

Economic Analysis



Environmental Economic Accounts

Environmental Economic Accounts Compendium

Report No.: 04-05-20
March 2017

THE SOUTH AFRICA I KNOW, THE HOME I UNDERSTAND

Environmental Economic Accounts Compendium

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Report No. 04-05-20
Statistics South Africa
March 2017

PJ Lehohla
Statistician-General

Environmental Economic Accounts Compendium

Published by Statistics South Africa, Private Bag X44, Pretoria 0001

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Environmental Economic Accounts Compendium / Statistics South Africa. Pretoria: Statistics South Africa, 2017.

Report No. 04-05-20

Title continuous in English only

ISBN: 978-0-621-42500-0

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Abbreviations and acronyms

DAFF	Department of Agriculture, Forestry and Fisheries
DMR	Department of Mineral Resources
DoE	Department of Energy
MBAPs	Minerals Beneficiation Action Plans
MTSF	Medium Term Strategic Framework
NDP	National Development Plan
PGMs	Platinum Group Metals
R	Rand
SDGs	Sustainable Development Goals
SEEA	System of Environmental Economic Accounts
SNA	System of National Accounts
Stats SA	Statistics South Africa
TAC	Total allowable catch
UN	United Nations

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Preface

The environmental economic accounts compendium report for March 2017 provides an update to the previous environmental economic accounts compendium report published in March 2016.

The environmental economics account compendium is a report based on the environment economic accounts for energy, fisheries and minerals. Several indicators are included to show the interaction between socio-economic activities and their reliance on natural resources. A separate Excel workbook is available online for detailed data in respect of the three accounts mentioned.

The environmental economic accounts are compiled and published by Statistics South Africa according to the System of Environmental Economic Accounts (SEEA).

PJ Lehohla
Statistician-General
Pretoria
March 2017

Overview – setting the scene

This report is based on the environmental economic accounts for energy, fisheries and minerals. Several indicators are included to show the interaction between socio-economic activities and their reliance on natural resources. A separate Excel workbook is available online for detailed data in respect of the three accounts mentioned.

Energy key findings are based on the energy balances compiled by the Department of Energy (DoE).¹ The DoE is mandated to ensure the secure and sustainable provision of energy for socio-economic development. The energy accounts show the resources involved in the production and consumption of non-renewable and renewable energy. The National Development Plan (NDP)² envisages that by 2030 South Africa will have an adequate supply of electricity and liquid fuels to ensure that economic activity and welfare are not disrupted, with measures to mitigate negative effects on the environment and to promote sustainable development.

The key findings for fisheries are based on production and consumption in the fishery sector. The Department of Agriculture, Forestry and Fisheries (DAFF)^{3,4} is mandated to ensure the sustainable use of natural resources through the conservation, protection, rehabilitation and recovery of natural resources within ecosystems. The environmental economic accounts for fisheries show the opening and closing stocks for selected fisheries and the total allowable catch (TAC) for abalone, Cape horse mackerel, hake, South Coast rock lobster and West Coast rock lobster. The main challenge in fisheries is to find the optimal balance between the potential social and economic benefits of the fishery industry, protecting the integrity and quality of the country's marine and coastal ecosystems, and addressing transformation in the sector.

The Department of Mineral Resources (DMR)⁵ assumes the custodianship of all mineral resources in South Africa on behalf of its citizens. To this end, the DMR promotes and regulates the minerals and mining sector for transformation, growth and development, and ensures that all South Africans derive sustainable benefit from the country's mineral wealth. The key findings for minerals focus on coal, gold and platinum group metals (PGMs). PGMs and gold are among the largest sectors of South Africa's mining industry in terms of employment, investment and revenue generation.⁶ In the national energy plan, coal remains an important component of the country's future energy mix and requirements.⁷

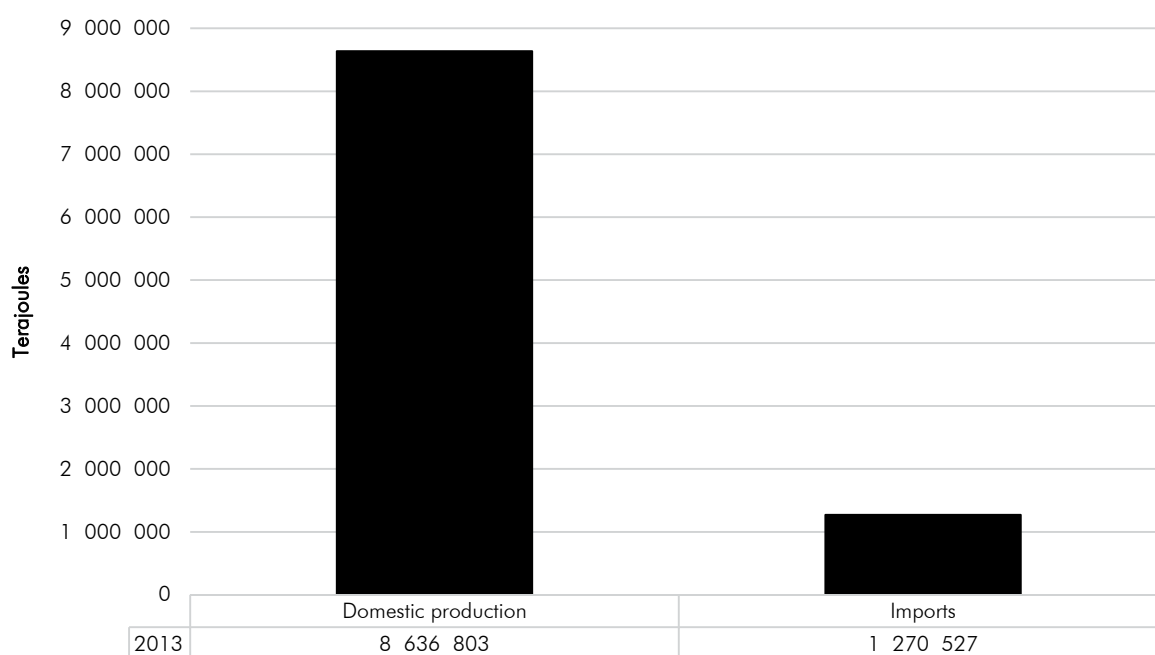
The twelve outcomes identified by government⁸ include environmental assets and natural resources that are well protected and continually enhanced in order to improve the quality of life and to promote sustained economic growth. The indicators identified show links between the use of natural resources and the socio-economic environment.

Chapter 1 – Energy

1.1 Energy supply and use, 2013

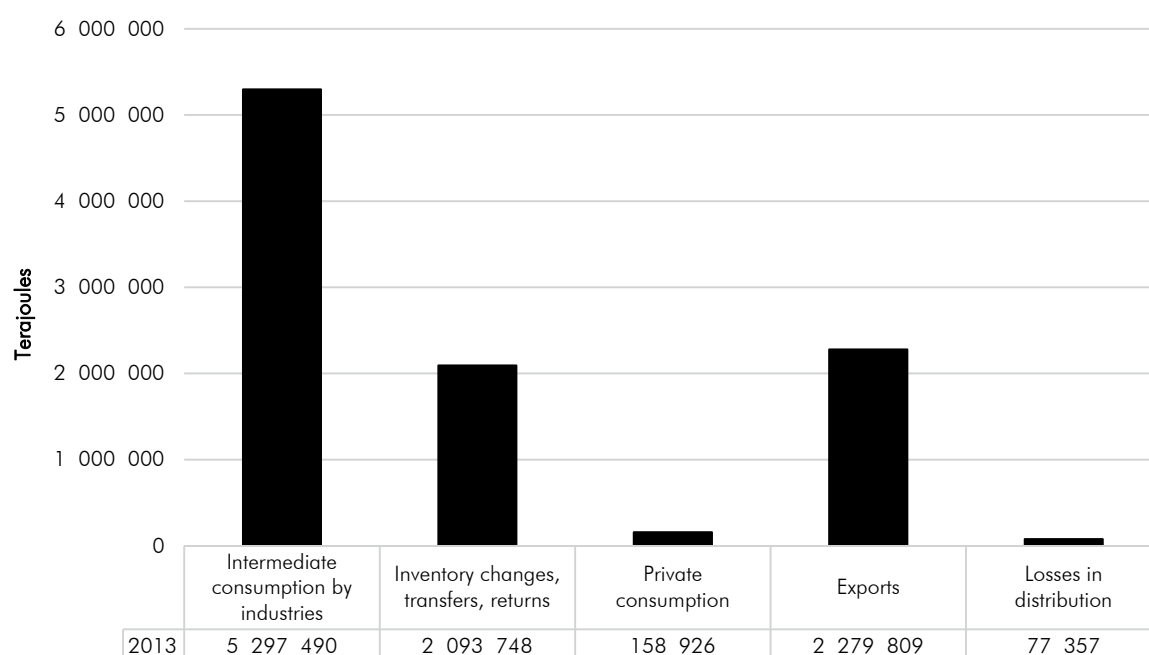
The information presented on energy focuses on domestic production and imports, energy use by the different sectors, exports, transformation, and distribution. Owing to a methodological change in the calculation of renewable energy, the new time series starts in 2013. The supply and use tables for energy from 2002 to 2012 are presented in the Environmental Economic Accounts Tables in the Excel Online Workbook that accompanies this report.⁹

Figure 1.1: Energy supply, 2013



Sources: Department of Energy, 2016. *Energy Balances, 2013*. Statistics South Africa. Environmental Economic Accounts Tables.

Figure 1.2: Energy use, 2013



Sources: Department of Energy, 2016. *Energy Balances, 2013*. Statistics South Africa. Environmental Economic Accounts Tables.

Table 1.1: Energy supply, 2013

	Coal	Crude oil	Electricity	Gas to users	Hydro	Nuclear	Petroleum products	Renewable energy ¹
Terajoules								
Domestic production	6 209 400	48 038	925 395	71 936	14 346	155 738	1 198 096	13 854
Imports	28 647	795 958	33 941	126 603	0	0	285 377	0

Sources: Department of Energy, 2016. *Energy Balances, 2013*. Statistics South Africa. Environmental Economic Accounts Tables.

Notes:

1. Renewable energy includes geothermal and solar, but excludes waste.
2. There is a break in the time series from 2013, due to the exclusion of waste under renewable energy. Refer to Excel Online Workbook for previous time series from 2002 to 2012.
3. Figures are rounded.

Table 1.2: Energy use, 2013

	Coal	Crude oil	Electricity	Gas to users	Hydro	Nuclear	Petroleum products	Renewable energy ¹
Terajoules								
Intermediate consumption by industries	3 010 283	0	648 058	131 898	14 346	155 738	1 323 313	13 854
Inventory changes, transfers, returns	1 138 665	843 996	44 654	66 432	0	0	0	0
Private consumption	13 853	0	139 122	201	0	0	5 750	0
Exports	2 075 246	0	50 144	9	0	0	154 410	0
Losses in distribution	0	0	77 357	0	0	0	0	0

Sources: Department of Energy, 2016. *Energy Balances, 2013*. Statistics South Africa. Environmental Economic Accounts Tables.

Notes:

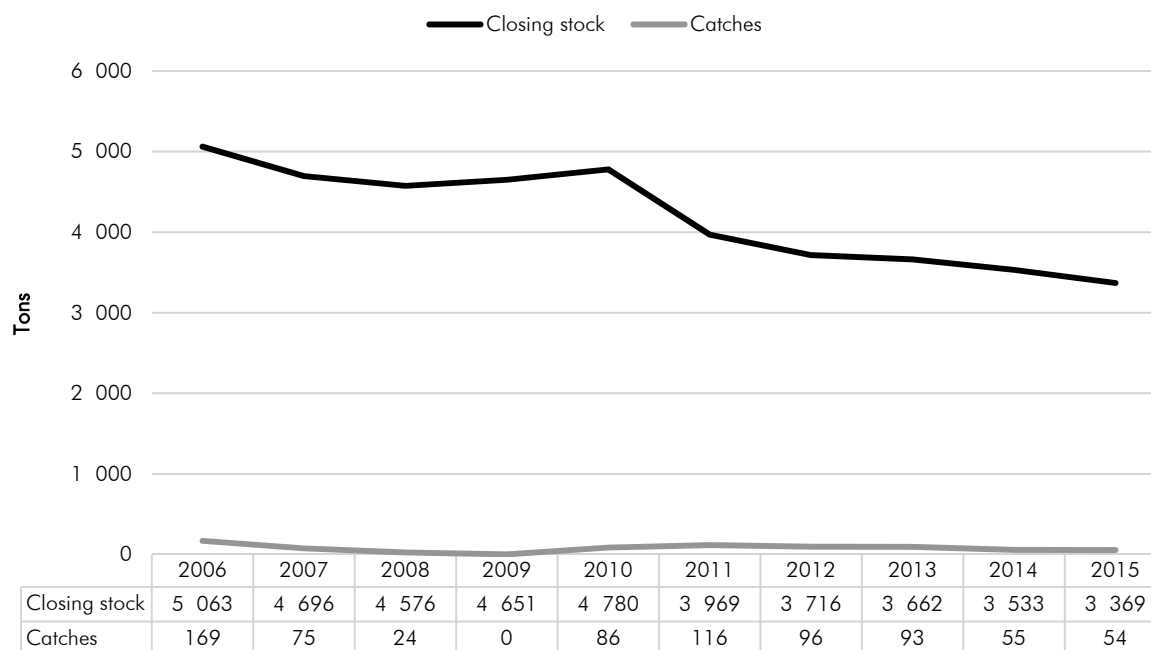
1. Renewable energy includes geothermal and solar, but excludes waste.
2. There is a break in the time series from 2013, due to the exclusion of waste under renewable energy. Refer to Excel Online Workbook for previous time series from 2002 to 2012.
3. Figures are rounded.

