	0	0	0	0	0	0	..
1998	0	0	1,650	168,100	15,800	0	791,900	57,000	45,100	0	0	1,500	1,351,575
1999	0	0	1,900	124,300	21,000	0	816,100	91,400	41,200	0	0	1,600	1,374,025
2000	0	0	2,220	68,040	17,770	0	660,280	51,540	47,360	0	0	2,260	1,052,155
2001	0	0	3,100	72,500	22,700	0	1,284,750	64,300	35,950	0	0	4,200	1,689,255
2002	0	0	3,300	203,700	25,100	0	1,575,650	61,300	59,350	0	10	3,700	2,182,635
2003	0	0	5,000	173,400	25,910	0	2,207,190	68,960	48,400	0	0	4,850	2,799,750
2004	0	0	5,600	280,950	21,560	0	1,753,140	60,880	60,080	0	0	11,440	2,404,530
2005	0	0	7,310	245,080	20,380	0	1,574,050	62,320	65,350	0	0	18,790	2,423,950
2006	0	0	3,552	303,659	24,000	0	2,433,165	41,000	58,705	0	0	9,041	3,233,630
2007	0	0	7,873	354,903	21,452	0	1,896,343	45,648	86,461	0	0	17,039	2,804,163
2008	0	0	0	174,729	47,821	0	1,160,543	4,494	48,575	0	0	25,800	1,775,616
Totals:													
1970-79	0	7,908	70,745	414,038	0	565,856	957,549	977,335	1,345,087	2,406	0	0	7,008,218
1980-89	0	508	10,607	330,926	0	320,500	3,361,218	452,015	1,286,678	12,943	0	0	7,821,858
1990-99	2,639	0	11,718	813,685	36,800	0	5,106,044	272,078	498,817	11,842	0	3,100	8,653,284
2000-08	0	0	37,955	1,876,961	226,693	0	14,545,111	460,442	510,231	0	10	97,120	20,365,684
1970-2008	2,639	8,416	131,025	3,435,610	263,493	886,356	23,969,922	2,161,870	3,640,813	27,191	10	100,220	43,849,044

Source: Assembled from <http://www.crownminerals.govt.nz/cms/minerals/facts-and-figures>

Table C5: Value of Mining Output - summary data, \$000

Calendar years	2005	2006	2007	2008
Gold	237,811	250,431	329,452	626,028
Silver	13,980	16,056	6,165	18,964
Ironsand	41,423	47,937	42,153	82,009*
Limestone	67,121	79,300	83,813	536,503
Rock, sand and gravel	442,680	442,992	461,187	
Other non-metallic minerals	36,092	35,694	39,059	
Coal	507,912	678,000	678,000	na
Total	1,347,020	1,550,411	1,639,829	na
Imputed value of ironsand output	30,708	36,713	18,542	77,184
Total value of mining incl ironsand	1,377,728	1,587,124	1,658,371	na

* Imputed using output volume and the IMF iron ore price index.

Source: Assembled from Crown Minerals website.

Table C6: Value of output - Detailed data, \$000

		2005	2006	2007	2008
Metals					
	Gold	237,811	250,431	329,452	626,028
	Silver	13,980	16,056	6,165	18,964
	Cadmium	0	0	0	0
	Copper	0	0	0	0
	Ironsand	41,423	47,937*	42,153*	82,009*
	Tungsten Ore	0	0	0	0
	Zinc	0	0	0	0
	Lead	0	0	0	0
	Total	293,215	314,424	377,769	727,001
Non Metals					
	Amorphous silica	545	4,600	4,050	
	Bentonite	2,150	806	1,985	
	Building and dimension stone	4,303	4,980	4,592	
	Clay for brick, tiles etc	365	415	4,442	
	Clay for pottery and ceramics	10,091	10,552	11,253	
	*Decorative pebbles including scoria	7,639	3,764	2,483	
	Diatomite	22	50	12	
	Dolomite	0	907	6,914	
	Dolomite for agriculture	0	883	1,264	
	Dolomite for industry	0	24	5,650	
	Greenstone/pounamu	0	0	0	
	Limestone and marl for cement	12,441	12,279	12,838	
	Limestone for agriculture	42,287	39,335	39,718	
	Limestone for industry	12,394	27,687	31,258	
	Limestone for roads	0	0	0	
	Other	0	1,078	750	
	Marble	0	0	0	
	Magnesite	0	0	0	
	Perlite	159	75	157	
	Pumice	2,582	2,660	3,175	
	*Recycled Material	364	576	15	
	Rock for reclamation & protection	8,413	9,666	5,078	
	Rock, sand and gravel for building	142,140	118,339	133,209	
	Rock, sand and gravel for roading	243,961	255,781	273,303	
	*Rock, sand, gravel & clay for fill	28,029	26,266	24,778	
	Salt	0	0	0	
	Sand for industry	20,137	32,941	24,819	
	Serpentine	1,570	2,132	2,910	
	Silica Sand	4,327	3,781	4,139	
	Sulphur	0	0	0	
	Talc	0	0	0	
	*Zeolite	1,974	319	338	
	Total	545,893	557,987	584,060	536,503
Coal					
		507,912	678,000	678,000	
GRAND TOTAL		1,347,020	1,550,411	1,639,829	
	Total excl coal	839,108	872,411	961,829	1,263,504
National accounts gross value March year 2007			2,170,000		

* Estimated

Source: Assembled from <http://www.crownminerals.govt.nz/cms/minerals/facts-and-figures>.

Table C7: FOB values of mining exports

	Mining exports, \$million										Total commodity exports	International tourism earnings	Total NZ export earnings including international tourism
	Gold	Silver	Iron ore	Coal	Stone	Total non-oil	Oil	LPG	Total oil and gas	Total mining incl oil and gas			
HS Codes:	710812	710691	260111	2701 & 2702 & 2703	6801 & 6802 & 6803 & 6815		2709 & 2710	2711			\$million	\$million	\$million
1988	14.8	0.4	18.7	29.2	1.1	64.2	151.3	0.3	151.6	215.8	13,091		
1989	22.5	1.0	21.2	45.6	0.4	90.6	251.0	1.1	252.1	342.8	14,390		
1990	13.8	0.2	17.6	33.4	0.4	65.4	560.2	2.8	563.0	628.4	15,097		
1991	62.0	0.3	19.3	58.1	1.3	141.0	458.8	7.3	466.2	607.1	15,952		
1992	155.3	0.0	28.5	75.0	0.7	259.5	366.8	8.3	375.1	634.6	17,482		
1993	207.4	0.0	25.6	78.6	0.6	312.2	398.4	6.9	405.3	717.6	18,804		
1994	182.1	0.0	24.4	84.0	0.7	291.3	319.1	5.5	324.6	615.8	19,819		
1995	243.3	0.1	19.0	96.6	1.4	360.4	225.9	4.2	230.1	590.5	20,057		
1996	194.4	0.0	21.5	121.6	1.5	339.1	344.1	12.0	356.1	695.2	20,312		
1997	172.1	0.0	11.4	98.1	0.9	282.5	376.3	21.2	397.6	680.1	20,919		
1998	107.2	0.0	18.7	95.8	1.3	222.9	352.2	17.8	370.0	592.9	21,722		
1999	108.3	0.0	30.7	98.7	1.1	238.8	418.8	23.5	442.3	681.1	22,608	4,950	27,558
2000	164.3	0.0	19.1	112.6	1.2	297.3	683.3	37.8	721.1	1,018.4	28,103	5,923	34,025
2001	224.1	0.0	23.1	152.4	5.1	404.7	656.1	37.1	693.2	1,097.8	31,576	6,763	38,339
2002	237.1	0.0	21.7	156.0	10.6	425.5	520.4	27.3	547.7	973.1	29,821	7,093	36,914
2003	221.6	0.0	12.8	138.4	12.1	384.9	373.2	10.0	383.2	768.0	27,307	7,567	34,874
2004	237.0	0.1	15.4	173.2	4.3	429.9	391.4	7.4	398.7	828.7	29,509	7,751	37,261
2005	244.6	0.1	17.1	294.7	5.3	561.8	440.5	6.8	447.3	1,009.1	29,472	8,234	37,706
2006	285.5	0.1	19.2	369.6	5.2	679.6	544.4	4.8	549.2	1,228.8	32,718	8,563	41,281
2007	269.9	0.1	13.3	138.3	7.5	429.0	1,457.3	0.3	1,457.7	1,886.7	35,030	8,982	44,012
2008	386.9	0.0	42.9	..	14.6	444.4	2,924.8	1.1	2,925.8	3,370.3	41,168	9,400	50,568
2009	541.6	100.3	27.2	..	12.2	681.3	1,853.3	0.9	1,854.2	2,535.5	37,776	9,313	47,089

Source: Infoshare <http://www.stats.govt.nz/infoshare/TradeVariables.aspx?DataType=TEX> Infoshare Table ref TEX003F.

Appendix D Employment in Mining

Table D1: Jobs in Mining Sector according to LEEDS database, ANZSIC06

	Coal, Oil, Gas and Metal Ore Mining	Construction Material Mining	Other Non- Metallic Mineral Mining and Quarrying	Exploration and Other Mining Services	Mining total	Total All Industries	Mining % of NZ total
2000	1,278	1,578	130	185	3,170	1,434,513	0.22
2001	1,183	1,575	113	253	3,123	1,470,018	0.21
2002	1,248	1,585	80	360	3,273	1,521,663	0.22
2003	1,375	1,605	79	448	3,506	1,569,803	0.22
2004	1,373	1,568	74	588	3,601	1,632,648	0.22
2005	1,425	1,615	84	780	3,904	1,694,470	0.23
2006	1,390	1,628	93	1,150	4,260	1,737,695	0.25
2007	1,378	1,725	73	1,358	4,533	1,778,420	0.25
2008	1,555	1,765	81	1,618	5,019	1,816,318	0.28

Source: Infoshare table LED020AA ANZSIC06 Level 3 data.

:

Employment in mining sector and wages						
	Mining					
	Wages and Salaries		Self-Employment		Total Earnings	
Measures	Count of people	Median earnings, \$	Count of people	Median earnings, \$	Count of people	Median earnings, \$
Tax year						
2000	3,498	39,350	231	33,170	3,729	39,190
2001	3,282	39,870	225	39,040	3,507	39,830
2002	3,624	41,950	228	38,850	3,852	41,900
2003	3,939	44,610	216	49,400	4,155	44,830
2004	4,008	47,780	222	39,480	4,227	47,680
2005	4,365	50,110	234	42,960	4,599	49,850
2006	4,806	52,480	246	45,080	5,055	52,400
2007	5,382	55,630	273	41,990	5,652	55,020
2008	5,835	57,660	276	41,900	6,111	57,280

Appendix E

Capital Stock and Overseas Ownership: Mining including Petroleum

The national accounts provide data on the net capital stock in mining and other sectors, in current-price and constant-price terms.