Chapter 2 – Fisheries

2.1 Abalone closing stock and total catches, 2006 to 2015

The information on abalone includes closing stock and catches. Abalone closing stock declined from 5 063 tons in 2006 to 3 369 tons in 2015, a decrease of 33,5%. Catches of abalone fell from 169 tons in 2006 to 54 tons in 2015, a decrease of 68,0%. Abalone stock and catches for individual years are shown in Figure 2.1 and Table 2.1. The only growth in stock was recorded in 2009 (1,6%) and 2010 (2,8%).

Figure 2.1: Abalone closing stock and total catches, 2006–2015



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 2.1: Abalone closing stock and total catches, 2006–2015

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Tons									
Closing stock	5 063	4 696	4 576	4 651	4 780	3 969	3 716	3 662	3 533	3 369
Catches	169	75	24	0	86	116	96	93	55	54
	% change from previous period									
Closing stock	-6,5%	-7,3%	-2,5%	1,6%	2,8%	-17,0%	-6,4%	-1,5%	-3,5%	-4,6%
Catches	-3,4%	-55,6%	-68,0%	-100,0%	--	34,3%	-17,1%	-2,9%	-40,7%	-3,3%

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Notes:

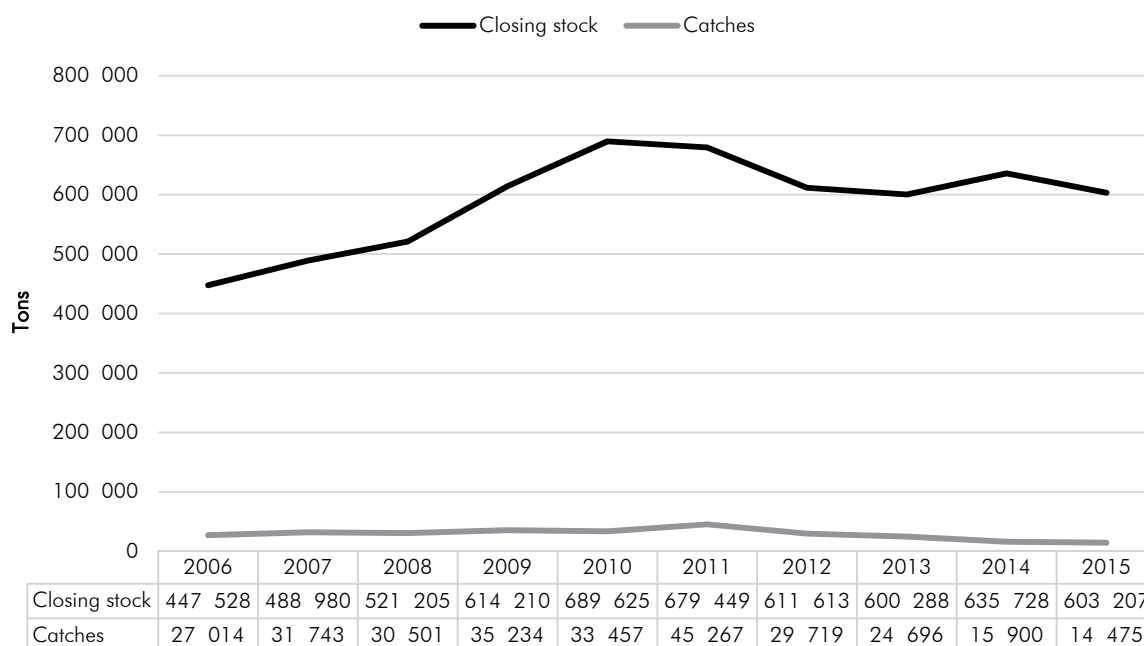
Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

Closing stock is influenced by other volume changes and not only the catches reflected here. Refer to Excel Online Workbook.

2.2 Cape horse mackerel closing stock and total catches, 2006 to 2015

The information on Cape horse mackerel includes closing stock and catches. Cape horse mackerel closing stock rose from 447 528 tons in 2006 to 603 207 tons in 2015, an increase of 34,7%. The closing stock and catches for individual years are shown in Figure 2.2 and Table 2.2. Catches of Cape horse mackerel fell from 27 014 tons in 2006 to 14 475 tons in 2015, a decrease of 46,4%. Increases in catches were recorded in 2007 (17,5%), 2009 (15,5%) and 2011 (35,3%).

Figure 2.2: Cape horse mackerel closing stock and total catches, 2006–2015



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 2.2: Cape horse mackerel closing stock and total catches, 2006–2015

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Tons									
Closing stock	447 528	488 980	521 205	614 210	689 625	679 449	611 613	600 288	635 728	603 207
Catches	27 014	31 743	30 501	35 234	33 457	45 267	29 719	24 696	15 900	14 475
	% change from previous period									
Closing stock	5,2%	9,3%	6,6%	17,8%	12,3%	-1,5%	-10,0%	-1,9%	5,9%	-5,1%
Catches	-32,3%	17,5%	-3,9%	15,5%	-5,0%	35,3%	-34,3%	-16,9%	-35,6%	-9,0%

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Notes:

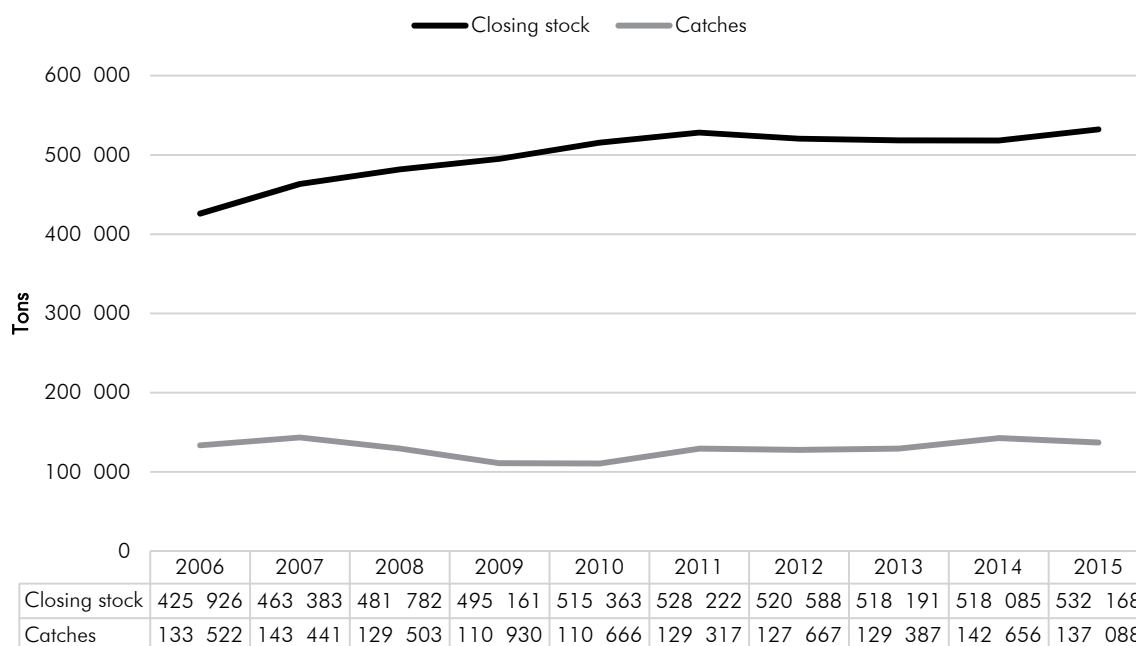
Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

Closing stock is influenced by other volume changes and not only the catches reflected here. Refer to Excel Online Workbook.

2.3 Hake closing stock and total catches, 2006 to 2015

The information on hake includes closing stock and catches. Hake closing stock rose from 425 926 tons in 2006 to 532 168 tons in 2015, an increase of 24,9%. Total catches of hake were 133 522 tons in 2006 and 137 088 tons in 2015, an increase of 2,7%. Hake stock and catches for individual years are shown in Figure 2.3 and Table 2.3.

Figure 2.3: Hake closing stock and total catches, 2006–2016



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 2.3: Hake closing stock and total catches, 2006–2015

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Tons									
Closing stock	425 926	463 383	481 782	495 161	515 363	528 222	520 588	518 191	518 085	532 168
Catches	133 522	143 441	129 503	110 930	110 666	129 317	127 667	129 387	142 656	137 088
	% change from previous period									
Closing stock	5,9%	8,8%	4,0%	2,8%	4,1%	2,5%	-1,4%	-0,5%	0,0%	2,7%
Catches	-6,4%	7,4%	-9,7%	-14,3%	-0,2%	16,9%	-1,3%	1,3%	10,3%	-3,9%

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Notes:

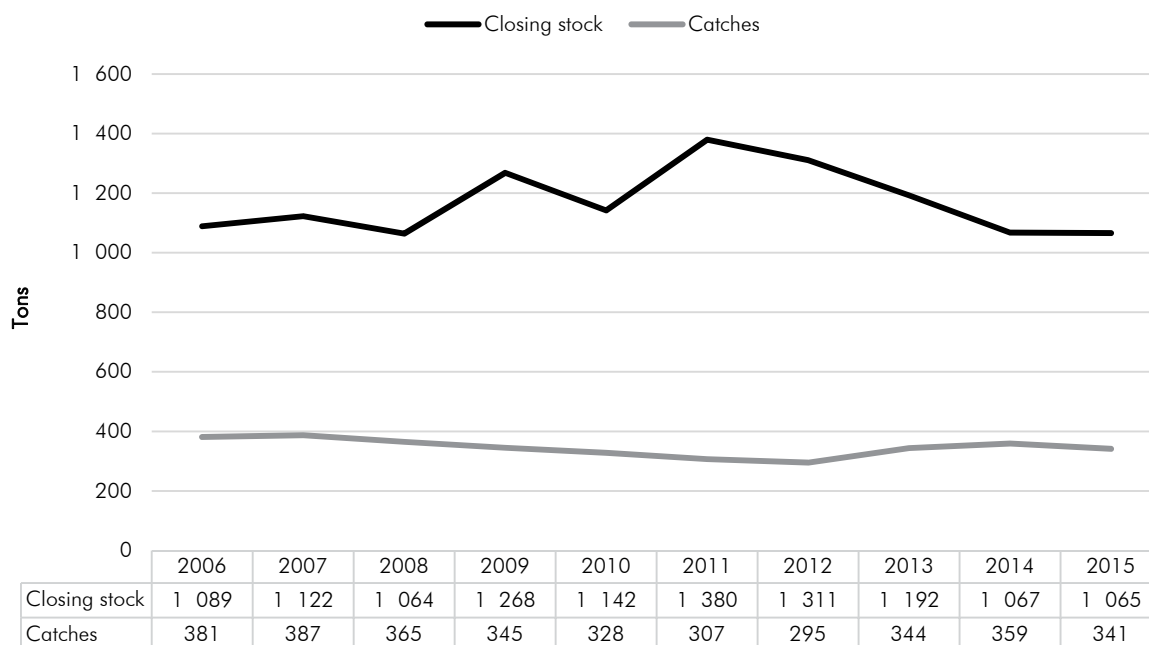
Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

Closing stock is influenced by other volume changes and not only the catches reflected here. Refer to Excel Online Workbook.

2.4 South Coast rock lobster closing stock and total catches, 2006 to 2015

The information on South Coast rock lobster includes closing stock and catches. Closing stock of South Coast rock lobster was recorded at 1 089 tons in 2006 and 1 065 tons in 2015, a decline of 2,2%. South Coast rock lobster stock and catches for individual years are shown in Figure 2.4 and Table 2.4. Annual catches of South Coast rock lobster remained under 400 tons throughout the period, starting at 381 tons in 2006 and reaching 341 tons in 2015, a decline of 10,5%.

Figure 2.4: South Coast rock lobster closing stock and total catches, 2006–2015



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 2.4: South Coast rock lobster closing stock and total catches, 2006–2015

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Tons									
Closing stock	1 089	1 122	1 064	1 268	1 142	1 380	1 311	1 192	1 067	1 065
Catches	381	387	365	345	328	307	295	344	359	341
	% change from previous period									
Closing stock	-19,8%	3,1%	-5,2%	19,2%	-10,0%	20,8%	-5,0%	-9,0%	-10,5%	-0,2%
Catches	-0,3%	1,6%	-5,7%	-5,5%	-4,9%	-6,4%	-3,9%	16,6%	4,4%	-5,0%

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Notes:

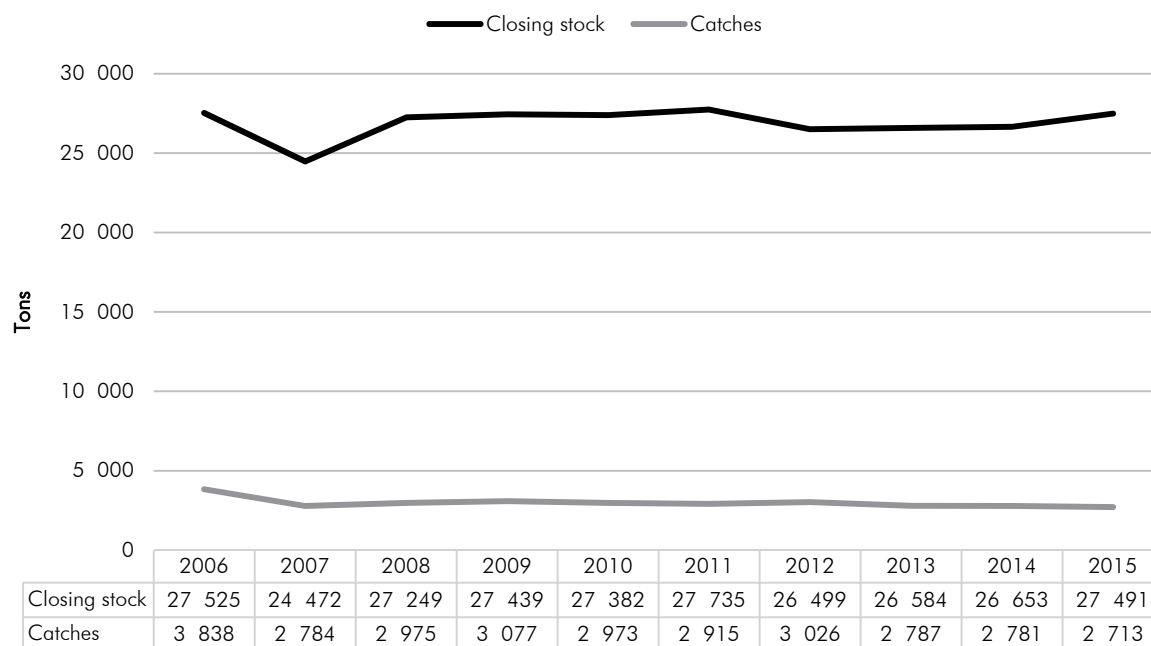
Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

Closing stock is influenced by other volume changes and not only the catches reflected here. Refer to Excel Online Workbook.

2.5 West Coast rock lobster closing stock and total catches, 2006 to 2015

The information on West Coast rock lobster includes closing stock and catches. West Coast rock lobster closing stock was 27 525 tons in 2006 and 27 491 tons in 2015, a decline of 0,1%. Closing stock fell by 11,1% in 2007 but recovered by 11,3% in 2008. Annual catches of West Coast rock lobster remained under 4 000 tons, with 3 838 tons in 2006 and 2 713 tons in 2015, a drop of 29,3%. West Coast rock lobster stock and catches for individual years are shown in Figure 2.5 and Table 2.5.

Figure 2.5: West Coast rock lobster closing stock and total catches, 2006–2015



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 2.5: West Coast rock lobster closing stock and total catches, 2006–2015

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Tons										
Closing stock	27 525	24 472	27 249	27 439	27 382	27 735	26 499	26 584	26 653	27 491
Catches	3 838	2 784	2 975	3 077	2 973	2 915	3 026	2 787	2 781	2 713
% change from previous period										
Closing stock	-4,3%	-11,1%	11,3%	0,7%	-0,2%	1,3%	-4,5%	0,3%	0,3%	3,1%
Catches	39,6%	-27,5%	6,9%	3,4%	-3,4%	-1,9%	3,8%	-7,9%	-0,2%	-2,4%

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Notes:

Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

Closing stock is influenced by other volume changes and not only the catches reflected here. Refer to Excel Online Workbook.

Chapter 3 – Minerals

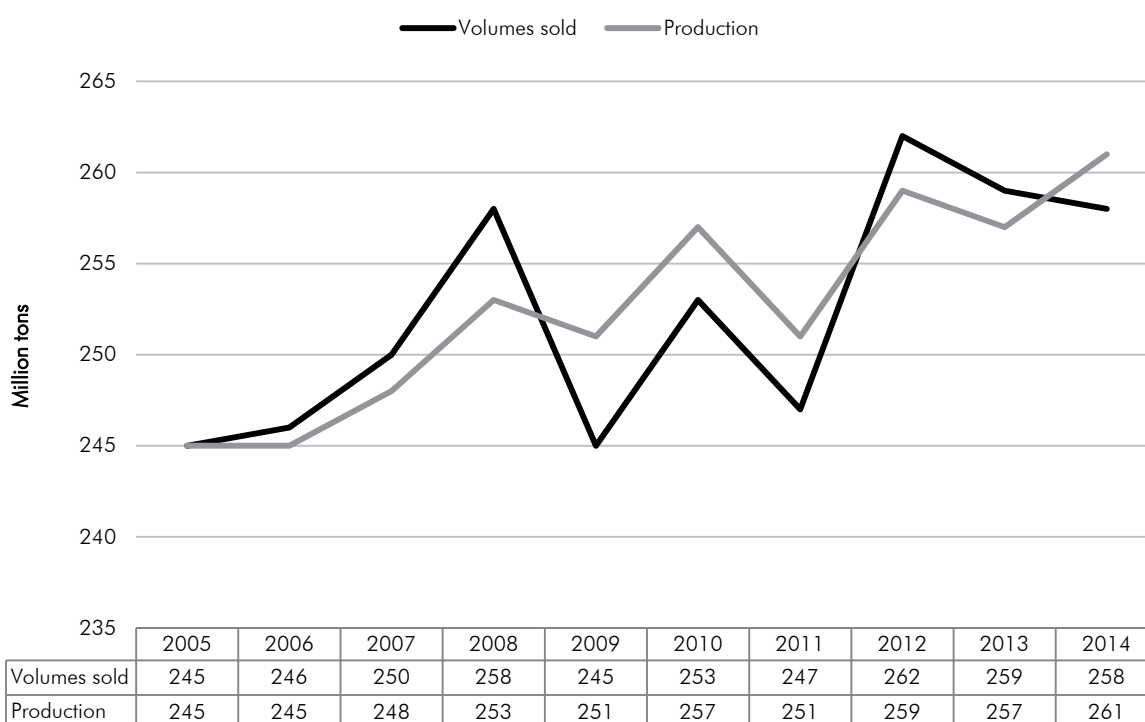
3.1 Coal, 2005 to 2014

The information on coal includes the volume of production and sales, years to depletion, the value of sales, and reserves.

3.1a Coal production and volume sold, 2005 to 2014

Coal production rose from 245 million tons in 2005 to 261 million tons in 2014, an increase of 6,5%. Coal sales followed a similar pattern, increasing by 5,3% from 245 million tons in 2005 to 258 million tons in 2014. Production and sales and their growth rates for individual years are shown in Figure 3.1 and Table 3.1. The highest annual growth rates were recorded in 2012, when production grew by 3,2% and sales (volume) grew by 6,1%.

Figure 3.1: Coal production and volume sold, 2005–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 3.1: Coal production and volume sold, 2005–2014

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	Million tons									
Volume sold	245	246	250	258	245	253	247	262	259	258
Production	245	245	248	253	251	257	251	259	257	261
	% change from previous period									
Volume sold	-0,8%	0,4%	1,6%	3,2%	-5,0%	3,3%	-2,4%	6,1%	-1,1%	-0,4%
Production	0,8%	0,0%	1,2%	2,0%	-0,8%	2,4%	-2,3%	3,2%	-0,8%	1,6%

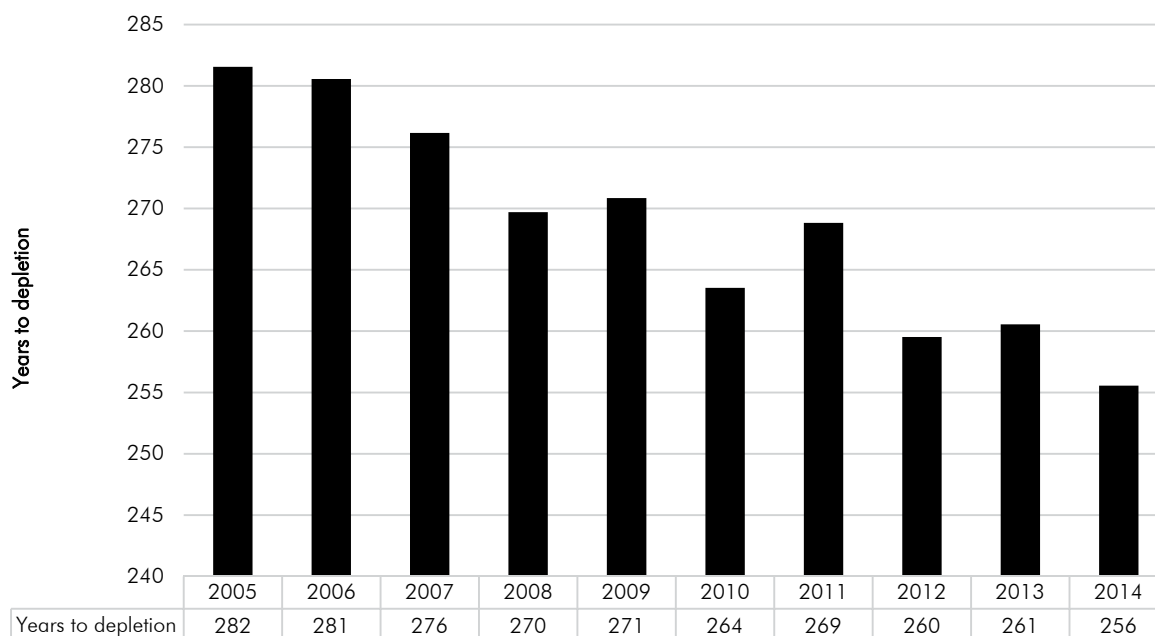
Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

3.1b Coal – years to depletion, 2005 to 2014

The number of years to depletion of coal fell from 282 in 2005 to 256 in 2014, a decrease of 9,2%. The annual change in years to depletion was negative in most years, the three exceptions being 2009 (an increase of 0,4%), 2011 (an increase of 2%) and 2013 (an increase of 0,4%).

Figure 3.2: Coal – years to depletion, 2005–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 3.2: Coal – years to depletion, 2005–2014

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Years to depletion									
282	281	276	270	271	264	269	260	261	256
% change from previous period									
-1,2%	-0,4%	-1,6%	-2,3%	0,4%	-2,7%	2,0%	-3,5%	0,4%	-1,9%

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Notes:

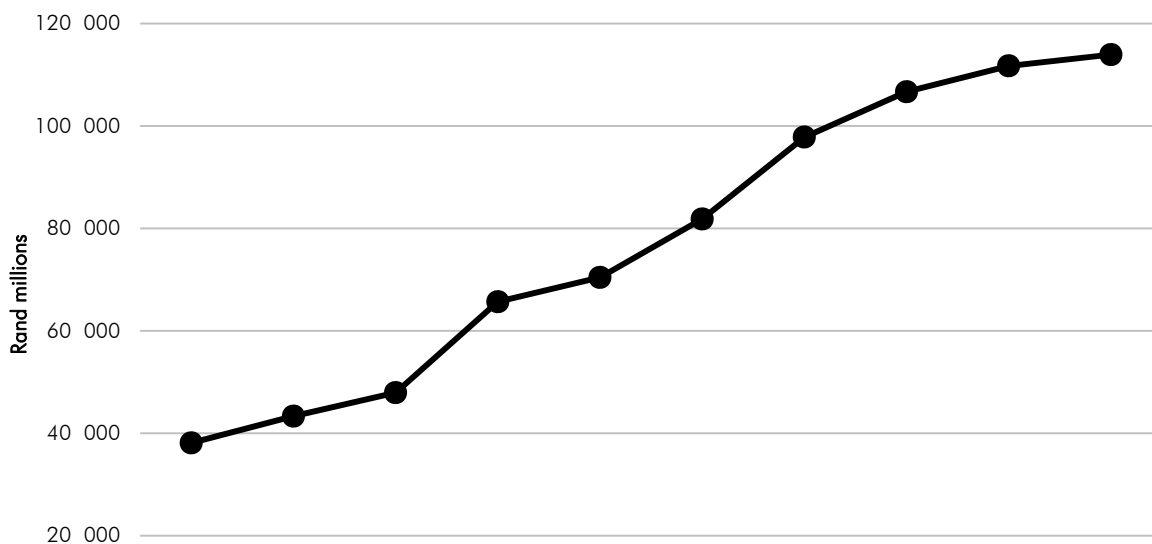
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Coal reserves were revised upwards after the completion of a Council for Geoscience study in June 2009, on instruction from the DoE and published in *South Africa's Minerals Industry 2014/15*.⁵ Personal communication from DMR, Mineral Promotion and International Coordination, Directorate: Mineral Economics.

3.1c Coal value of sales, 2005 to 2014

The value of coal sales rose from R38 132 million in 2005 to R113 930 million in 2014, an increase of 199%. The highest annual growth rate was recorded in 2008 (37%).