Table E1
Current-price Gross Fixed Capital Formation, Depreciation, cumulative capital investment, reported Net Capital Stock at replacement value, and New Zealand total Net Capital Stock

March years	Gross fixed capital formation \$m	% of NZ total GFCF	Depreciation \$m	Cumulative calculation of net capital \$m: previous year's (6) + (1) - (3)	Increases in value of net capital stock not due to investment and depreciation, \$m	Net capital stock \$m		
						Mining	New Zealand total	Mining %
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1972	14	0.9	13	147		147	15,534	0.9
1973	22	1.2	16	148	25	173	17,544	1.0
1974	14	0.6	19	154	45	199	20,551	1.0
1975	37	1.4	23	149	106	255	26,535	1.0
1976	171	5.2	29	163	291	454	33,929	1.3
1977	214	5.9	42	305	402	707	41,122	1.7
1978	240	6.6	58	477	516	993	48,041	2.1
1979	144	3.7	77	659	554	1,213	56,372	2.2
1980	88	2.1	93	726	674	1,400	65,593	2.1
1981	99	2.0	111	721	900	1,621	77,529	2.1
1982	109	1.6	123	709	1,067	1,776	92,697	1.9
1983	102	1.3	125	695	1,086	1,781	102,782	1.7
1984	249	2.7	132	672	1,277	1,949	111,319	1.8
1985	236	2.2	155	789	1,396	2,185	126,702	1.7
1986	347	2.7	177	870	1,594	2,464	149,045	1.7
1987	512	3.9	202	1,040	1,879	2,919	169,226	1.7
1988	455	3.2	246	1,350	1,967	3,317	183,510	1.8
1989	389	2.8	282	1,559	2,007	3,566	195,316	1.8
1990	223	1.5	311	1,666	1,943	3,609	206,872	1.7
1991	610	4.1	328	1,578	2,385	3,963	215,123	1.8
1992	603	4.8	374	1,860	2,371	4,231	218,615	1.9
1993	383	2.9	405	2,089	2,157	4,246	223,751	1.9
1994	252	1.6	415	2,067	2,065	4,132	236,171	1.7
1995	253	1.4	414	1,904	2,126	4,030	252,282	1.6
1996	415	2.0	406	1,743	2,335	4,078	266,465	1.5
1997	241	1.1	406	1,752	2,190	3,942	277,299	1.4
1998	115	0.5	404	1,587	2,111	3,698	285,281	1.3
1999	301	1.5	394	1,298	2,380	3,678	293,408	1.3
2000	511	2.2	402	1,205	2,735	3,940	306,604	1.3
2001	336	1.4	423	1,314	2,712	4,026	321,884	1.3
2002	479	1.8	420	1,227	2,945	4,172	338,095	1.2
2003	614	2.2	421	1,286	3,108	4,394	359,054	1.2
2004	812	2.6	439	1,479	3,434	4,913	392,980	1.3
2005	661	1.9	478	1,852	3,551	5,403	431,543	1.3
2006	698	1.8	517	2,035	3,878	5,913	470,116	1.3
2007	1,328	3.4	539	2,216	4,463	6,679	504,214	1.3

Sources: Infoshare tables SNC016AA and SNC034AA, and Statistics New Zealand [National Accounts: Year ended March 2009 – Capital stock – Tables](#).

Because the industry's capital stock is recorded at replacement cost, there is a major difference between the cumulative amount actually spent on investment and the reported total capital. Effectively inflation is credited as if it corresponds to actual resources committed. A standard historic-cost accounting approach would yield the cumulative GFCF series in Figure E1..

Figure E1

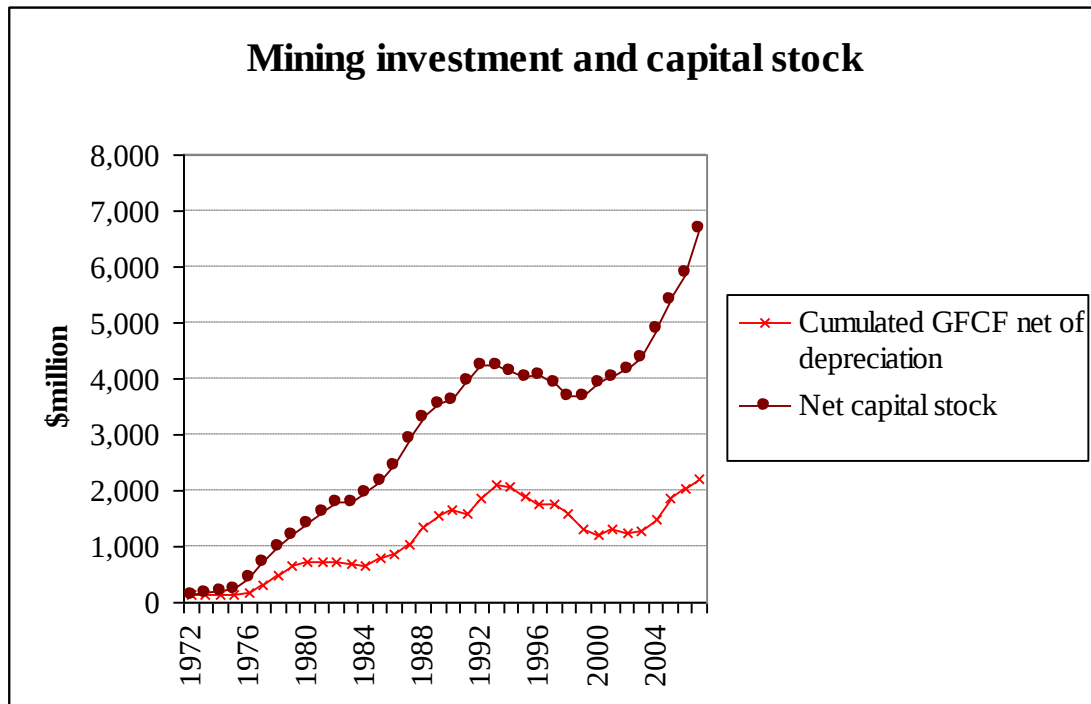


Table E2
Constant-price productive capital stock, 1995/96 prices, \$ million

	Mining	NZ Total	Mining %
<i>SNCA ref:</i>	<i>S5RK95BA</i>	<i>S5RK95ZZ</i>	
1972	1,301	160,259	0.8
1973	1,365	169,582	0.8
1974	1,358	180,540	0.8
1975	1,443	191,932	0.8
1976	2,001	201,151	1.0
1977	2,578	209,068	1.2
1978	3,119	214,209	1.5
1979	3,339	218,668	1.5
1980	3,393	221,699	1.5
1981	3,444	225,071	1.5
1982	3,480	230,299	1.5
1983	3,502	235,838	1.5
1984	3,752	242,297	1.5
1985	3,939	249,928	1.6
1986	4,217	258,673	1.6
1987	4,747	266,533	1.8
1988	5,115	274,825	1.9
1989	5,353	282,418	1.9
1990	5,373	290,143	1.9
1991	5,773	297,099	1.9
1992	6,123	300,215	2.0
1993	6,206	303,009	2.0
1994	6,119	308,166	2.0
1995	5,994	315,423	1.9
1996	6,020	323,955	1.9
1997	5,877	333,624	1.8
1998	5,582	342,690	1.6
1999	5,466	350,815	1.6
2000	5,550	360,330	1.5
2001	5,437	369,320	1.5
2002	5,450	379,707	1.4
2003	5,582	390,902	1.4
2004	5,888	404,657	1.5
2005	6,045	419,545	1.4
2006	6,204	435,633	1.4
2007	6,795	450,005	1.5
2008	..	464,970	
2009	..	476,992	

Source: Statistics New Zealand, national accounts statistics.

Table E3
International Investment Position Figures for Mining and the Total Economy

March years	2006 statistics	2007 statistics	2008 statistics	2009 statistics	Infoshare ANZSIC06	Infoshare ANZSIC96	Mining net capital stock	Overseas %
1999						1,140	3,678	31
2000						633	3,940	16
2001						..	4,026	
2002						..	4,172	
2003			4,247		4,247	4,247	4,394	97
2004	4,244				..	..	4,913	
2005					..	..	5,403	
2006	2,161		2,169	2,433	2,433	2,169	5,913	37
2007		2,414	2,415	2,687	2,687	2,415	6,679	36
2008			3,020	3,247	3,247	3,020		
2009				3,593	3,593			
Sources:								
<i>IIPA ref</i>	<i>S5IL1B</i>	<i>S5IL1B</i>	<i>S5IL1B06</i>	<i>S5IL1B06</i>			<i>S5NK90BA</i>	
<i>Infoshare table ref</i>					<i>IIP040AA</i>	<i>IIP024AA</i>	<i>SNC034AA</i>	

Sources: Statistics New Zealand, *Balance of Payments and International Investment Position*, annual tables.

The 2003 estimates look highly dubious, as does the 2000 figure.

Appendix F
Ministry of Economic Development data on royalties and levies, 2008/09 fiscal year

		Royalties \$		ERL \$	Totals \$
Petroleum			511,580,790	31,378,470	542,959,260.0
Coal			1,034,875	7,144,633	8,179,508.0
Other minerals					
	Gold/Silver	5,485,850			
	Aggregate	684,782			
	Clay	338			
	Decorative stone	19,817			
	Limestone	274,036			
	Silica sand	6,753			
	Zeolite and ironsand (residual)	71,530			
	Total		6,543,106		
Total			519,158,771	38,523,103.0	557,681,874.0

Source: http://www.med.govt.nz/templates/Page_42795.aspx .

Appendix G

Portraits of the Two Main Metals-Mining Sectors

Gold and silver

Gold and silver mining accounts for roughly 20% of the total value of mining output and the sub-sector is dominated by two large overseas-owned companies, Newmont and Oceana. 95% or more of total gold output and 99% of silver comes from these two companies' operations.

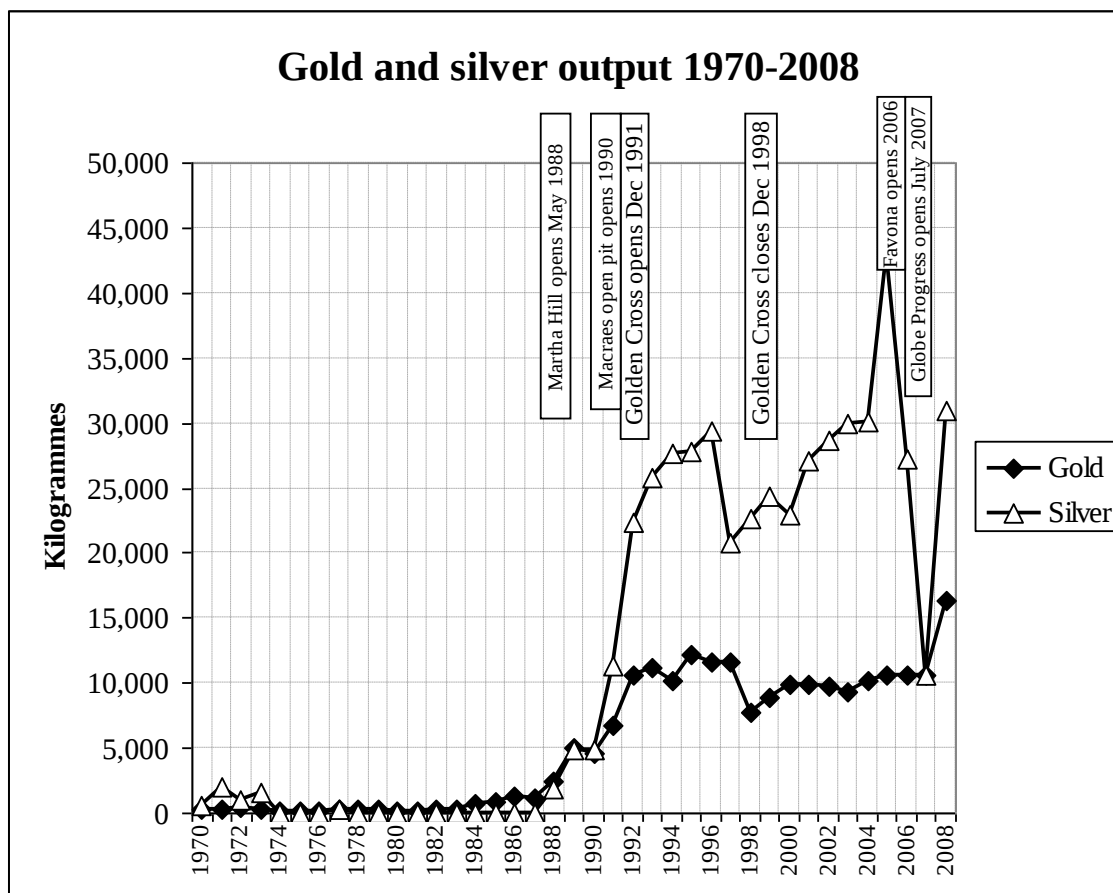
Table G1: Production of Gold and Silver by Source