Figure 3.3: Coal value of sales, 2005–2014



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Sales value	38 132	43 342	47 933	65 683	70 427	81 831	97 817	106 675	111 723	113 930

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 3.3: Coal value of sales, 2005–2014

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Rand millions									
38 132	43 342	47 933	65 683	70 427	81 831	97 817	106 675	111 723	113 930
% change from previous period									
10,6%	13,7%	10,6%	37,0%	7,2%	16,2%	19,5%	9,1%	4,7%	2,0%

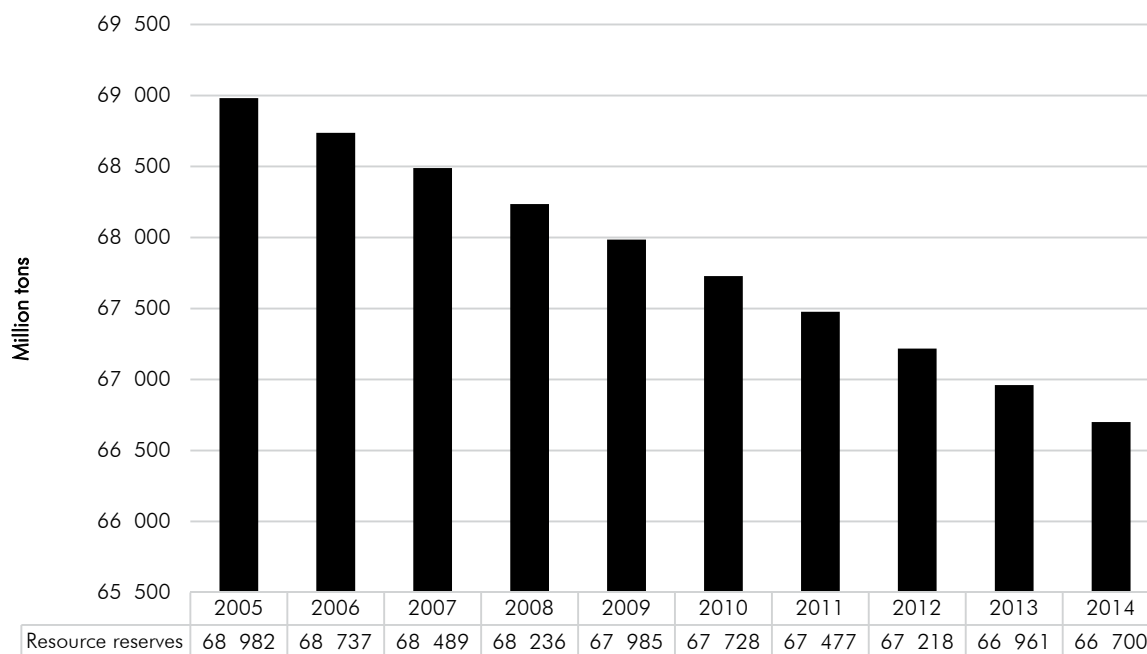
Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

3.1d Coal resource reserves, 2005 to 2014

Coal reserves fell from 68 982 million tons in 2005 to 66 700 million tons in 2014, a decrease of 3,3%. The annual rate of decline was relatively constant (Figure 3.4 and Table 3.4).

Figure 3.4: Coal resource reserves, 2005–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 3.4: Coal resource reserves, 2005–2014

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Million tons									
68 982	68 737	68 489	68 236	67 985	67 728	67 477	67 218	66 961	66 700
% change from previous period									
-0,4%	-0,4%	-0,4%	-0,4%	-0,4%	-0,4%	-0,4%	-0,4%	-0,4%	-0,4%

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Notes:

Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

Coal reserves were revised upwards after the completion of a Council for Geoscience study in June 2009, on instruction from the DoE and published in *South Africa's Minerals Industry 2014/15*.⁵ Personal communication from DMR, Mineral Promotion and International Coordination, Directorate: Mineral Economics.

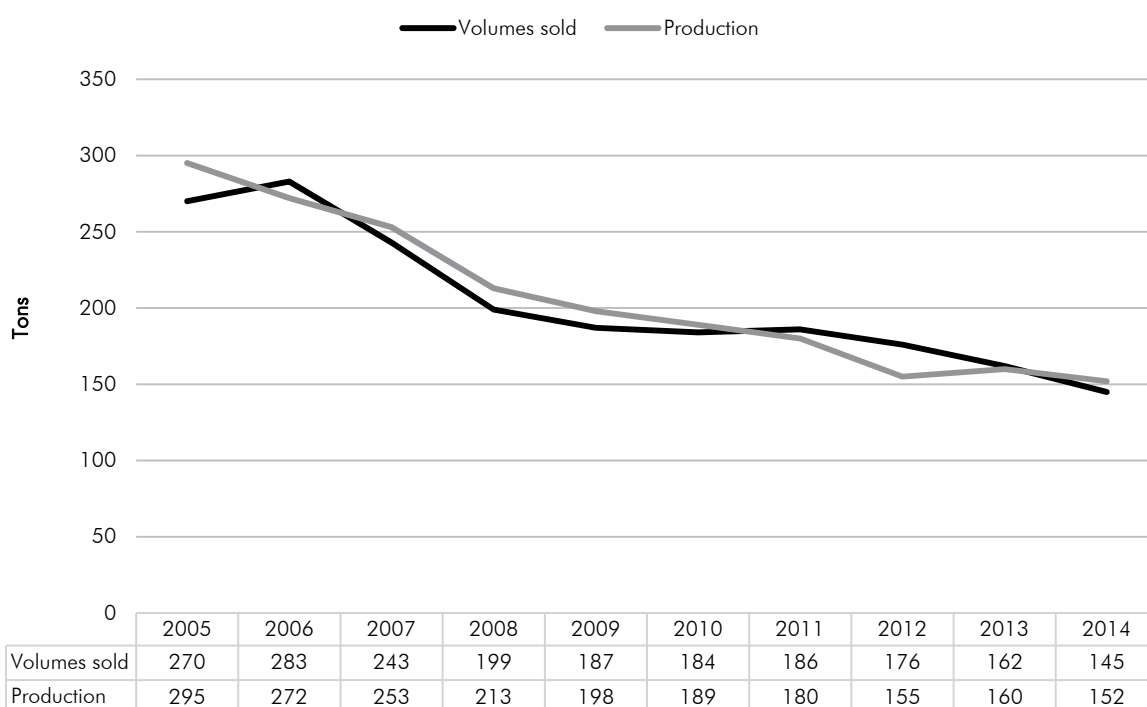
3.2 Gold, 2005 to 2014

The information on gold includes the volume of production and sales, years to depletion, the value of sales, and reserves.

3.2a Gold production and volumes sold, 2005 to 2014

Gold production fell from 295 tons in 2005 to 152 tons in 2014, a decrease of 48,5%. A 3,2% increase in 2013 was an exception to the downward trend. Gold sales followed a similar pattern, decreasing by 46,3% from 270 tons in 2005 to 145 tons in 2014, the two exceptions being 2006 (an increase of 4,8%) and 2011 (an increase of 1,1%). Production and sales and their growth rates are shown in Table 3.5.

Figure 3.5: Gold production and volumes sold, 2005–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 3.5: Gold production and volumes sold, 2005–2014

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	Tons									
Volumes sold	270	283	243	199	187	184	186	176	162	145
Production	295	272	253	213	198	189	180	155	160	152
	% change from previous period									
Volumes sold	-22,2%	4,8%	-14,1%	-18,1%	-6,0%	-1,6%	1,1%	-5,4%	-8,0%	-10,5%
Production	-12,5%	-7,8%	-7,0%	-15,8%	-7,0%	-4,5%	-4,8%	-13,9%	3,2%	-5,0%

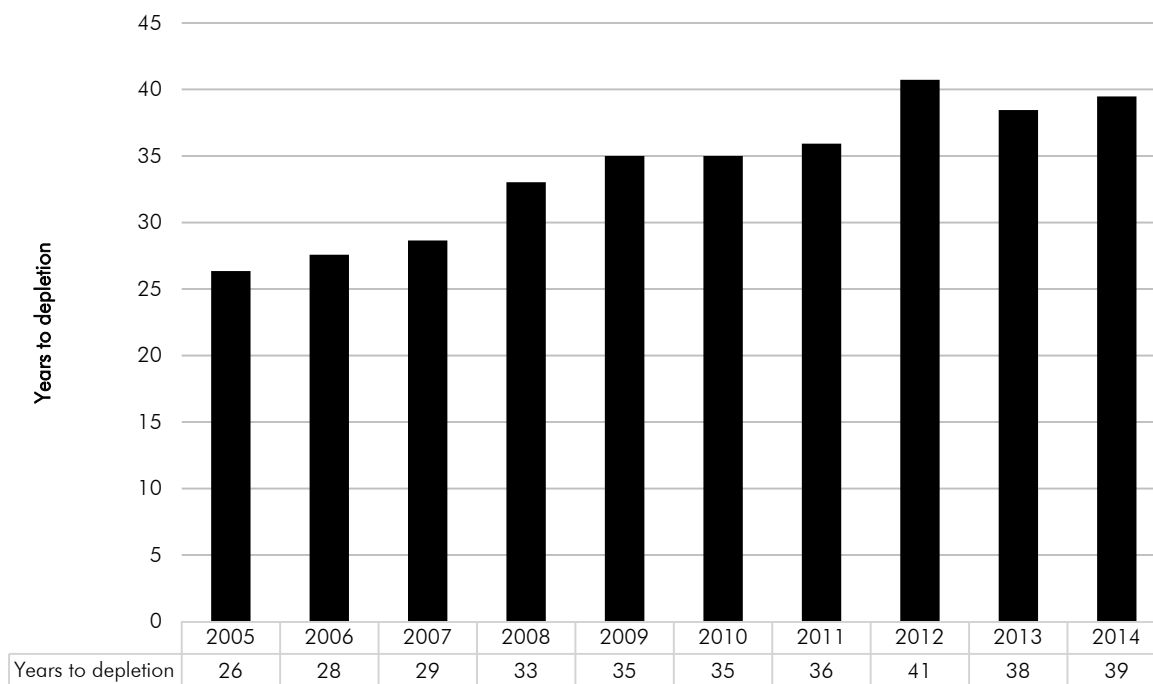
Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

3.2b Gold – years to depletion, 2005 to 2014

The number of years to depletion of gold rose from 26 in 2005 to 39 in 2014, an increase of 50%. The annual change in years to depletion was positive in most years, the two exceptions being 2010 (unchanged) and 2013 (a decrease of 7,3%).

Figure 3.6: Gold – years to depletion, 2005–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 3.6: Gold – years to depletion, 2005–2014

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Years to depletion									
26	28	29	33	35	35	36	41	38	39
% change from previous period									
10,1%	7,6%	3,6%	13,8%	6,1%	0,0%	2,9%	13,9%	-7,3%	2,6%

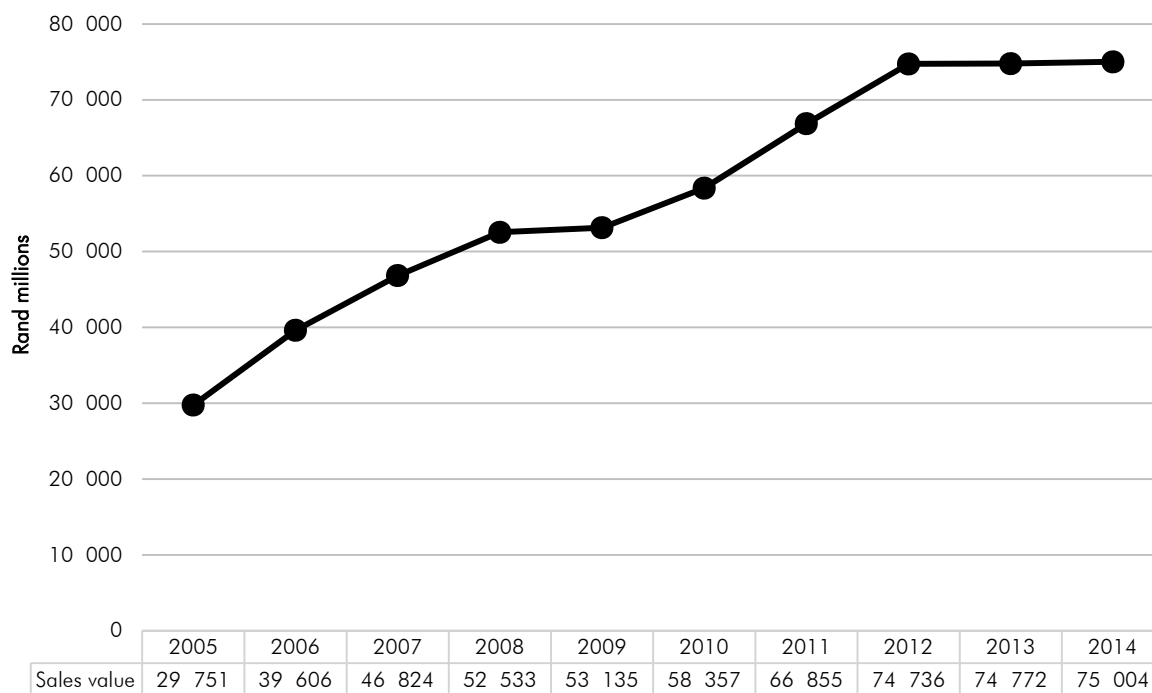
Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

3.2c Gold value of sales, 2005 to 2014

The value of gold sales rose from R29 751 million in 2005 to R75 004 million in 2014, an increase of 152,1%. The value of gold sales and their growth rates for individual years are shown in Figure 3.7 and Table 3.7.