Year	Mac-raes	Martha Hill	Other hard rock incl Globe Progress from 2007)	Placer West Coast	Placer Otago/South-land	Placer Marl-borough	Placer Tas-man	Placer BOP	Other (incl Golden Cross to 1998)	Total
Gold, kg										
1993	3,125	2,386							6,102.4	11,614.0
1994	1,571	2,289							6,320.1	10,180.1
1995	3,687	2,159							6,286.4	12,132.0
1996	4,197	2,556							4,818.8	11,571.3
1997										
1998	2,970	2,708							2,060.7	7,738.7
1999	3,886	3,261							1,756.1	8,903.1
2000	5,387	2,978		1,306.0	0.2				209.1	9,880.3
2001	5,274	3,488		0.9	0.2				1,087.6	9,850.7
2002	5,051	3,972	10.0	580.0	150.0				8.1	9,771.1
2003	5,426	3,417	10.0	396.0	57.0	0.0	0.0	0.0	0.0	9,305.0
2004	5,791	4,036	19.5	278.4	15.6	0.0	7.8	2.2	0.0	10,150.6
2005	5,199	5,172	17.3	168.4	9.0	0.0	17.6		0.0	10,583.2
2006	5,287	4,838	17.0	454.1	4.8	0.1	15.8		0.0	10,617.6
2007	4,481	4,594	1,082.7	337.0	3.9	124.4	15.6		0.0	10,638.3
2008	5,995	7,426	2,524.3	284.3	2.5	0.1	41.7		0.0	16,274.4
Silver, kg										
1993										25,796.6
1994										27,589.0
1995										27,794.0
1996										29,340.0
1997										20,740.0
1998										22,680.0
1999										24,340.0
2000	126.0	22,760.0							0.0	22,886.0
2001	148.0	26,970.0							2.0	27,120.0
2002	210.0	28,500.0							15.0	28,725.0
2003	246.0	29,677.0							9.0	29,930.0
2004	1,425.9	28,642.6							16.0	30,084.4
2005	187.7	42,799.2							16.2	43,003.0
2006	96.0	27,108.9							16.0	27,220.9
2007	168.0	10,337.4							62.5	10,567.9
2008	229.8	30,640.5							146.8	31,017.1

Source: Figures assembled from Crown Minerals website

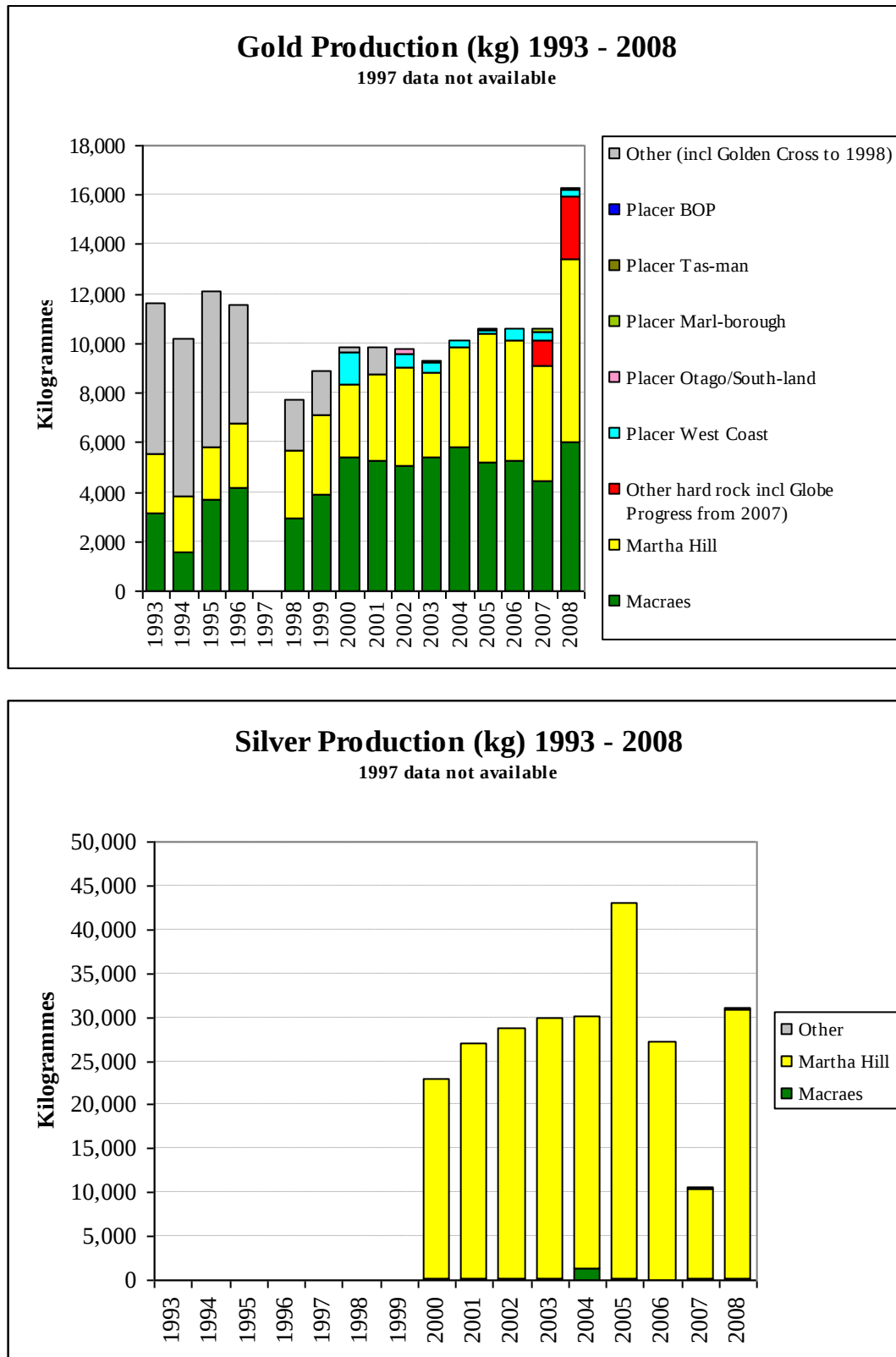
<http://www.crownminerals.govt.nz/cms/minerals/facts-and-figures>

Figure G1: Output of gold and silver mines, 1970-2008



Sources: Output data from <http://www.crownminerals.govt.nz/cms/minerals/facts-and-figures>. Mine opening and closing dates from media reports and websites.

Figure G2: Gold and Silver output by mine



Source: Crown Minerals annual production statistics, from
<http://www.crownminerals.govt.nz/cms/minerals/facts-and-figures>

Over the 39 years 1970-2008 a total of 207 tonnes of gold and 480 tonnes of silver were produced, mostly in the 1990s and 2000s. The dominance of large-scale opencast hard-rock mining is evident in the production statistics (Figures 9 and 10). Small-scale mines, mainly placer operations in the South Island, are only a tiny fringe. Only a single underground gold mine of any scale, Newmont's Favona mine at Waihi (included, with the open-pit Globe Progress mine near Reefton, in the "other hard rock" category in Figure G2), has been developed.

Both the record of the past two decades and the general information available about likely prospective new goldmining projects indicate that future large-scale developments in the conservation estate, as elsewhere in the country, will mostly be comparable to the big four open-pit ventures of the past thirty years. The best exemplar is probably the Golden Progress mine at Reefton, commissioned in 2007.¹² The ore has a grade of 2.6 grammes per tonne, which translates to 1.2 million tonnes per year of mined ore to produce 70,000 oz (1.984 tonnes) of gold. That is, about 600,000 tonnes of ore, plus much greater volumes (7-8 million tonnes¹³) of overburden, must be excavated to produce one tonne of gold worth (at the current price of around \$1,600 per ounce) about \$112 million. This represents a very large footprint on the landscape with major engineering works required to contain tailings. The Favona underground mine is stated to have a small footprint for its portal area (about 5 hectares)¹⁴ but tailings disposal requires substantially larger areas.

Ironsands

Ironsands account for about 3% of the value of mining output excluding oil and gas and are not well reported in the available statistics. Ironsand comes from two locations: Waikato North Head, which supplies the Glenbrook steelmill via a slurry pipeline; and Taharoa where ironsand is loaded directly onto ships for export. Since the mid 1980s output has been stationary, with a slight downward trend reflecting volumes from Taharoa.

¹² http://www.mineralswestcoast.co.nz/gold_oceana.html ;
<http://www.crownminerals.govt.nz/cms/news/2007/reefton-goldfield2019s-globe-progress-mine-officially-opened> ; <http://www.stracon.net/reefton.htm> .

¹³ <http://www.stracon.net/pdf/PS-Reefton.pdf> states that 1.2 million tonnes of material is mined per month.

¹⁴

Figure G3

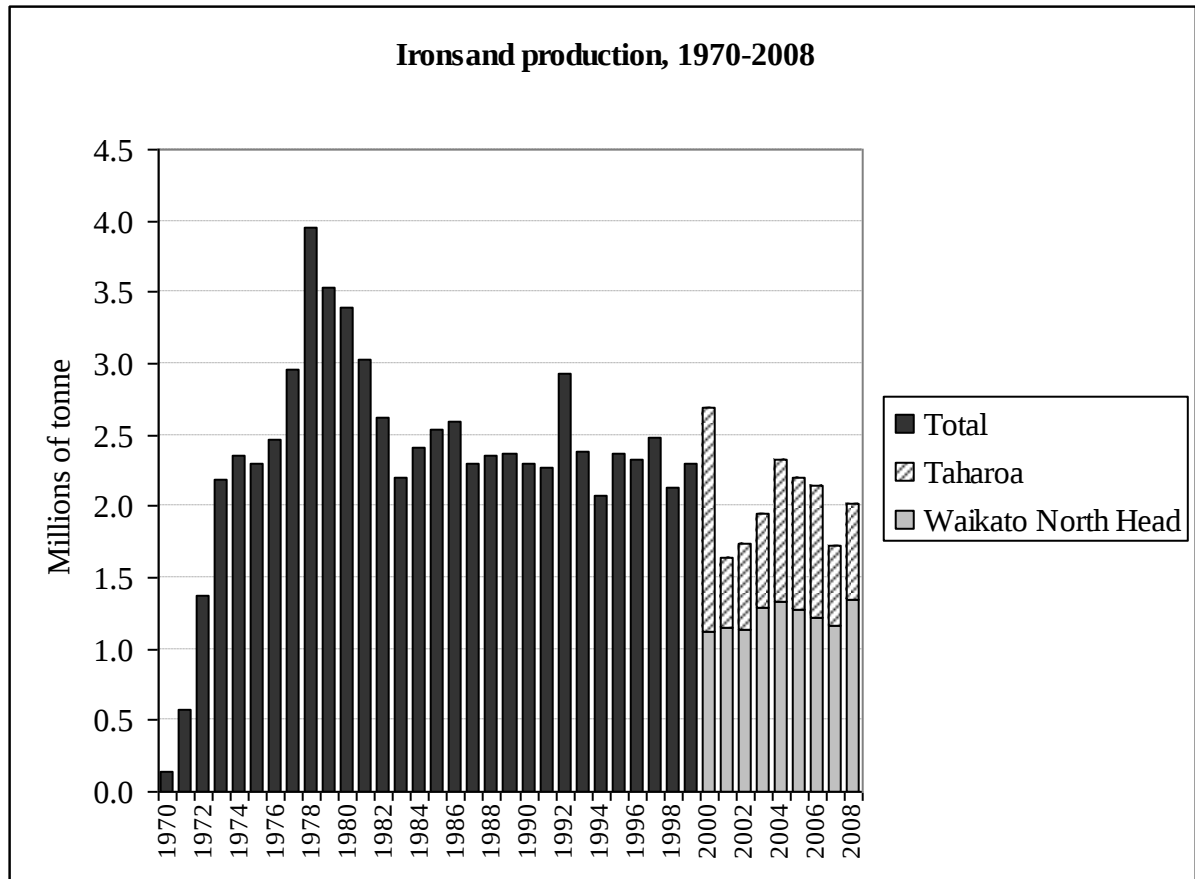
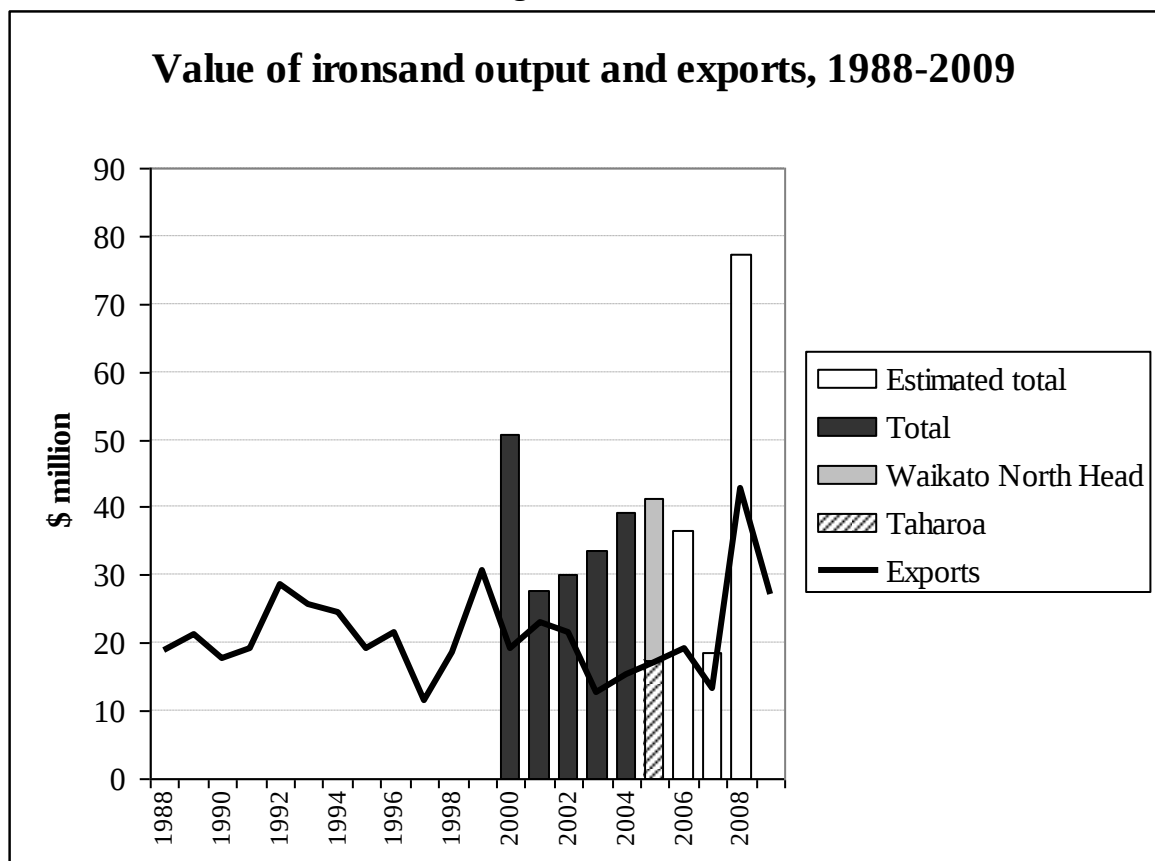


Figure G4



Crown Minerals figures for the value of ore produced at the two ironsand sites are available only for 2005, when the export value series for calendar years¹⁵ matched the Taharoa value shown for that year (Figure G4). Unfortunately, the Crown Minerals volume output data for Taharoa do not reconcile so neatly with the Statistics New Zealand export volume series. In the absence of anything better, it was decided to create a value-of-output series using the IMF's price index for iron ore combined with Crown Minerals output volume data for 2006-2008 to scale the 2005 figure for total value of output. The resulting estimates are set out in Table G2.

Table G2: Ironsand Output and Value Statistics, 1988-2009

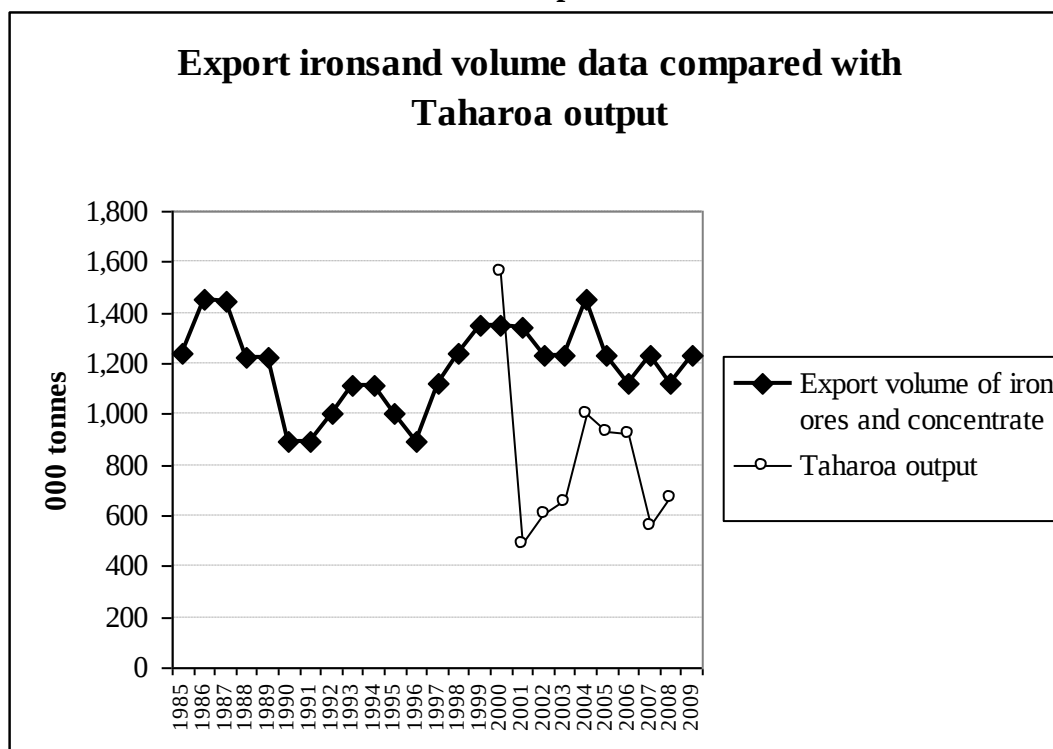
	Waikato North Head		Taharoa		Total		Export value (roughly = Taharoa)
	Tonnes	Value \$million	Tonnes	Value \$million	Tonnes	Value \$million	\$million
1988					2,351,303		18.7
1989					2,366,636		21.2
1990					2,296,153		17.6
1991					2,264,849		19.3
1992					2,934,111		28.5
1993					2,388,783		25.6
1994					2,080,115		24.4
1995					2,362,197		19.0
1996					2,333,715		21.5
1997					2,477,728		11.4
1998					2,124,330		18.7
1999					2,303,400		30.7
2000	1,124,840		1,566,940		2,691,780	50.9	19.1
2001	1,148,180		488,244		1,636,424	27.8	23.1
2002	1,131,250		608,700		1,739,950	30.2	21.7
2003	1,295,107		651,806		1,946,913	33.6	12.8
2004	1,329,280		1,000,137		2,329,417	39.2	15.4
2005	1,277,232	24.0	930,012	17.5	2,207,244	41.4	17.1
2006	1,225,305	<i>Withheld</i>	921,191	<i>Withheld</i>	2,146,496	47.9*	19.2
2007	1,160,928	<i>Withheld</i>	562,798	<i>Withheld</i>	1,723,726	42.2*	13.3
2008	1,347,495	<i>Withheld</i>	672,732	<i>Withheld</i>	2,020,227	82.0*	42.9
2009							27.2

* estimates using the IMF iron-ore price and current-year volume to scale the 2005 value figure.

Source: Assembled from <http://www.crownminerals.govt.nz/cms/minerals/facts-and-figures>. The 2005 value data appeared in the 2006 statistics, sheet titled "metallic minerals".

¹⁵ Infoshare Table ref TEX003F from <http://www.stats.govt.nz/infoshare/TradeVariables.aspx?DataType=TEX>, HS code 260111, "Iron ores and concentrates; non-agglomerated".

Figure G5: Comparison of Crown Minerals output data for Taharoa with Statistics New Zealand export volume for ironsand



The financial statements of New Zealand Steel Mining Ltd, which operates the two deposits, are available on the Companies Office website for the June years 2005-2007. They show gross revenue, depreciation, income tax (none) and net surplus, as set out in Table G3. There is no way to separate intermediate purchases from value added.

Table G3: Ironsands data from New Zealand Steel Mining financial statements

June years \$000	2004	2005	2006	2007
Operating revenue	33,113	54,555	62,371	54,322
Depreciation	2,761	755	661	824
Surplus before tax	-602	3,102	9,769	5,535
Income tax*	0	0	0	0
Net surplus	-602	3,102	9,769	5,535

* The financial statements contain a note that “there is no provision for taxation expense as the company has tax losses available”

Appendix H

Distribution of Mining Gross Output and Value Added

Table H1: National Accounts Data for the Mining Sector (including oil and gas), \$m

March years	Decomposition of Gross Output								Other items		
	Compensation of employees	Depreciation	Net surplus *	Gross surplus	Taxes on production net of subsidies	Value added	Intermediate purchases	Total gross output	Exports est	Gross fixed capital formation	Net capital stock
1972	21	13	16	29	-1	49	32	81		14	147
1973	24	16	17	33	-1	56	44	99		22	173
1974	29	19	5	24	0	53	47	99		14	199
1975	31	23	18	41	0	72	56	129		37	255
1976	40	29	25	54	-3	91	111	202		171	454
1977	49	42	71	113	3	164	161	326		214	707
1978	58	58	83	141	32	231	188	419		240	993
1979	60	77	37	114	30	203	203	407		144	1,213
1980	54	93	10	103	20	176	164	341		88	1,400
1981	67	111	38	149	20	236	253	489		99	1,621
1982	80	123	81	204	26	310	324	634		109	1,776
1983	95	125	172	297	43	434	402	837		102	1,781
1984	106	132	164	296	46	448	596	1,045		249	1,949
1985	121	155	242	397	56	574	641	1,215		236	2,185
1986	136	177	408	585	75	796	797	1,593		347	2,464
1987	179	202	330	532	87	798	863	1,661		512	2,919
1988	172	246	399	645	105	922	785	1,707		455	3,317
1989	166	282	317	599	120	885	646	1,531	238	389	3,566
1990	159	311	309	620	117	896	541	1,437	441	223	3,609
1991	174	328	595	923	128	1,224	619	1,843	624	610	3,963
1992	161	374	480	854	124	1,139	624	1,763	610	603	4,231
1993	199	405	484	889	117	1,205	780	1,985	597	383	4,246
1994	191	415	453	868	115	1,175	737	1,912	743	252	4,132
1995	212	414	375	789	105	1,106	826	1,932	631	253	4,030
1996	234	406	352	758	98	1,091	879	1,970	556	415	4,078
1997	212	406	533	939	110	1,261	887	2,147	722	241	3,942
1998	202	404	547	951	102	1,255	913	2,168	637	115	3,698
1999	201	394	445	839	103	1,143	833	1,976	604	301	3,678
2000	193	402	490	892	117	1,202	964	2,165	742	511	3,940
2001	185	423	661	1,084	119	1,388	1,286	2,675	1,074	336	4,026
2002	208	420	689	1,109	119	1,437	1,379	2,816	1,086	479	4,172
2003	253	421	692	1,113	123	1,489	1,350	2,840	929	614	4,394
2004	279	439	538	977	84	1,339	1,385	2,724	734	812	4,913
2005	309	478	670	1,148	96	1,553	1,703	3,257	858	661	5,403
2006	359	517	846	1,363	107	1,830	1,959	3,789	1,157	698	5,913
2007	429	539	984	1,523	95	2,047	2,449	4,496	1,149	1,328	6,679
2008									2,331		
2009									3,138		
SNCA series	S2ND10ZZT4	S3NK10ZZT4		S2NB02ZZT4	S2ND24ZZT4 & S2ND30ZZT4	S1NB01ZZT4	S1NP20ZZT4	S1NP10ZZT4			
Info-share table						SNC001AA	SNC001AA	SNC001AA	TEX002F	SNC016AA	SNC034AA

* Calculated as gross surplus minus depreciation.