Figure 3.7: Gold value of sales, 2005–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 3.7: Gold value of sales, 2005–2014

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	Rand millions									
	29 751	39 606	46 824	52 533	53 135	58 357	66 855	74 736	74 772	75 004
	% change from previous period									
	0,0%	33,1%	18,2%	12,2%	1,1%	9,8%	14,6%	11,8%	0,0%	0,3%

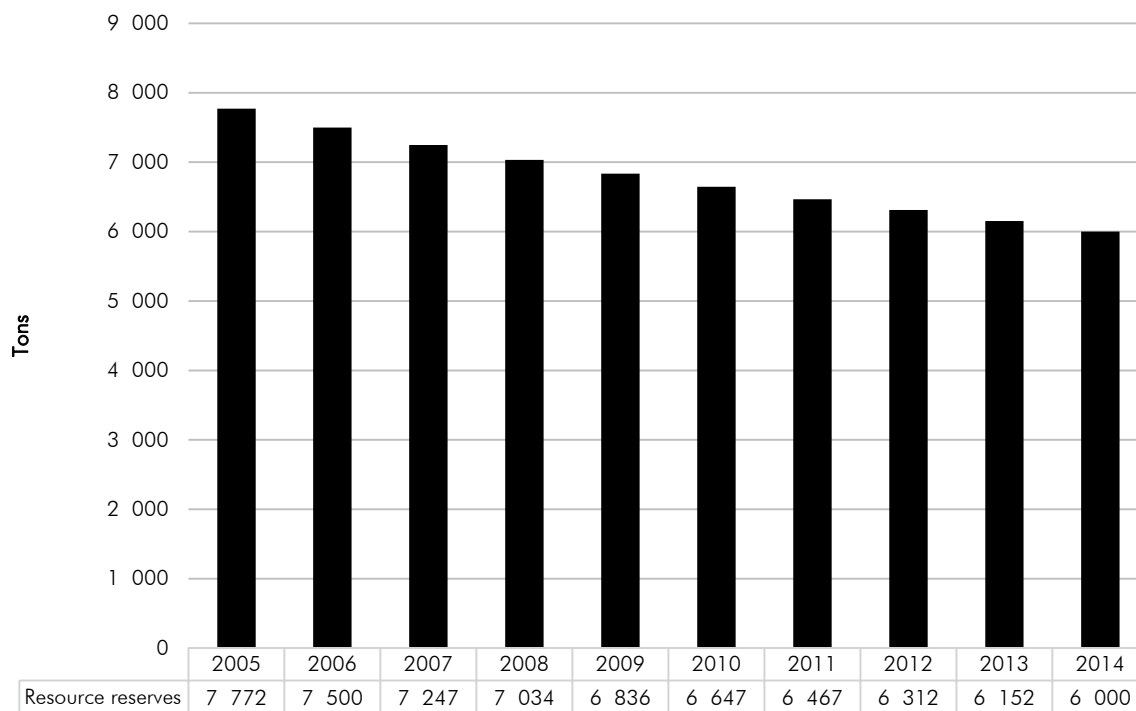
Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

3.2d Gold resource reserves, 2005 to 2014

Gold reserves fell from 7 772 tons in 2005 to 6 000 tons in 2014, a decrease of 22,8%. The annual rate of decline was relatively stable (Figure 3.8 and Table 3.8).

Figure 3.8: Gold resource reserves, 2005–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 3.8: Gold resource reserves, 2005–2014

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Tons									
7 772	7 500	7 247	7 034	6 836	6 647	6 467	6 312	6 152	6 000
% change from previous period									
-3,7%	-3,5%	-3,4%	-2,9%	-2,8%	-2,8%	-2,7%	-2,4%	-2,5%	-2,5%

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

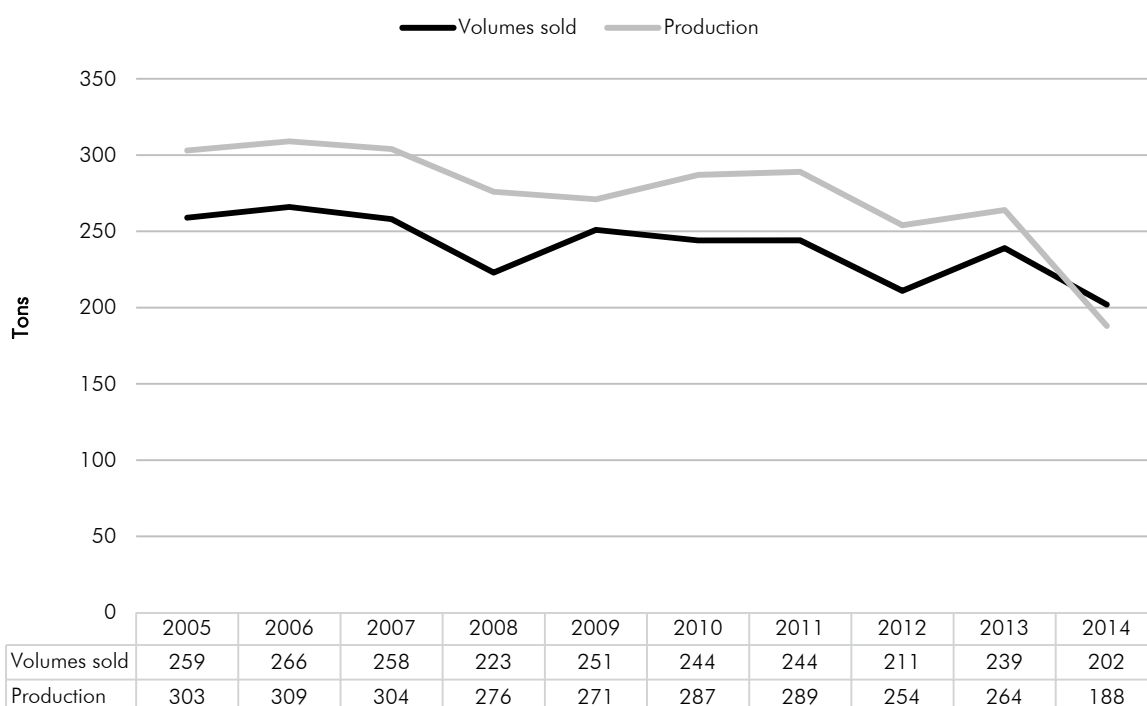
3.3 Platinum group metals, 2005 to 2014

The information on platinum group metals (PGMs) includes the volume of production and sales, years to depletion, the value of sales, and reserves.

3.3a PGM production and volumes sold, 2005 to 2014

PGM production fell from 303 tons in 2005 to 188 tons in 2014, a decrease of 37,9%. PGM sales followed a similar pattern, decreasing by 22,0% from 259 tons in 2005 to 202 tons in 2014. Production and sales and their growth rates for individual years are shown in Figure 3.9 and Table 3.9.

Figure 3.9: PGM production and volumes sold, 2005–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 3.9: PGM production and volumes sold, 2005–2014

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Tons										
Volumes sold	259	266	258	223	251	244	244	211	239	202
Production	303	309	304	276	271	287	289	254	264	188
% change from previous period										
Volumes sold	-0,4%	2,7%	-3,0%	-13,6%	12,6%	-2,8%	0,0%	-13,5%	13,3%	-15,5%
Production	9,8%	2,0%	-1,6%	-9,2%	-1,8%	5,9%	0,7%	-12,1%	3,9%	-28,8%

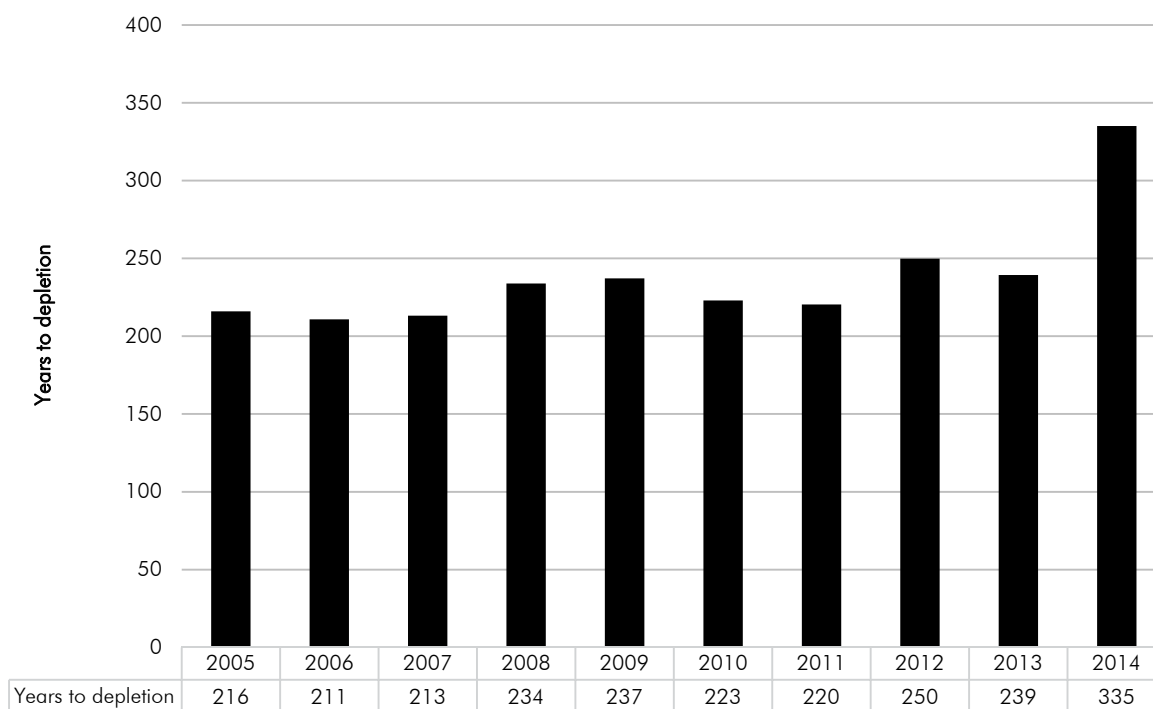
Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

3.3b PGMs – years to depletion, 2005 to 2014

The number of years to depletion of PGMs rose from 216 in 2005 to 335 in 2014, an increase of 55,1%. Years to depletion and their growth rates for individual years are shown in Figure 3.10 and Table 3.10.

Figure 3.10: PGMs – years to depletion, 2005–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 3.10: PGMs – years to depletion, 2005–2014

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Years to depletion									
216	211	213	234	237	223	220	250	239	335
% change from previous period									
-9,3%	-2,4%	1,2%	9,7%	1,4%	-6,0%	-1,1%	13,3%	-4,2%	40,0%

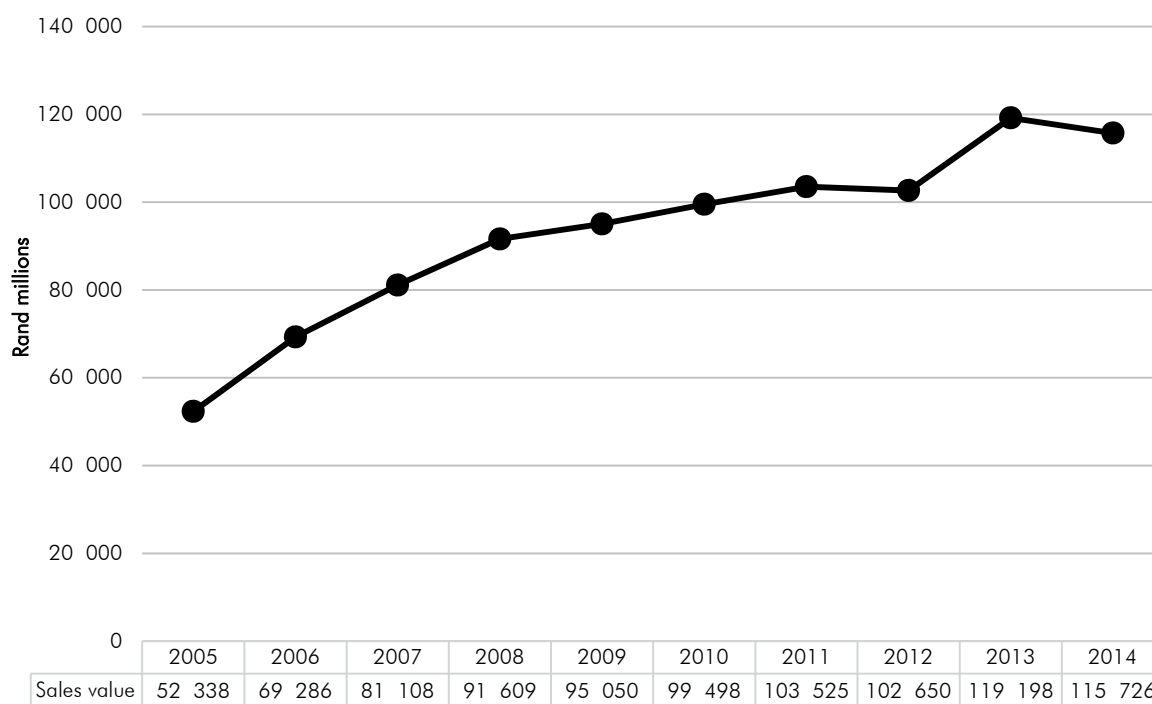
Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

3.3c PGM value of sales, 2005 to 2014

The value of PGM sales rose from R52 338 million in 2005 to R115 726 million in 2014, an increase of 121,1%. The annual growth rate ranged from 32,4% in 2006 to -2,9% in 2014.