Source: All except exports from Statistics New Zealand national accounts. Exports estimated from Infoshare Table TEX002F as the total of HS categories 260111, 2701, 2702, 2703, 2709, 2710, 2711, 6801, 682, 6803, 6815, 710812, and 710691. Note that this evidently overstates exports; the 1996 Inter-industry table shows exports of mining outputs totaling \$479 million, in comparison with the \$556 million figure in the table above, a 14% discrepancy. However, the series for 2000-2005 in Infoshare Table SNC097AA gives roughly similar orders of magnitude.

Table H2: Percentage Shares of Total Mining Output, from Table 1

	Compensation of employees	Depreciation	Net surplus	Gross surplus	Taxes on production net of subsidies	Value added	Intermedi ate purchases	Total gross output
1972	25.9	16.0	19.8	35.8	-1.2	60.5	39.5	100.0
1973	24.2	16.2	17.2	33.3	-1.0	56.6	44.4	100.0
1974	29.3	19.2	5.1	24.2	0.0	53.5	47.5	100.0
1975	24.0	17.8	14.0	31.8	0.0	55.8	43.4	100.0
1976	19.8	14.4	12.4	26.7	-1.5	45.0	55.0	100.0
1977	15.0	12.9	21.8	34.7	0.9	50.3	49.4	100.0
1978	13.8	13.8	19.8	33.7	7.6	55.1	44.9	100.0
1979	14.7	18.9	9.1	28.0	7.4	49.9	49.9	100.0
1980	15.8	27.3	2.9	30.2	5.9	51.6	48.1	100.0
1981	13.7	22.7	7.8	30.5	4.1	48.3	51.7	100.0
1982	12.6	19.4	12.8	32.2	4.1	48.9	51.1	100.0
1983	11.4	14.9	20.5	35.5	5.1	51.9	48.0	100.0
1984	10.1	12.6	15.7	28.3	4.4	42.9	57.0	100.0
1985	10.0	12.8	19.9	32.7	4.6	47.2	52.8	100.0
1986	8.5	11.1	25.6	36.7	4.7	50.0	50.0	100.0
1987	10.8	12.2	19.9	32.0	5.2	48.0	52.0	100.0
1988	10.1	14.4	23.4	37.8	6.2	54.0	46.0	100.0
1989	10.8	18.4	20.7	39.1	7.8	57.8	42.2	100.0
1990	11.1	21.6	21.5	43.1	8.1	62.4	37.6	100.0
1991	9.4	17.8	32.3	50.1	6.9	66.4	33.6	100.0
1992	9.1	21.2	27.2	48.4	7.0	64.6	35.4	100.0
1993	10.0	20.4	24.4	44.8	5.9	60.7	39.3	100.0
1994	10.0	21.7	23.7	45.4	6.0	61.5	38.5	100.0
1995	11.0	21.4	19.4	40.8	5.4	57.2	42.8	100.0
1996	11.9	20.6	17.9	38.5	5.0	55.4	44.6	100.0
1997	9.9	18.9	24.8	43.7	5.1	58.7	41.3	100.0
1998	9.3	18.6	25.2	43.9	4.7	57.9	42.1	100.0
1999	10.2	19.9	22.5	42.5	5.2	57.8	42.2	100.0
2000	8.9	18.6	22.6	41.2	5.4	55.5	44.5	100.0
2001	6.9	15.8	24.7	40.5	4.4	51.9	48.1	100.0
2002	7.4	14.9	24.5	39.4	4.2	51.0	49.0	100.0
2003	8.9	14.8	24.4	39.2	4.3	52.4	47.5	100.0
2004	10.2	16.1	19.8	35.9	3.1	49.2	50.8	100.0
2005	9.5	14.7	20.6	35.2	2.9	47.7	52.3	100.0
2006	9.5	13.6	22.3	36.0	2.8	48.3	51.7	100.0
2007	9.5	12.0	21.9	33.9	2.1	45.5	54.5	100.0

**Table H3: Distribution of Gross Output, New Zealand Economy as a Whole,
\$million**

March years	Decomposition of Gross Output								Other items		
	Compen- sation of employ- ees	Deprec- -iation	Net surplus *	Gross surplus	Taxes on product- ion net of subsidies	Value added	Inter- mediate purch- ases	Total gross output	Exports est	Gross fixed capital format- ion	Net capital stock
1972	3,400	774	2,067	2,841	466	6,707	6,856	13,563	1,536	1,526	15,534
1973	3,823	882	2,466	3,348	523	7,693	8,205	15,898	1,918	1,906	17,544
1974	4,510	1,060	2,849	3,909	541	8,961	9,672	18,632	2,198	2,204	20,551
1975	5,431	1,410	2,480	3,890	512	9,833	11,312	21,145	2,072	2,712	26,535
1976	6,274	1,843	2,418	4,261	566	11,101	13,821	24,923	2,617	3,307	33,929
1977	7,064	2,236	3,440	5,676	879	13,618	17,123	30,741	3,709	3,601	41,122
1978	8,102	2,613	3,522	6,135	1,013	15,250	18,859	34,109	4,072	3,626	48,041
1979	9,415	2,995	3,773	6,768	1,101	17,284	20,963	38,247	4,701	3,941	56,372
1980	10,977	3,418	4,342	7,760	1,400	20,137	25,271	45,407	5,897	4,132	65,593
1981	13,066	3,923	4,719	8,642	1,721	23,430	29,219	52,649	6,902	4,891	77,529
1982	15,754	4,547	6,173	10,720	1,936	28,410	35,904	64,314	8,140	6,855	92,697
1983	17,248	5,047	7,551	12,598	2,262	32,108	40,537	72,645	9,123	8,093	102,782
1984	17,589	5,534	9,939	15,473	2,709	35,772	44,455	80,226	10,372	9,081	111,319
1985	19,250	6,405	11,415	17,820	3,231	40,300	53,085	93,386	13,035	10,503	126,702
1986	22,675	7,522	12,627	20,149	3,840	46,665	60,986	107,651	13,777	12,636	149,045
1987	27,095	8,435	14,851	23,286	4,150	54,531	68,616	123,147	14,957	13,121	169,226
1988	30,240	8,913	15,900	24,813	4,325	59,378	74,194	133,572	16,451	14,411	183,510
1989	31,596	9,434	18,517	27,951	4,976	64,522	76,471	140,993	17,811	14,058	195,316
1990	32,533	9,990	19,670	29,660	5,307	67,500	80,765	148,265	18,943	15,249	206,872
1991	32,944	10,629	20,187	30,816	5,273	69,033	80,804	149,837	19,755	14,923	215,123
1992	32,605	11,260	20,033	31,293	5,063	68,960	81,539	150,499	21,488	12,524	218,615
1993	33,316	11,652	21,264	32,916	4,860	71,092	86,675	157,767	23,700	13,092	223,751
1994	34,842	12,009	25,101	37,110	4,944	76,895	93,659	170,554	25,085	15,564	236,171
1995	37,184	12,526	27,512	40,038	4,966	82,187	99,651	181,839	26,951	18,355	252,282
1996	39,450	13,112	29,715	42,827	5,153	87,429	104,423	191,853	27,125	20,600	266,465
1997	42,066	13,629	30,678	44,307	5,256	91,629	108,525	200,155	27,528	21,539	277,299
1998	43,784	14,125	31,773	45,898	5,489	95,172	111,427	206,599	28,531	21,408	285,281
1999	44,750	14,637	32,070	46,707	5,728	97,185	112,951	210,137	30,394	20,742	293,408
2000	45,845	15,476	35,770	51,246	5,926	103,017	123,448	226,466	33,526	22,888	306,604
2001	48,163	16,456	38,273	54,729	6,070	108,961	136,947	245,908	41,159	23,595	321,884
2002	51,762	17,251	41,815	59,066	6,315	117,143	145,194	262,336	43,694	25,969	338,095
2003	55,233	17,895	42,866	60,761	6,840	122,832	150,072	272,904	42,566	28,025	359,054
2004	59,500	18,902	45,809	64,711	7,200	131,411	154,824	286,236	40,734	31,676	392,980
2005	64,483	20,272	48,238	68,510	7,565	140,558	167,266	307,824	43,504	35,425	431,543
2006	69,394	21,909	49,168	71,077	7,964	148,435	179,256	327,691	43,932	38,556	470,116
2007	73,453	23,554	50,373	73,927	7,807	155,188	187,464	342,652	48,275	38,993	504,214
2008									51,536		
2009									56,916		
SNCA series	S2ND10BAT 4	S3NK10B AT4		S2NB02B AT4	S2ND24BAT 4 & S2ND30BAT 4	S1NB01BAT 4	S1NP20BAT 4	S1NP10BAT 4			
Info- share table						SNC001AA	SNC001AA	SNC001AA	TEX002F	SNC016A A	SNC034AA

Table H4: Percentage Shares of Total Economy-wide Output, from Table 3

	Compens- ation of employees	Depreciat- ion	Net surplus	Gross surplus	Taxes on production net of subsidies	Value added	Intermediate purchases	Total gross output
1972	25.1	5.7	15.2	20.9	3.4	49.5	50.5	100.0
1973	24.0	5.5	15.5	21.1	3.3	48.4	51.6	100.0
1974	24.2	5.7	15.3	21.0	2.9	48.1	51.9	100.0
1975	25.7	6.7	11.7	18.4	2.4	46.5	53.5	100.0
1976	25.2	7.4	9.7	17.1	2.3	44.5	55.5	100.0
1977	23.0	7.3	11.2	18.5	2.9	44.3	55.7	100.0
1978	23.8	7.7	10.3	18.0	3.0	44.7	55.3	100.0
1979	24.6	7.8	9.9	17.7	2.9	45.2	54.8	100.0
1980	24.2	7.5	9.6	17.1	3.1	44.3	55.7	100.0
1981	24.8	7.5	9.0	16.4	3.3	44.5	55.5	100.0
1982	24.5	7.1	9.6	16.7	3.0	44.2	55.8	100.0
1983	23.7	6.9	10.4	17.3	3.1	44.2	55.8	100.0
1984	21.9	6.9	12.4	19.3	3.4	44.6	55.4	100.0
1985	20.6	6.9	12.2	19.1	3.5	43.2	56.8	100.0
1986	21.1	7.0	11.7	18.7	3.6	43.3	56.7	100.0
1987	22.0	6.8	12.1	18.9	3.4	44.3	55.7	100.0
1988	22.6	6.7	11.9	18.6	3.2	44.5	55.5	100.0
1989	22.4	6.7	13.1	19.8	3.5	45.8	54.2	100.0
1990	21.9	6.7	13.3	20.0	3.6	45.5	54.5	100.0
1991	22.0	7.1	13.5	20.6	3.5	46.1	53.9	100.0
1992	21.7	7.5	13.3	20.8	3.4	45.8	54.2	100.0
1993	21.1	7.4	13.5	20.9	3.1	45.1	54.9	100.0
1994	20.4	7.0	14.7	21.8	2.9	45.1	54.9	100.0
1995	20.4	6.9	15.1	22.0	2.7	45.2	54.8	100.0
1996	20.6	6.8	15.5	22.3	2.7	45.6	54.4	100.0
1997	21.0	6.8	15.3	22.1	2.6	45.8	54.2	100.0
1998	21.2	6.8	15.4	22.2	2.7	46.1	53.9	100.0
1999	21.3	7.0	15.3	22.2	2.7	46.2	53.8	100.0
2000	20.2	6.8	15.8	22.6	2.6	45.5	54.5	100.0
2001	19.6	6.7	15.6	22.3	2.5	44.3	55.7	100.0
2002	19.7	6.6	15.9	22.5	2.4	44.7	55.3	100.0
2003	20.2	6.6	15.7	22.3	2.5	45.0	55.0	100.0
2004	20.8	6.6	16.0	22.6	2.5	45.9	54.1	100.0
2005	20.9	6.6	15.7	22.3	2.5	45.7	54.3	100.0
2006	21.2	6.7	15.0	21.7	2.4	45.3	54.7	100.0
2007	21.4	6.9	14.7	21.6	2.3	45.3	54.7	100.0