Figure 3.11: PGM value of sales, 2005–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 3.11: PGM value of sales, 2005–2014

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Rand millions										
	52 338	69 286	81 108	91 609	95 050	99 498	103 525	102 650	119 198	115 726
% change from previous period										
	19,3%	32,4%	17,1%	12,9%	3,8%	4,7%	4,0%	-0,8%	16,1%	-2,9%

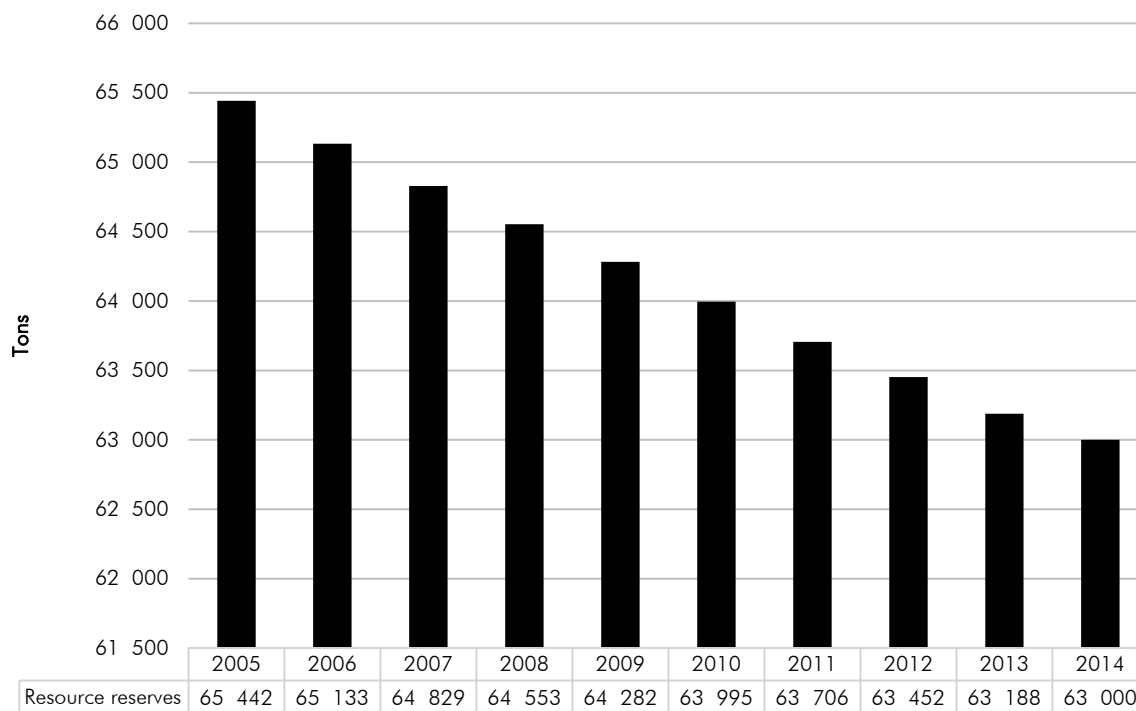
Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

3.3d PGM resource reserves, 2005 to 2014

PGM reserves fell from 65 442 tons in 2005 to 63 000 tons in 2014, a decrease of 3,7%. The annual rate of decline was relatively stable (Figure 3.12 and Table 3.12).

Figure 3.12: PGM resource reserves, 2005–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 3.12: PGM resource reserves, 2005–2014

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Tons									
65 442	65 133	64 829	64 553	64 282	63 995	63 706	63 452	63 188	63 000
% change from previous period									
-0,5%	-0,5%	-0,5%	-0,4%	-0,4%	-0,4%	-0,5%	-0,4%	-0,4%	-0,3%

Source: Statistics South Africa. Environmental Economic Accounts Tables.

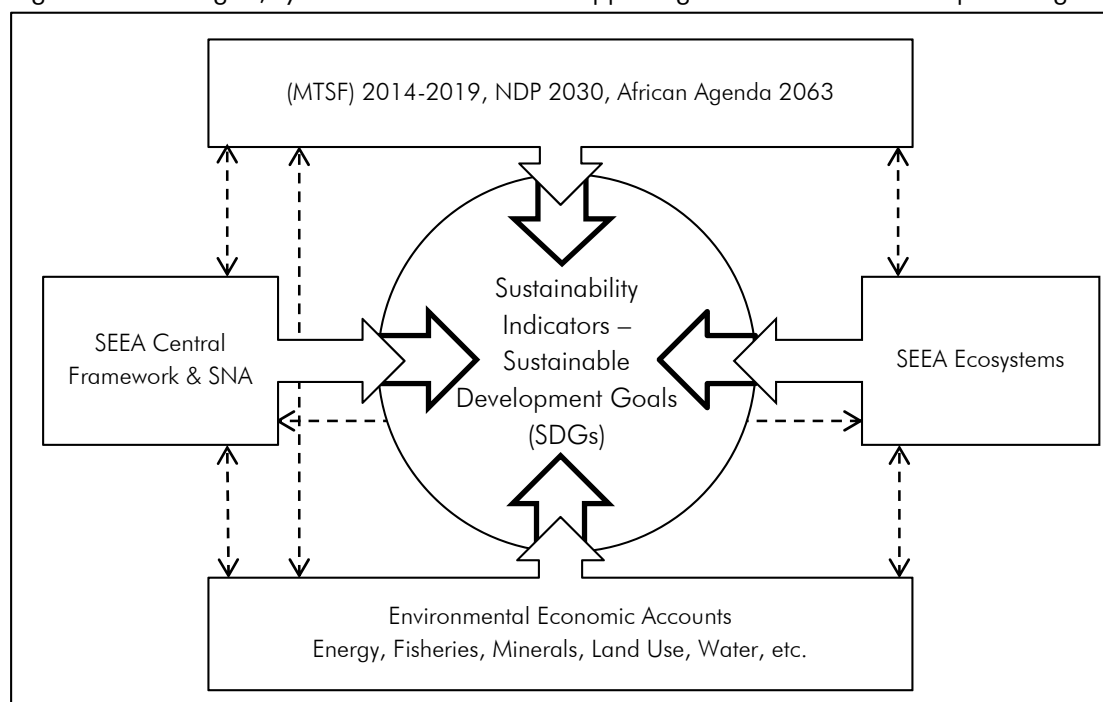
Note: Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

Chapter 4 – Indicators

4.1 Introduction

The 2030 Agenda for Sustainable Development includes a set of 17 sustainable development goals (SDGs), with related targets and indicators.¹⁰ The SDGs were recognised as a comprehensive and complex platform for achieving progress internationally and at national level. Building on the United Nations Sustainable Development Summit during September 2015 in New York, visibility, impetus and political support were brought together to agree on the 2030 Agenda for Sustainable Development and promote its implementation at national and international levels. Member states, heads of state, government representatives, international organisations, business leaders and civil society are participating, with the United Nations Development Programme leading this process.¹¹ South Africa started by hosting a training workshop at Statistics South Africa (Stats SA), coordinated by the South African National Statistical System, from 20 to 23 September 2016, to build capacity and plan the way forward. A second workshop was held on 14 November 2016 at Stats SA to establish working groups from the economic, environmental and social sectors to finalise South Africa's progress report by end-March 2017 through a series of workshops.^{12,13} Figure 4 illustrates the strategies for supporting the sustainable development agenda.

Figure 4.1: Strategies, systems and frameworks supporting the sustainable development agenda



Source: Statistics South Africa, 2016.

With the United Nations' (UN) key focus on sustainable development, it is important for countries to include the SDGs, their targets and a comprehensive list of indicators in strategic plans and budget frameworks. South Africa's Medium Term Strategic Framework (MTSF)¹⁴ 2014–2019 and National Development Plan (NDP)² 2030 address issues contained in the SDGs¹⁰ (Figure 4). The African Agenda 2063 is the African continent's vision to achieve a global strategy to ensure socio-economic transformation through action plans in the short, medium and long term.¹⁵ The selection of indicators presented in this report is based on the environmental economic accounts for South Africa, focusing on energy, fisheries and minerals, linking the environment and economy or showing rates of depletion to determine whether the resource is managed sustainably. Where possible, census and population data are included.

Table 4.1: Summary of indicators

Sector	Subsector	Indicator
Energy	Energy consumption	Sectoral energy consumption
		Percentage of total energy
Fisheries	Abalone	Closing stock
		Total allowable catch
	Cape horse mackerel	Closing stock
		Total allowable catch
	Hake	Closing stock
		Total allowable catch
	South Coast rock lobster	Closing stock
		Total allowable catch
	West Coast rock lobster	Closing stock
		Total allowable catch
Minerals	Coal	Production volume
		Employment
		Value of sales
	Gold	Production volume
		Employment
		Value of sales
	Platinum group metals	Production volume
		Employment
		Value of sales

4.2 Selection criteria and linkages

Similar criteria were used for the selection of the various indicators. They are as follows:

- Relevant – the indicator provides information that is useful for decision-making with regard to employment, economic growth and meeting sustainable development goals.
- Easy to understand – for both technical and non-expert audiences, using tables and graphics.
- Reliable – the quality of measurement is consistent and can be repeated over time-based data series.
- Accessible – the data are available although they may differ for the various resources in terms of the latest data releases obtained from the data custodians.

Linkages

The indicators provide linkages to the MTSF 2014–2019, the NDP 2030, SDGs and African Agenda 2063 as follows:

Medium Term Strategic Framework

MTSF Outcome 4 – Minerals: Decent employment through inclusive growth – building a sustainable mining sector will ensure employment. The development and implementation of Minerals Beneficiation Action Plans (MBAPs) to facilitate growth, employment, rural incomes, investment, output, and African regional development.^{8,14}

Outcome 10 – Energy: Protect and enhance environmental assets and natural resources. South Africa's indigenous energy resource base is dominantly coal. The transition to a climate-change resilient, low-carbon economy is vital.^{8,14}

Outcome 10 – Fisheries: Protect and enhance environmental assets and natural resources. The challenge for South Africa's marine fisheries is to maintain the integrity of and balance in marine ecosystems while deriving sustainable economic benefits from living marine resources. The main constraint to achieve this is the productivity of key resources, which is influenced by the environment and affected by illegal catches, and it is therefore important to manage catches in each fishery in a sustainable way. The desired outcomes are to rebuild stocks of threatened species and to reduce illegal catches.^{8,14}

National Development Plan 2030

Energy, Fisheries and Minerals:

The implementation of a long-term vision through to 2030 towards addressing unemployment, inequality and creating a more inclusive society through the protection of South Africa's natural resources and a transition to an environmentally sustainable, climate-change resilient, low-carbon economy is contained in the NDP 2030.²

Sustainable Development Goals

Energy:

SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all.¹⁰

Fisheries:

SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. The fishing sector in South Africa plays an important role in small- and large-scale fishing enterprises.

SDG 12: Ensure sustainable consumption and production patterns, curbing food and post-harvest losses.

SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development by regulating harvesting, and ending overfishing and illegal, unreported, unregulated and destructive fishing practices.¹⁰

Minerals:

SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.¹⁰ South Africa's mining sector remains a key sector in terms of this goal.

African Agenda 2063

Aspiration 1 is a prosperous Africa based on inclusive growth and sustainable development. Africa by 2063 aspires to be a prosperous continent, with the means and resources to drive its own development.¹⁵

Energy:

Cities and other settlements are hubs of cultural and economic activities, with modernised infrastructure, and people have access to all the basic necessities of life, including energy. Harness all African energy resources to ensure modern, efficient, reliable, cost-effective and environmentally friendly energy for all African households, businesses, industries and institutions. Build the national and regional energy pools and grids, and the Programme for Infrastructure Development in Africa energy projects.¹⁵

Fisheries:

Africa's blue economy, which is three times the size of its landmass, shall be a major contributor to continental transformation and growth; advancing knowledge on marine and aquatic biotechnology; the growth of an Africa-wide shipping industry; the development of sea, river and lake transport and fishing; and the exploitation and beneficiation of deep-sea mineral and other resources.¹⁵

Minerals:

Africa's collective GDP will be proportionate to the continent's share of the world's population and natural resource endowments. It will require implementation of the African Industrial Development Action Plan and the African Mining Vision at country and continental levels, in particular fast-tracking the establishment of the Centre for African Mineral Development.¹⁵

4.3 Energy: Sectoral energy consumption as a percentage of total, 2013

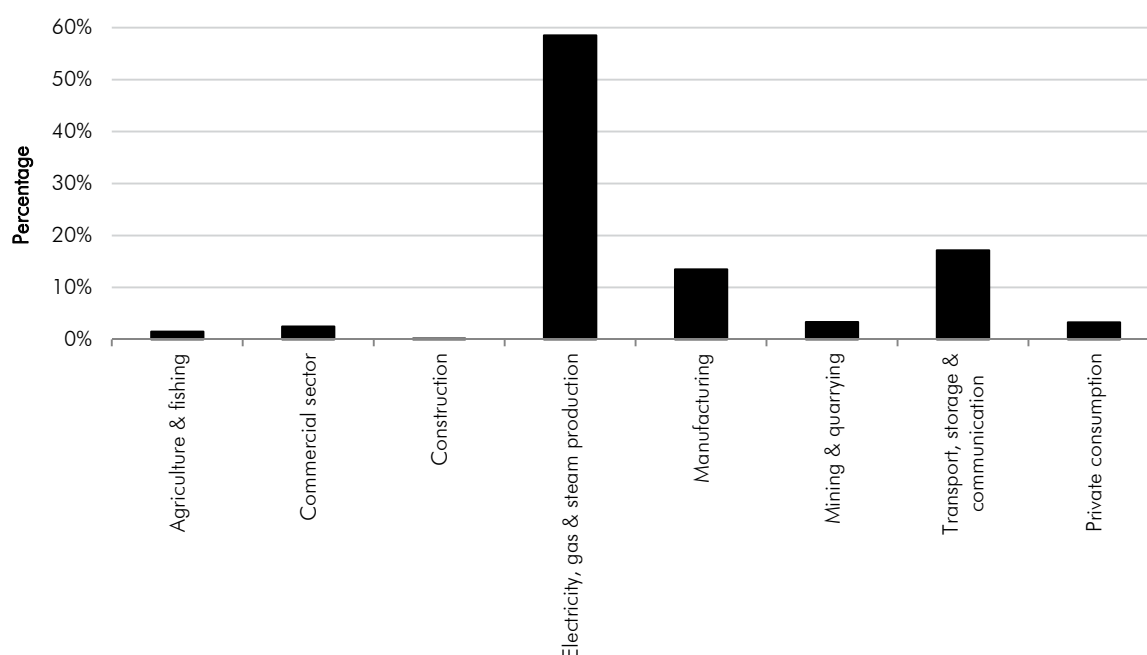
Description

Sectoral energy consumed as a percentage of the total after discounting energy lost from transformation, distribution and exports. Energy refers to the provision of heat and power by different fuels, such as primary, non-renewable and renewable sources.

Measurement

Units	Spatial scale	Frequency
Consumption (Terajoules expressed in %)	National	Annually

Figure 4.2: Sectoral energy consumption as a percentage of total, 2013



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 4.2: Sectoral energy consumption as a percentage of total, 2013

	2013	
	Terajoules	%
Agriculture & fishing	72 710	1,5%
Commercial sector	121 217	2,5%
Construction	8 811	0,2%
Electricity, gas & steam production	2 830 561	58,5%
Manufacturing	651 958	13,5%
Mining & quarrying	161 953	3,3%
Transport, storage & communication	829 278	17,2%
Private consumption	621 003	3,3%

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded. Percentages were calculated from the tables in the Excel Online Workbook containing decimals.

The bulk of energy is transformed into electricity, gas and steam generation. In 2013 the second largest consumer of energy was transport, storage and communication (17,2%), followed by manufacturing (13,5%). The remaining sectors used less than 5%, with construction the lowest at 0,2% of total use.

Data sources

- Statistics South Africa. Environmental Economic Accounts Tables. Pretoria, South Africa.
- Department of Energy, 2016. *Energy Balances 2013 version 1*. Pretoria, South Africa.
http://www.energy.gov.za/energy_balances

4.4 Abalone: Sustainability of Abalone (*Haliotis midae*) stocks, 1996 to 2015

Description

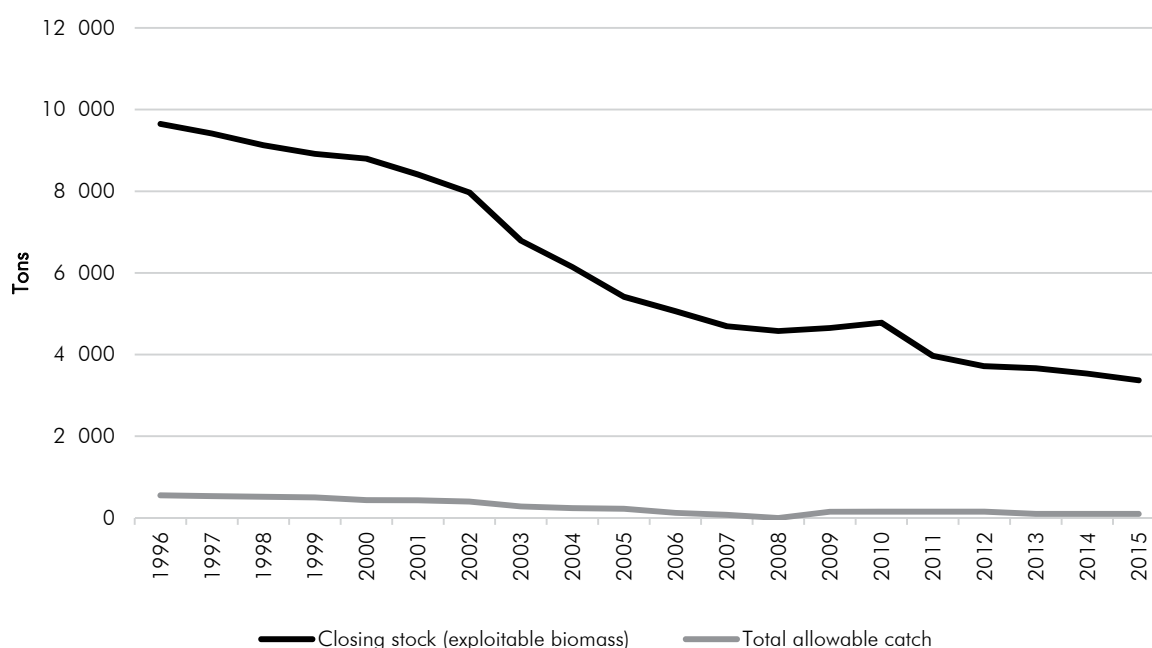
The indicator shows the closing stock for abalone (*Haliotis midae*) and TAC for fish and fish farming pertaining to abalone.

Measurement

Units	Spatial scale	Frequency
Tons	National	Annually

Stock status	Depleted to heavily depleted stock.
Fishing pressure	Heavy fishing pressure.

Figure 4.3: Abalone, closing stock and total allowable catch, 1996–2015



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 4.3: Abalone, closing stock and total allowable catch, 1996–2015

1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Closing stock (exploitable biomass) (tons)									
9 649	9 415	9 126	8 916	8 799	8 411	7 972	6 789	6 146	5 417
Total allowable catch (tons)									
550	530	515	500	433	432	400	282	237	223
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Closing stock (exploitable biomass) (tons)									
5 063	4 696	4 576	4 651	4 780	3 969	3 716	3 662	3 533	3 369
Total allowable catch (tons)									
125	75	0	150	150	150	150	96	96	96

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded.

The closing stock or exploitable biomass for abalone declined from 9 649 tons in 1996 to 3 369 tons in 2015, a decrease of 65,1%. The TACs recorded were 550 tons in 1996 and 96 tons in 2015, a decrease of 82,5%. No TAC was allocated in 2008 when the abalone fishery was suspended. The status of the abalone resource continues to decline in response to extremely high levels of illegal harvesting and over-allocation of TAC.¹⁶ Figure 4.3 and Table 4.3 show the closing stock and total allowable catches for individual years.

Data sources

- Statistics South Africa. Environmental Economic Accounts Tables. Pretoria, South Africa.
- Department of Agriculture, Forestry and Fisheries (DAFF), 2017. Cape Town Fisheries Division. <http://www.nda.agric.za/doadev/sidemenu/fisheries/>
- Marine Resource Assessment and Management Group, University of Cape Town, 2017. Cape Town, South Africa. <http://www.maram.uct.ac.za/>
- Department of Agriculture, Forestry and Fisheries, 2014. *Status of the South African Marine Fishery Resources 2014*. Cape Town, South Africa.

4.5 Cape horse mackerel: Sustainability of Cape horse mackerel (*Trachurus capensis*) stocks, 1996 to 2015

Description

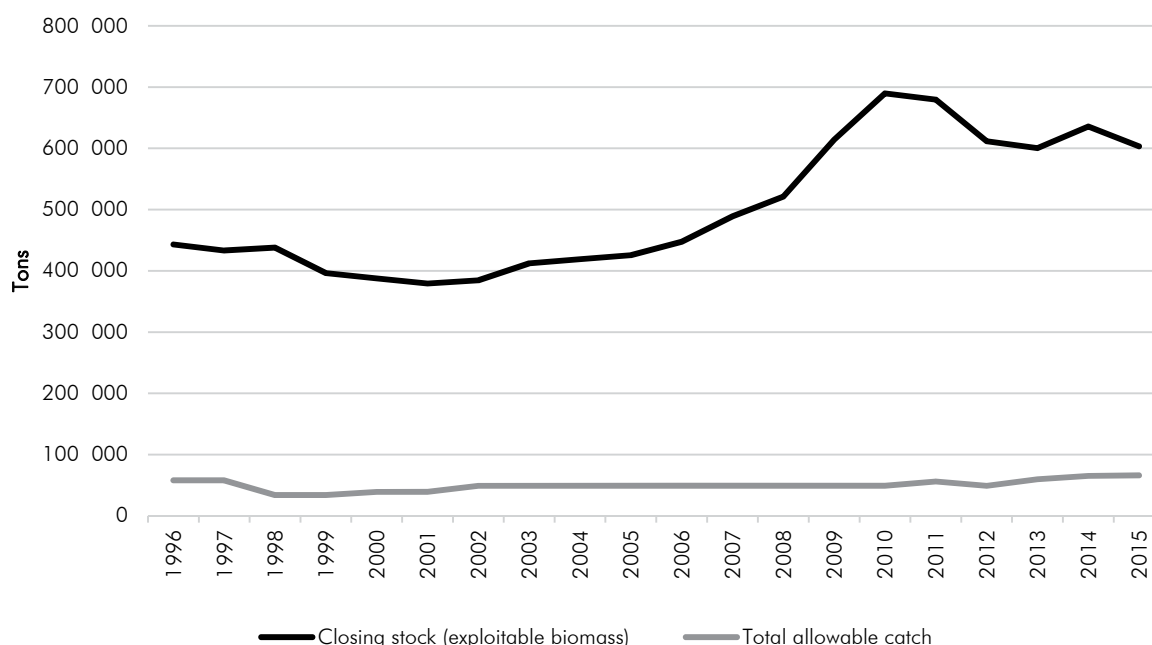
The indicator shows the closing stock for Cape horse mackerel (*Trachurus capensis*) and TAC for fish and fish farming pertaining to Cape horse mackerel.

Measurement

Units	Spatial scale	Frequency
Tons	National	Annually

Stock status	Optimal stock.
Fishing pressure	Optimal fishing pressure.

Figure 4.4: Cape horse mackerel, closing stock and total allowable catch, 1996–2015



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 4.4: Cape horse mackerel, closing stock and total allowable catch, 1996–2015

1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Closing stock (exploitable biomass) (tons)									
442 955	433 227	437 979	396 404	387 747	379 428	384 545	412 155	419 013	425 457
Total allowable catch (tons)									
58 000	58 000	34 000	34 000	39 000	39 000	49 000	49 000	49 000	49 000
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Closing stock (exploitable biomass) (tons)									
447 528	488 980	521 205	614 210	689 625	679 449	611 613	600 288	635 728	603 207
Total allowable catch (tons)									
49 000	49 000	49 000	49 000	49 000	56 000	49 000	59 745	65 165	66 000

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded.

The closing stock for Cape horse mackerel was recorded at 442 995 tons in 1996 and 603 207 tons in 2015, an increase of 36,1%. The TAC levels declined from 58 000 tons in 1996 to 49 000 tons in 2010, an overall decrease of 15,5%. The TAC levels rose to 56 000 tons in 2011, 59 745 tons in 2013 and 66 000 tons in 2015, increasing by 34,7% from 2010 to 2015. Figure 4.4 and Table 4.4 show the closing stock and total allowable catches for individual years.

Data sources

- Statistics South Africa. Environmental Economic Accounts Tables. Pretoria, South Africa.
- Department of Agriculture, Forestry and Fisheries, 2017. Cape Town Fisheries Division. <http://www.nda.agric.za/doadev/sidemenu/fisheries/>
- Marine Resource Assessment and Management Group, University of Cape Town, 2017. Cape Town, South Africa. <http://www.maram.uct.ac.za/>
- Department of Agriculture, Forestry and Fisheries, 2014. *Status of the South African Marine Fishery Resources 2014*. Cape Town, South Africa.