Appendix I
Distribution of Income Generated, non-petroleum and petroleum sectors
separately, 1996 and 2007

Table I1: Contribution to GDP: oil/gas and mining/quarrying

	Gross Domestic Product - product measure						
	Current Prices						
	Mining and Quarrying		Oil & Gas Exploration & Extraction		Total mining		NZ GDP at market prices \$million
March years	\$million	% of GDP at factor cost	\$million	% of GDP at factor cost	\$million	% of GDP at factor cost	
1987	216	0.38	582	1.03	798	1.41	56,770
1988	187	0.29	735	1.15	922	1.44	63,817
1989	164	0.24	721	1.05	885	1.29	68,647
1990	228	0.31	669	0.92	896	1.23	72,651
1991	237	0.32	987	1.33	1,224	1.64	74,468
1992	255	0.34	883	1.19	1,139	1.53	74,323
1993	310	0.40	895	1.17	1,205	1.57	76,632
1994	342	0.41	833	1.01	1,175	1.42	82,861
1995	388	0.44	718	0.81	1,106	1.24	88,878
1996	437	0.46	654	0.69	1,091	1.15	94,545
1997	414	0.42	847	0.85	1,261	1.27	99,171
1998	365	0.35	891	0.87	1,255	1.22	102,855
1999	312	0.30	831	0.79	1,143	1.09	104,638
2000	358	0.32	844	0.76	1,202	1.08	110,902
2001	419	0.36	970	0.83	1,388	1.18	117,165
2002	485	0.39	952	0.76	1,437	1.14	125,882
2003	503	0.38	986	0.74	1,489	1.12	132,425
2004	464	0.33	876	0.62	1,339	0.94	141,702
2005	583	0.38	970	0.64	1,553	1.02	151,701
2006	795	0.50	1,035	0.65	1,830	1.14	160,273
2007	890	0.53	1,157	0.69	2,047	1.22	168,328
SNCA series	S1NB01B01T4		S1NB01B02T4		S1NB01BAT4		S1NB01

Source: Statistics New Zealand national account statistics.

Table I2: 1996 Distribution of income generated in mining, two-subsector data

Year end March 1996, values (\$m)									
	Oil & gas exploration and extraction			Other mining			Total		
	\$ million	% of output	% of value-added	\$ million	% of output	% of value-added	\$ million	% of output	% of value-added
Intermediate consumption	371	35.9		717	53.4		1,088	45.8	
Value added (producer prices)	661	64.1	100.0	617	46.0	100.0	1,278	53.8	100.0
Compensation of employees	72	7.0	10.9	253	18.9	41.0	325	13.7	25.5
Operating surplus	256	24.8	38.7	194	14.5	31.5	450	19.0	35.2
Consumption of fixed capital	243	23.5	36.8	155	11.6	25.2	398	16.8	31.2
Other taxes on production	1	0.1	0.2	15	1.1	2.5	16	0.7	1.3
Subsidies	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Energy Resource Levy	88	8.5	13.3	5	0.4	0.9	93	3.9	7.3
Gross output at producer prices	1,032	100.0	156.1	1,342	100.0	217.5	2,374	100.0	

Table I3 Distribution of income in “mining and quarrying” and “oil and gas”, 2003

	Mining & quarrying			Oil and gas exploration and extraction			Total		
	\$million	% of output	% of value added	\$million	% of output	% of value added	\$million	% of output	% of value added
Intermediate consumption	672	57.6		679	40.6		1,352	47.6	
Value added (producer prices)	490	41.9	100.0	893	53.4	100.0	1,382	48.7	100.0
Compensation of employees	155	13.2	31.6	99	5.9	11.1	253	8.9	18.3
Operating surplus	196	16.8	40.0	494	29.6	55.3	690	24.3	49.9
Consumption of fixed capital	123	10.5	25.1	298	17.8	33.4	421	14.8	30.4
Other taxes on production	16	1.4	3.3	2	0.1	0.2	18	0.6	1.3
Subsidies	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Energy Resource Levy	6	0.5	1.2	100	6.0	11.1	105	3.7	7.6
Gross output at producer prices	1,168	100.0		1,671	100.0		2,839	100.0	

Source: Statistics New Zealand 2003 Use Table at

http://www.stats.govt.nz/browse_for_stats/economic_indicators/nationalaccounts/supply-use-tables-yr-end-mar-03.aspx

Table I3: 2007 National-accounts data for two sub-sectors

Industry description	Mining and quarrying			Oil and gas exploration and extraction			Total		
<i>Industry grouping</i>	<i>B011, B012, B019</i>			<i>B021, B022</i>					
	\$ million	% of output	% of value-added	\$ million	% of output	% of value-added	\$ million	% of output	% of value-added
Intermediate consumption	1,283	59.1%		1,167	50.2%		2,450	54.5%	
Value added (producer prices)	887	40.9%	100.0	1,160	49.9%	100.0	2,047	45.5%	100.0
Compensation of employees	282	13.0%	31.8%	147	6.3%	12.7%	429	9.5%	21.0%
Operating surplus	406	18.7%	45.8%	579	24.9%	49.9%	985	21.9%	48.1%
Consumption of fixed capital	161	7.4%	18.2%	378	16.3%	32.6%	539	12.0%	26.3%
Other taxes on production	31	1.4%	3.5%	3	0.1%	0.3%	34	0.8%	1.7%
Subsidies	0	0.0%	0.0%	0	0.0%	0.0%	0	0.0%	0.0%
Energy Resources Levy	8	0.4%	0.9%	53	2.3%	4.6%	61	1.4%	3.0%
Gross output at producer prices	2,170	100.0%		2,326	100.0%		4,496	100.0%	

Source: Statistics NZ 2007 supply and use tables,

http://www.stats.govt.nz/browse_for_stats/economic_indicators/nationalaccounts/supply-use-tables-yr-end-mar-07.aspx

Appendix J

Detailed estimates of income distribution and retention of gross income in the New Zealand economy.

Because of confidentiality concerns, Statistics New Zealand does not publish, nor make available online or on request, the data needed to analyse the economic performance of the individual mining sectors under study here. In this appendix, data from various sources is brought together to construct estimated figures for quarrying, coal, ironsands, and gold and silver mining (Tables J1-J4). In Table J5 the four sets of detailed subsector estimates are added up and reconciled with the national accounts aggregates for mining as a whole by inserting a column of estimated figures for the “services to mining” subsector..

The procedure used for this reconciliation was to assume that all of the gross output in the aggregated total for “Mining and quarrying including services to mining” that had not been accounted for in the four mining subsectors represented the “services to mining” subsector. The 1996 input-output table ratios for services to mining were then applied to this total output figure to estimate intermediate purchases and gross value added for “services to mining”, resulting in estimates which left only small errors and omissions unaccounted for (far right-hand column of Table J5). The 1996 I-O ratios were used also to estimate exports, imported intermediates, and the depreciation share of gross value added for “service to mining”. The main components of value added for services to mining – compensation of employees, taxes on production, and gross operating surplus – were assumed equal to the residuals when the other four subsectors were subtracted from the ANZSIC Level 2 total for “mining and quarrying including services to mining”. These estimates added up within a small margin of error to the value-added estimate derived from the total-output figure.

A problem arose with how to allocated “other taxes on production”, which do not include the Energy Resources Levy. An aggregate figure is given in the ANZSIC Level 2 national accounts data provided on request by Statistics New Zealand, but no information was located on how to allocate this across the Level 3 sectors. The solution adopted was to do a pro-rata allocation to coal, quarrying, and gold and silver, on the basis of relative gross value added, with \$1 million allocated to ironsands and the remainder to service to mining.

There was also a problem with the exports of “services to mining”, for which no 2007 figure could be located. For lack of anything better it was assumed that the export share of total output for this sector was the same as shown in the 1996 input-output tables. The result is a figure for exports, and hence for foreign-exchange contribution, which looks remarkably high and is almost certainly an overestimate.

Table J1: Coal Mining

	1996	% of sales from Solid Energy Annual Reports	Import ratio from BERL	2007 estimates
Output 000 tonnes	3,569			5,535
Gross revenue (marked up for ERL)	252			678
Exports	92		371	371
Non-export	159		307	307
Intermediate purchases	130	68.4		464
Direct imports	11		41	41
Local purchases in first round	119		423	423
Indirect (second-round) imports	20	73	0.158	73
Local purchases minus second-round imports	99	350		350
Gross value added (contribution to GDP)	121	31.6		214
Compensation of employees	43	11.1	75	75
Taxes on production incl ERL	13	1.3*	14	14
Gross operating surplus	66	19.2	125	125
Depreciation	28	43		43
Net surplus	38	82		82
Income tax	34	5.0		34
Royalties	2	0.3		2
After-tax net surplus	46	7.6		52
Net value added (depreciation treated as an intermediate input)	87			171
% New Zealand ownership estimated	100%			100%
Income retained in the New Zealand economy to second round of expenditure				564
% of gross income spent in New Zealand				83%
Income flowing offshore to imports and profits				114
Export earnings				371
Net foreign-exchange contribution \$ million				257
Net foreign-exchange contribution % of gross sales				38%
Government total tax revenue				50
% of gross income captured by taxes			7.4	6.6
% of value added captured by taxes			23.4	20.9
Percentage shares of gross value added				
Compensation of employees	35.6			35.0
Taxes on production incl ERL	10.6			6.7
Gross operating surplus	54.6			58.3
Depreciation	23.2		20.1	20.1
Net surplus	31.5		38.2	40.8
Income tax and royalties		16.7		16.7
After-tax net surplus		21.5		24.1
Percentage shares of gross output				
Intermediate purchases	51.6			68.4
Gross value added	48.0			31.6
Compensation of employees	17.1			11.1
Taxes on production (royalties and ERL)	5.1			2.1
Gross operating surplus	26.2			18.4
Depreciation	11.1		6.3	6.3
Net surplus	15.1		12.1	12.9
Income tax and royalties		5.3		5.3
After-tax net surplus		6.8		7.6

- Excl ERL

Sources for Table J1: Output volume and 2007 gross value from Crown Minerals website <http://www.crownminerals.govt.nz/cms/minerals/facts-and-figures> converted from calendar-year to March-year estimates.
Exports 2007 from Statistics New Zealand Infoshare export statistics.
Royalties from Treasury website, converted from June to March years.
1996 distribution from Statistics New Zealand input-output tables
http://www.stats.govt.nz/methods_and_services/access-data/tables/inter-industry-study.aspx.
2007 distributional ratios estimated from Solid Energy *Annual Report* 2007 and 2008.
Import ratios provided by BERL.
Income tax is Solid Energy's reported tax marked up by 100/80 to adjust for its share of total output.

Table J2
Quarrying: estimates for year ended March 2007

Output 000 tonnes	31,857
Gross revenue (marked up for ERL)	565
Exports	4
Non-export	560
Intermediate purchases	318
Direct imports (assumed 8.8% of intermediates)	28
Local purchases in first round	290
Indirect (second-round) imports (assuming import multiplier 2.8)	50
Local purchases minus second-round imports	240
Gross value added (contribution to GDP)	247
Compensation of employees	85
Taxes on production incl ERL	9
Gross operating surplus	153
Depreciation	39
Net surplus	113
Income tax	34
Royalties	0
After-tax net surplus	79
Net value added (depreciation treated as an intermediate input)	207
% New Zealand ownership estimated	80%
Income retained in the New Zealand economy to second round of expenditure	463
% of gross income retained	82.0
% of export income retained	..
Export earnings	4
Net foreign-exchange contribution \$ million	-98
Net foreign-exchange contribution % of gross sales	-17%
Government total tax revenue	43
% of gross income captured by taxes	7.5
% of value added captured by taxes	17.3
Percentage shares of gross value added	
Compensation of employees	34.6
Taxes on production incl ERL	3.5
Gross operating surplus	61.9
Depreciation	15.9
Net surplus	46.0
Income tax and royalties	17.3
After-tax net surplus	32.2
Percentage shares of gross output	
Intermediate purchases	56.3
Compensation of employees	15.1
Taxes on production (royalties and ERL)	1.5
Gross operating surplus	27.0
Depreciation	7.0
Net surplus	20.1
Income tax and royalties	6.0
After-tax net surplus	14.1

Sources for Table J2: Output volume and 2007 gross value from Crown Minerals website <http://www.crownminerals.govt.nz/cms/minerals/facts-and-figures> converted from calendar-year to March-year estimates.
Exports 2007 from Statistics New Zealand Infoshare export statistics.
Royalties from Treasury website, converted from June to March years.
Distribution data from NZIER, *Economic Analysis of the Quarrying and Aggregate Production Industry: Report to the Aggregate and Quarry Association of New Zealand*,

November 2008, <http://www.aqa.org.nz/Publications.asp>, marked up to match 2007 gross output (NZIER used the 2006 figure).
Distribution data estimated from financial statements of Oceana Gold (NZ) Ltd and Newmont Waihi Gold Ltd on the Companies Office website.
Income tax assumed 30% on net surplus, in absence of actual data.

Table J3
Gold and silver mining

	BERL Golden Cross estimates: 8-year totals	2005	2006	2007	2008
Output tonnes					
Gold		10.3	10.6	10.6	12.0
Silver		33.3	39.1	23.1	15.7
Crown Minerals valuation of total output	443	238	255	284	413
Gross revenue of Oceana and Newmont		236	241	266	294
Exports		245	253	264	333
Non-export		-7	3	19	80
Intermediate purchases	276	120	96	129	140
Direct imports (est 9% of intermediates)	34	11	9	12	13
Local purchases in first round	242	110	88	118	127
Indirect (second-round) imports assuming multiplier of 2.8	81	20	16	21	23
Local purchases minus second- round imports	161	90	72	97	105
Distribution:					
Gross value added (contribution to GDP)	167	115	144	154	154
Compensation of employees	71	26	30	32	38
Taxes on production		..	..	5	..
Gross operating surplus		89	115	117	116
Depreciation		71	68	69	100
Net surplus	96	18	46	48	16
Income tax	43	10	3	10	0
Royalties		1	2	3	10
After-tax net surplus	53	7	41	36	7
Net value added (depreciation treated as an intermediate input)		44	76	86	54
Balance of payments impact:					
% New Zealand ownership estimated	na	10%	10%	10%	10%
Income retained in the New Zealand economy to second round of expenditure	275	135	118	157	163
% of gross income spent in New Zealand	62.1%	56.9%	46.1%	55.4%	39.4%
Income flowing offshore to imports and profits		102	138	126	250
Export earnings		245	253	264	333
Net foreign-exchange contribution \$ million		142	115	138	83
Net foreign-exchange contribution % of gross sales		60%	48%	49%	28%
Government total revenue	43.0	11	5	15	3
% of gross income captured by taxes	9.7	4.7	1.9	2.2	0.7
% of value added captured by taxes	25.7	9.6	3.4	4.9	1.8
Percentage shares of gross value added					
Compensation of employees	42.5	22.9	20.6	21.0	24.5
Taxes on production incl ERL	..	..	..	3.5	..
Gross operating surplus	57.5	77.1	79.4	75.6	75.5
Depreciation	0.0	61.5	47.3	44.5	64.8
Net surplus	0.0	15.6	32.2	31.1	10.6
Income tax and royalties	25.7	9.6	3.4	8.0	1.8
After-tax net surplus	31.7	5.9	28.7	23.1	4.2
Percentage shares of gross output					
Intermediate purchases	62.3	50.6	37.8	45.6	33.8
Gross value added	37.7	48.5	56.4	54.4	37.3
Compensation of employees	16.0	11.1	11.6	11.4	9.2
Taxes on production incl ERL	..	..	..	1.9	..
Gross operating surplus		37.4	44.8	41.1	28.1
Depreciation		29.8	26.7	24.2	24.2
Net surplus	13.0	7.5	18.1	16.9	4.0
Income tax and royalties	9.7	4.7	1.9	4.4	0.7
After-tax net surplus	12.0	2.9	16.2	12.6	1.6

Sources for Table J3: BERL eight-year total estimates for the expected life of the Golden Cross mine, based on the 1986/87 input-output tables, from Adolf Stroombergen, *The Contribution of Gold Mining to the New Zealand Economy – A Study of the Golden Cross Project*, Wellington: BERL, June 1990.
Output volume and value 2005-2008 from Crown Minerals website <http://www.crownminerals.govt.nz/cms/minerals/facts-and-figures>, converted from calendar-year to March-year estimates.
Exports 2005-2008 from Statistics New Zealand Infoshare export statistics.
Royalties from Treasury website, converted from June to March years.
Note that years 2005, 2006 and 2008 lack data on production tax, which shifts the proportions somewhat.

Table J4
Ironsands 2007 estimates

Output 000 tonnes	1,724
Gross revenue	46.5
Exports	20.1
Non-export	26.4
Intermediate purchases	26.2
Direct imports	2.3
Local purchases in first round	23.9
Indirect (second-round) imports	4.1
Local purchases minus second-round imports	19.8
Gross value added (contribution to GDP)	20.3
Compensation of employees	11.6
Taxes on production (royalties and ERL)	1.0
Gross operating surplus	7.7
Depreciation	0.7
Net surplus	7.0
Income tax	0.0
Royalties	0.1
After-tax net surplus	6.9
Net value added (depreciation treated as an intermediate input)	19.6
% New Zealand ownership estimated	0%
Income retained in the New Zealand economy to second round of expenditure	32
% of gross income spent in New Zealand	70%
Income flowing offshore to imports and profits	14
Export earnings	20
Net foreign-exchange contribution \$ million	6
Net foreign-exchange contribution % of gross sales	13%
Government total revenue	1.1
% of gross income captured by taxes	2.3%
% of value added captured by taxes	5.2%
Percentage shares of gross value added	
Compensation of employees	57.1%
Taxes on production incl ERL	4.9%
Gross operating surplus	38.0%
Depreciation	3.5%
Net surplus	34.5%
Income tax and royalties	0.3%
After-tax net surplus	34.2%
Percentage shares of gross output	
Intermediate purchases	56.3%
Gross value added	43.7%
Compensation of employees	24.9%
Taxes on production incl ERL	2.2%
Gross operating surplus	16.6%
Depreciation	1.5%
Net surplus	15.1%
Income tax and royalties	0.1%
After-tax net surplus	14.9%

Sources for Table J4: Output volume and value 2005-2008 from Crown Minerals website <http://www.crownminerals.govt.nz/cms/minerals/facts-and-figures>, converted from calendar-year to March-year estimates.
Exports 2005-2008 from Statistics New Zealand Infoshare export statistics.
Royalties from Treasury website, converted from June to March years.
Distribution estimates and income tax from New Zealand Steel Mining Ltd annual financial statements on the Companies Office website.

Intermediate goods ratio and import coefficients assumed equal to quarrying.

Table J5: Estimation of “Services to Mining” and Reconciliation of Detailed Estimates with National Accounts Totals

March year 2007 data or estimates	Mining (ANZSIC Division B)	ANZSIC Level 2		ANZSIC level 3						Errors and omissions
		Oil and gas	Mining and quarrying (incl services to mining)	Quarrying	Coal	Gold & silver	Ironsands	Total mining and quarrying	Services to mining estimates	
Gross revenue	4,496	2,326	2,170	565	678	284	46	1,573	597	0
Exports	1,904	489	925	4	371	264	20	659	265	0
Non-export	2,592	1,837	1,245	560	307	19	26	914	332	0
Intermediate purchases	2,449	1,167	1,283	318	464	129	26	937	332	14
Direct imports	151	58	93	28	41	12	2	82	10	0
Local purchases in first round	2,298	1,109	1,190	290	423	118	24	855	322	14
Indirect (second-round) imports	272	105	167	50	73	21	4	148	18	0
Local purchases minus second-round imports	2,026	1,004	1,024	240	350	97	20	706	304	14
Gross value added (contribution to GDP)	2,047	1,160	887	247	214	154	20	635	265	-14
Compensation of employees	429	147	282	85	75	32	12	204	78	0
Taxes on production (royalties and ERL)	95	56	39	9	14	5	1	29	10	0
Gross operating surplus	1,523	957	567	153	125	117	8	402	178	0
Depreciation	539	378	161	39	43	69	1	152	38	-29
Net surplus	984	579	406	113	82	48	7	250	140	29
Income tax		na	na	34	34	10	0	77	42	-38
Royalties	4	62	5	0	2	3	0	5	0	na
After-tax net surplus	na	na	na	79	46	36	7	168	98	na
Net value added (depreciation treated as an intermediate input)	1,508	782	726	207	171	86	20	484	228	15

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Table J5 continued:

Mining (ANZSIC Division B)	ANZSIC Level 2		ANZSIC level 3					
	Oil and gas	Mining and quarrying (incl services to mining)	Quarrying	Coal	Gold & silver	Ironsands	Total mining and quarrying	Services to mining estimates

Estimation of Foreign Exchange Contribution:									
% New Zealand ownership estimated	64%		n.a.	80%	100%	10%	0%		n.a.
Income retained in the New Zealand economy to second round of expenditure, \$million			1,650-1,786	463	564	157	32	1,217	433-569
Local content of intermediate goods			1,010	240	350	97	20	706	304
Wages and salaries			282	85	75	32	12	204	78
Taxes			160	43	50	15	1	109	52
Gross profits (after tax) accruing in NZ			194-330	95	89	10	0	194	0-136
% of gross income spent in New Zealand			76%-82%	82%	83%	55%	70%	77%	73%-95%
Local content of intermediate goods			47%	43%	52%	34%	43%	45%	51%
Wages and salaries			13%	15%	11%	11%	25%	13%	13%
Taxes			7%	8%	7%	5%	2%	7%	9%
Gross profits (after tax) accruing in NZ			9%-15%	17%	13%	4%	0%	12%	0-23%
Income flowing offshore to imports and profits			384-520	102	114	126	14	356	28-164
Export earnings		489	925	4	371	264	20	659	265
Net direct foreign-exchange contribution \$ million			404-504	-98	257	138	6	303	101-237
Net direct foreign-exchange contribution % of gross sales			19%-25%	-17%	38%	49%	13%	19%	17%-40%
Assumed excess cost of importing the product				100%	20%	0%	20%		0
Estimated import-substitution saving			1,873	1,121	369	19	32	1,541	332
Net total foreign exchange contribution \$ million			2,277-2,413	1,023	626	157	38	1,844	433-569
Net total foreign exchange contribution % of gross sales			105%-111%	181%	92%	55%	81%	117%	72%-95%

Table J5 continued:

Mining (ANZSIC Division B)	ANZSIC Level 2		ANZSIC level 3					
	Oil and gas	Mining and quarrying (incl services to mining)	Quarrying	Coal	Gold & silver	Ironsands	Total mining and quarrying	Services to mining estimates

Estimated fiscal revenues									
Government total revenue		158	43	50	15	1	107	52	
		7.3%	7.5%	7.4%	2.2%	2.3%	6.8%	8.7%	
		17.9%	17.3%	23.4%	4.9%	5.2%	16.8%	19.5%	

Distribution of income									
Percentage shares of gross value added									
Compensation of employees	21.0%	12.7%	31.8%	34.6%	35.0%	21.0%	57.1%	32.1%	29.3%
Taxes on production incl ERL	4.6%	4.8%	4.4%	3.5%	6.7%	3.5%	4.9%	4.6%	3.6%
Gross operating surplus	74.4%	82.5%	63.9%	61.9%	58.3%	75.6%	38.0%	63.2%	67.1%
Depreciation	26.3%	32.6%	18.2%	15.9%	20.1%	44.5%	3.5%	23.9%	14.3%
Net surplus	48.1%	49.9%	45.8%	46.0%	38.2%	31.1%	34.5%	39.4%	52.8%
Income tax and royalties	na	na	na	17.3%	16.7%	8.0%	0.3%	12.9%	15.8%
After-tax net surplus	na	na	na	32.2%	21.5%	23.1%	34.2%	26.4%	37.0%

Percentage shares of gross output									
Intermediate purchases	54.5%	50.2%	59.1%	56.3%	68.4%	45.6%	56.3%	59.6%	55.6%
Gross value added	45.5%	49.9%	40.9%	43.7%	31.6%	54.4%	43.7%	31.6%	43.7%
Compensation of employees	9.5%	6.3%	13.0%	15.1%	11.1%	11.4%	24.9%	13.0%	13.0%
Taxes on production incl ERL	2.1%	2.4%	1.8%	1.5%	2.1%	1.9%	2.2%	1.9%	1.6%
Gross operating surplus	33.9%	41.1%	26.1%	27.0%	18.4%	41.1%	16.6%	25.6%	29.8%
Depreciation	12.0%	16.3%	7.4%	7.0%	6.3%	24.2%	1.5%	9.6%	6.3%
Net surplus	21.9%	24.9%	18.7%	20.1%	12.1%	16.9%	15.1%	15.9%	23.5%
Income tax and royalties	na	na	na	6.0%	5.3%	4.4%	0.1%	5.2%	7.0%
After-tax net surplus	na	na	na	14.1%	6.8%	12.6%	14.9%	10.7%	16.4%

Appendix K
Statistics New Zealand's Monetary Stock Accounts for Minerals and Energy

Table K1: Non-energy minerals
Summary of Monetary Mineral Stocks
(\$million)

Year to March 31	Metals				Non-metals						Total minerals
	Gold	Silver	Ironsands	Total metals	Aggregate	Clay	Limestone	Dolomite	Other	Total non-metals	
1994 Stock	238.00	6.05	25.87	269.92	195.06	1.29	26.61	0.32	0.77	224.04	493.95
Less Extraction	12.99	0.51	2.06	15.57	21.59	0.20	2.36	0.04	0.01	24.21	39.77
Plus Other Changes	102.93	7.36	28.29	138.58	371.49	4.01	35.33	0.79	-0.41	411.21	549.79
1995 Stock	327.94	12.89	52.10	392.93	544.96	5.09	59.58	1.06	0.35	611.04	1,003.97
Less Extraction	20.27	0.62	2.09	22.99	31.34	0.13	2.40	0.00	0.08	33.95	56.94
Plus Other Changes	69.74	-0.71	-11.05	57.98	69.88	-2.59	-12.60	-1.00	1.30	55.00	112.98
1996 Stock	377.41	11.56	38.95	427.92	583.50	2.38	44.59	0.05	1.56	632.09	1,060.01
Less Extraction	12.07	0.37	1.56	14.00	15.10	0.07	1.24	0.00	0.07	16.49	30.49
Plus Other Changes	-63.84	-2.02	1.61	-64.25	-191.39	-0.61	-12.26	-0.04	0.35	-203.94	-268.18
1997 Stock	301.50	9.17	39.00	349.67	377.02	1.71	31.08	0.01	1.84	411.66	761.34
Less Extraction	1.43	0.05	0.21	1.69	2.06	0.01	0.16	0.00	0.01	2.24	3.93
Plus Other Changes	-	-5.52	-22.77	-219.40	-218.29	-1.01	-18.43	0.01	-0.91	-238.62	-458.03
1998 Stock	108.95	3.61	16.02	128.58	156.67	0.69	12.49	0.02	0.92	170.80	299.38
Less Extraction	0.48	0.02	0.08	0.58	0.83	0.01	0.08	0.00	0.01	0.93	1.51
Plus Other Changes	-72.41	-2.27	-9.58	-84.26	-93.33	0.28	-6.44	-0.01	-0.36	-99.86	-184.12
1999 Stock	36.06	1.32	6.36	43.74	62.52	0.95	5.97	0.01	0.56	70.01	113.75
Less Extraction	2.82	0.12	0.50	3.44	3.88	0.22	0.59	0.00	0.08	4.78	8.21
Plus Other Changes	43.27	1.92	7.81	53.00	46.71	5.18	10.70	0.04	1.72	64.35	117.35
2000 Stock	76.51	3.13	13.67	93.30	105.34	5.91	16.09	0.06	2.19	129.59	222.89

Note: Extraction is equivalent to resource rent.

Only minerals extracted for economic benefit are included.

Source: Statistics New Zealand, *Environmental Accounts Series: Mineral Monetary and Physical Stock Account 1994-2000*, available at <http://www.stats.govt.nz/publications/nationalaccounts/minerals/interpretation-of-the-mineral-stock-account.aspx>, p.6 and Table 4.4 p.16.

Table K2 Energy minerals stock

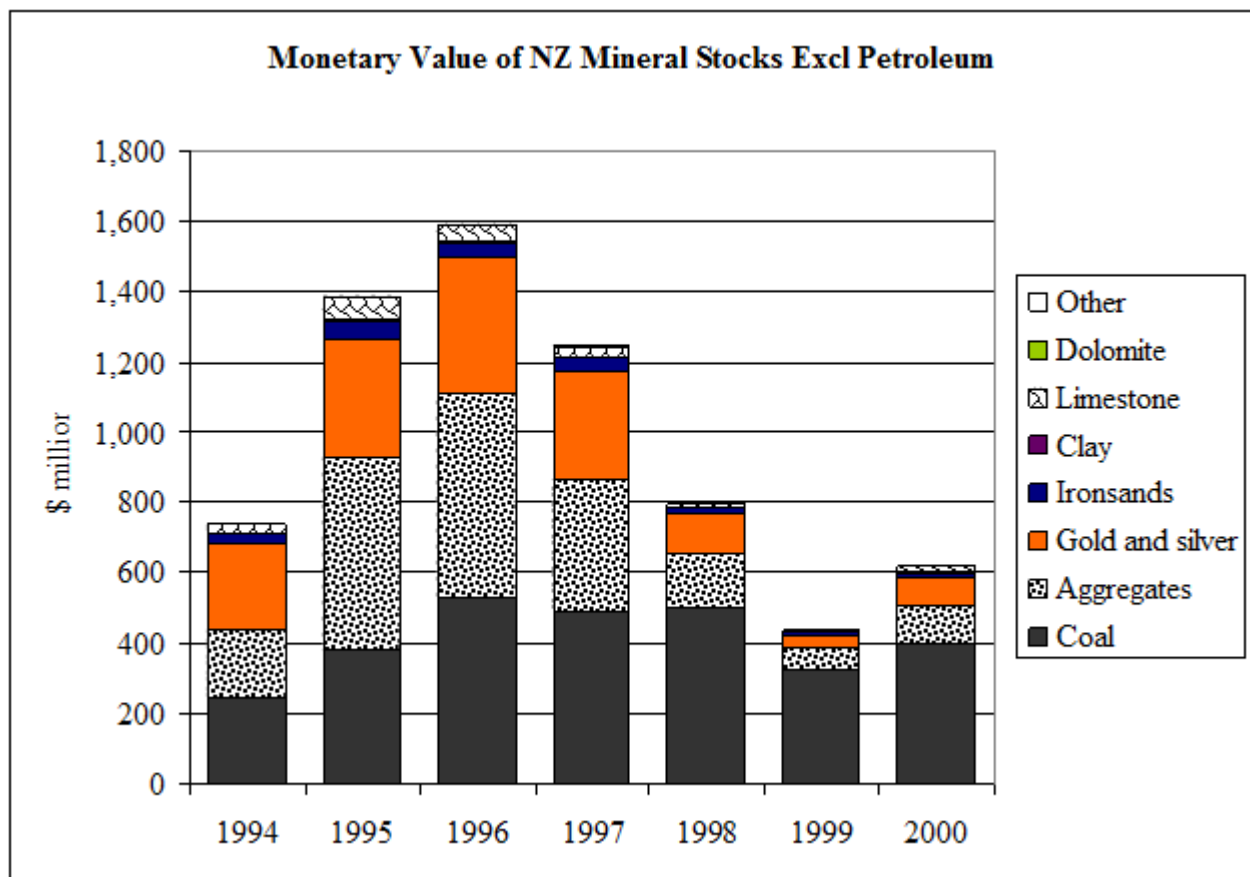
Year to March 31	Non-renewable			Renewable			Total energy
	Petroleum	Coal	Total non-renewable	Electricity	Heat	Total	
1994 Stock	2,936.0	244.8	3,180.8	3,255.2		3,255.2	6,436.0
<i>Less Extraction</i>	176.0	15.2	191.2	158.6		158.6	349.8
<i>Plus Other Changes</i>	-1,071.0	151.0	-920.0	868.0		868.0	-52.0
1995 Stock	1,689.1	380.6	2,069.7	3,964.6		3,964.6	6,034.3
<i>Less Extraction</i>	132.9	21.2	154.1	116.0		116.0	270.1
<i>Plus Other Changes</i>	-148.5	170.0	21.5	-949.0		-949.0	-927.5
1996 Stock	1,407.6	529.4	1,937.0	2,899.7		2,899.7	4,836.7
<i>Less Extraction</i>	327.2	19.5	346.7	134.9		134.9	481.6
<i>Plus Other Changes</i>	1,994.2	-23.7	1,970.5	608.4		608.4	2,578.9
1997 Stock	3,074.6	486.3	3,560.9	3,373.1		3,373.1	6,934.0
<i>Less Extraction</i>	375.2	19.9	395.1	141.2		141.2	536.3
<i>Plus Other Changes</i>	292.3	31.4	323.7	297.7		297.7	621.4
1998 Stock	2,991.7	497.8	3,489.5	3,529.6		3,529.6	7,019.1
<i>Less Extraction</i>	331.5	12.9	344.4	108.7		108.7	453.1
<i>Plus Other Changes</i>	181.9	-162.1	19.8	-703.0		-703.0	-683.2
1999 Stock	2,842.1	322.8	3,164.9	2,717.9		2,717.9	5,882.8
<i>Less Extraction</i>	411.1	15.9	427.0	169.6		169.6	596.6
<i>Plus Other Changes</i>	631.5	90.9	722.4	1,692.6		1,692.6	2,415.0
2000 Stock	3,062.5	397.8	3,460.3	4,240.9		4,240.9	7,701.2
<i>Less Extraction</i>	567.5	0.0	567.5	101.9		101.9	669.4
<i>Plus Other Changes</i>	1,617.6	464.0	2,081.6	-1,592.2		-1,592.2	489.4
2001 Stock	4,112.7	861.8	4,974.5	2,546.8		2,546.8	7,521.3

Source: Statistics New Zealand, *Energy Monetary Stock Account 1987-2001*, Table 5.4 p.21.

Table K3: Summary totals

Year	Gold and silver	Iron-sands	Aggregates	Clay	Limestone	Dolomite	Other	Coal	Total
1994	244	26	195	1	27	0	1	245	739
1995	341	52	545	5	60	1	0	381	1,385
1996	389	39	584	2	45	0	2	529	1,590
1997	311	39	377	2	31	0	2	486	1,248
1998	113	16	157	1	12	0	1	498	798
1999	37	6	63	1	6	0	1	323	437
2000	80	14	105	6	16	0	2	398	621

Figure K1: Year by year valuations



Source: Table K3

Note that each year's valuation is for the same physical stock, modified by annual actual depletion via mining. The wide swings in the values are due to changes in the estimated price of the various minerals, combined with variations in costs of labour, capital and intermediates. Because the rental valuation is a residual it is subject to this volatility; the figures are to be interpreted as indicating the range within which the long-run value should lie, insofar as prices varied over the relevant ranges during the period 1994-2000.