4.6 Hake: Sustainability of hake (*Merluccius paradoxus* and *M. capensis*) stocks, 1996 to 2015

Description

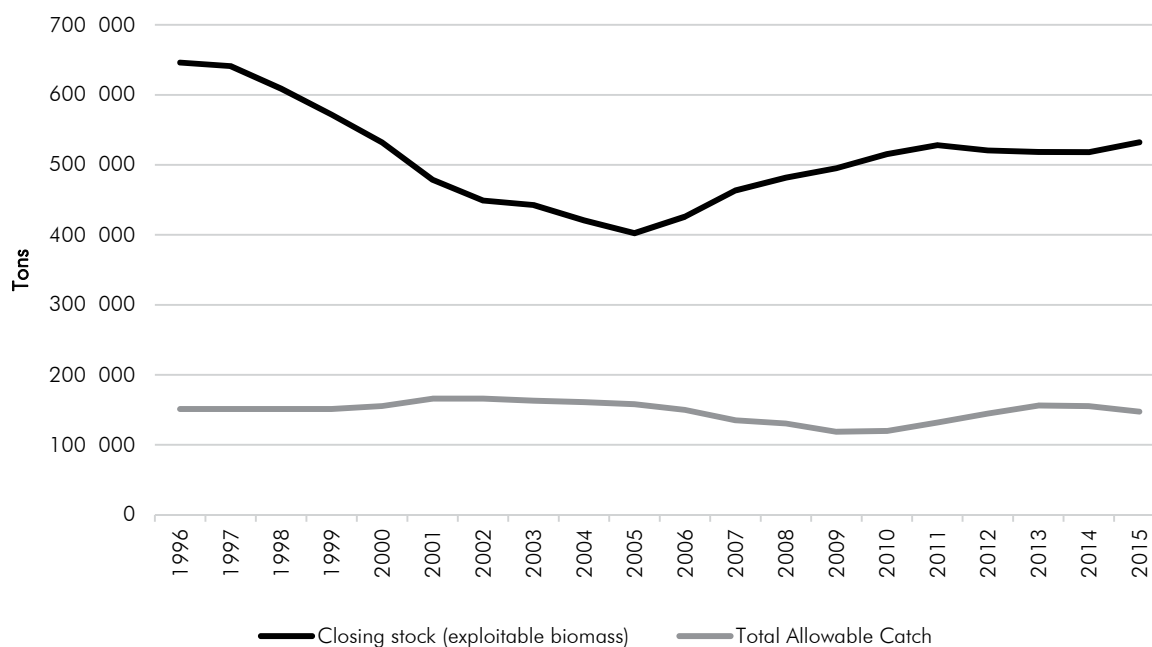
This indicator shows the closing stock for hake (*Merluccius paradoxus* and *M. capensis*) and TAC for fish and fish farming pertaining to hake.

Measurement

Units	Spatial scale	Frequency
Tons	National	Annually

Stock status	Shallow-water hake stock is abundant; deep-water hake stock is at optimal status.
Fishing pressure	Optimal fishing pressure for deep-water and shallow-water hake.

Figure 4.5: Hake, closing stock and total allowable catch, 1996–2015



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 4.5: Hake, closing stock and total allowable catch, 1996–2015

1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Closing stock (exploitable biomass) (tons)									
645 987	641 147	608 886	571 716	532 062	478 758	449 056	442 681	420 552	402 316
Total allowable catch (tons)									
151 000	151 000	151 000	151 000	155 500	166 000	166 000	163 000	161 000	158 000
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Closing stock (exploitable biomass) (tons)									
425 926	463 383	481 782	495 161	515 363	528 222	520 588	518 191	518 085	532 168
Total allowable catch (tons)									
150 000	135 000	130 532	118 578	119 831	131 780	144 671	156 075	155 280	147 500

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded.

The closing stock for hake was recorded at 645 987 tons in 1996 and 532 168 tons in 2015, a decline of 17,6%. Figure 4.5 and Table 4.5 show the exploitable biomass for the individual years. The TAC levels were recorded at 151 000 tons in 1996 and 147 500 tons in 2015, which is a decline of 2,3%. Deep-water hake has shown excellent recovery, almost to its estimated maximum sustainable yield level, while shallow-water hake remains well above its estimated maximum sustainable yield level in 2014, according to the Status of South African Marine Resources.

Data sources

- Statistics South Africa. Environmental Economic Accounts Tables. Pretoria, South Africa.
- Department of Agriculture, Forestry and Fisheries (DAFF), 2017. Cape Town Fisheries Division. <http://www.nda.agric.za/doadev/sidemenu/fisheries/>
- Marine Resource Assessment and Management Group, University of Cape Town, 2017. Cape Town, South Africa. <http://www.maram.uct.ac.za/>
- Department of Agriculture, Forestry and Fisheries, 2014. *Status of the South African Marine Fishery Resources 2014*. Cape Town, South Africa.

4.7 South Coast rock lobster: Sustainability of South Coast rock lobster (*Palinurus gilchristi*) stocks, 1996 to 2015

Description

This indicator shows the closing stock for South Coast rock lobster (*Palinurus gilchristi*) and TAC for fish and fish farming pertaining to South Coast rock lobster.

Measurement

Units	Spatial scale	Frequency
Tons	National	Annually

Stock status	Optimal to depleted stock.
Fishing pressure	Optimal to light fishing pressure.

Figure 4.6: South Coast rock lobster, closing stock and total allowable catch, 1996–2015



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 4.6: South Coast rock lobster, closing stock and total allowable catch, 1996–2015

1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Closing stock (exploitable biomass) (tons)									
1 013	1 116	852	1 131	1 344	1 274	1 372	1 365	1 307	1 358
Total allowable catch (tons)									
415	402	402	377	365	340	340	350	382	382
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Closing stock (exploitable biomass) (tons)									
1 089	1 122	1 064	1 268	1 142	1 380	1 311	1 192	1 067	1 065
Total allowable catch (tons)									
382	382	363	345	328	323	326	342	359	342

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded.

The South Coast rock lobster resource is considered to be in an optimal to depleted state, with fishing pressure on this resource optimal to light in an attempt to rebuild the stock. Catches have remained stable over the past few years. The closing stock for South Coast rock lobster was 1 013 tons in 1996 and 1 065 tons in 2015, an increase of 5,1%. The TACs were recorded at 415 tons in 1996 and 342 tons in 2015, a decline of 17,6%. Individual exploitable biomass and total allowable catches are shown in Figure 4.6 and Table 4.6.

Data sources

- Statistics South Africa. Environmental Economic Accounts Tables. Pretoria, South Africa.
- Department of Agriculture, Forestry and Fisheries (DAFF), 2017. Cape Town Fisheries Division. <http://www.nda.agric.za/doadev/sidemenu/fisheries/>
- Marine Resource Assessment and Management Group, University of Cape Town, 2017. Cape Town, South Africa. <http://www.maram.uct.ac.za/>
- Department of Agriculture, Forestry and Fisheries, 2014. *Status of the South African Marine Fishery Resources 2014*. Cape Town, South Africa.

4.8 West Coast rock lobster: Sustainability of West Coast rock lobster (*Jasus lalandii*) stocks, 1996 to 2015

Description

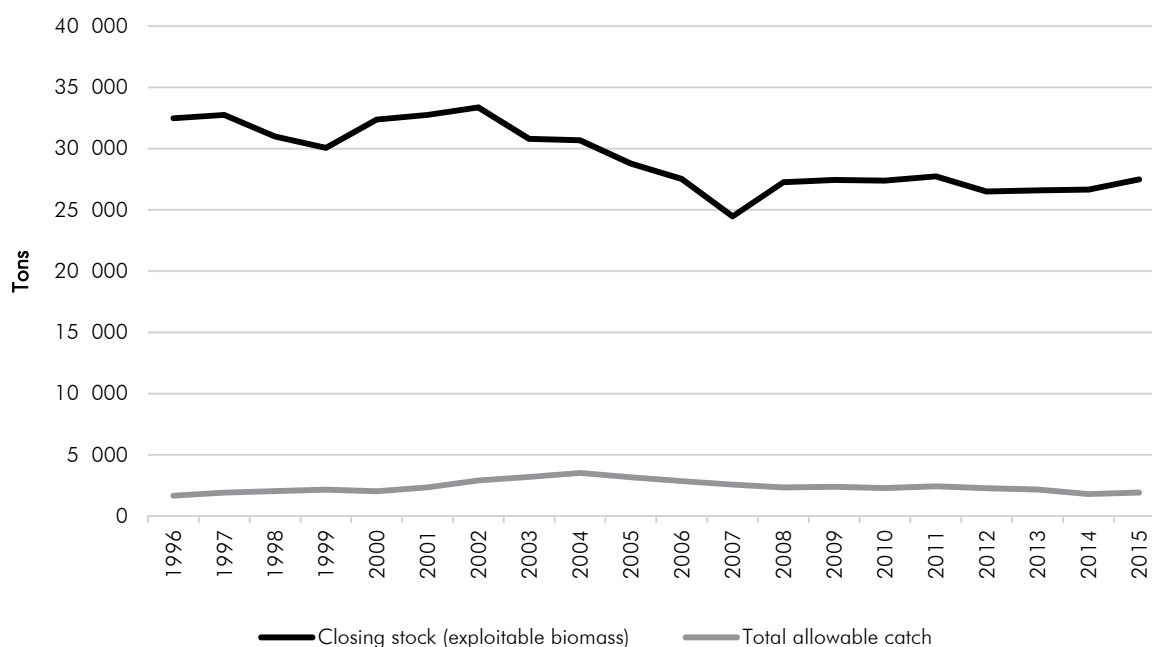
Closing stock for West Coast rock lobster (*J lalandii*) and TAC for fish and fish farming pertaining to West Coast rock lobster.

Measurement

Units	Spatial scale	Frequency
Tons	National	Annually

Stock status	Depleted to heavily depleted stock.
Fishing pressure	Optimal fishing pressure.

Figure 4.7: West Coast rock lobster, closing stock and total allowable catch, 1996–2015



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 4.7: West Coast rock lobster, closing stock and total allowable catch, 1996–2015

1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Closing stock (exploitable biomass) (tons)									
32 482	32 749	30 993	30 067	32 377	32 755	33 361	30 788	30 670	28 776
Total allowable catch (tons)									
1 675	1 920	2 038	2 156	2 018	2 353	2 915	3 206	3 527	3 174
2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Closing stock (exploitable biomass) (tons)									
27 525	24 472	27 249	27 439	27 382	27 735	26 499	26 584	26 653	27 491
Total allowable catch (tons)									
2 857	2 571	2 340	2 393	2 286	2 426	2 276	2 167	1 801	1 924

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded.

The closing stock for West Coast rock lobster was 32 482 tons in 1996 and 27 491 tons in 2015, a decrease of 15,4%. The exploitable biomass and total allowable catches for West Coast rock lobster for individual years are shown in Figure 4.7 and Table 4.7. The TACs for West Coast rock lobster were 1 675 tons in 1996 and 1 924 tons in 2015, an increase of 14,9%. According to the *Status of the South African Marine Fishery Resources*, the West Coast rock lobster resources remain severely depleted, with the stocks being only 2,6% of their pre-fished levels. Reductions in catches and illegal harvesting are imperative if recovery of this resource is to be effected.

Data sources

- Statistics South Africa. Environmental Economic Accounts Tables. Pretoria, South Africa.
- Department of Agriculture, Forestry and Fisheries (DAFF), 2017. Cape Town Fisheries Division. <http://www.nda.agric.za/doadev/sidemenu/fisheries/>
- Marine Resource Assessment and Management Group, University of Cape Town, 2017. Cape Town, South Africa. <http://www.maram.uct.ac.za/>
- Department of Agriculture, Forestry and Fisheries, 2014. *Status of the South African Marine Fishery Resources 2014*. Cape Town, South Africa.

4.9 Coal: Production compared with employment and the value of sales in the coal-mining sector, 1995 to 2014

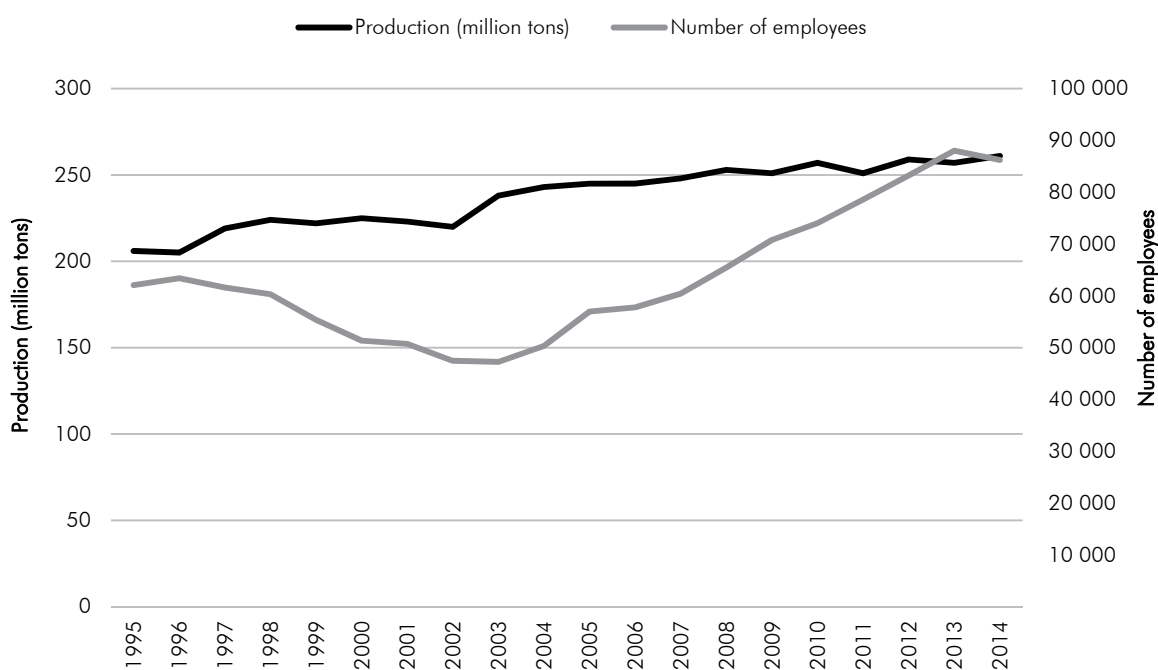
Description

Production of coal, number of workers employed and the value of sales in the coal-mining sector.

Measurement

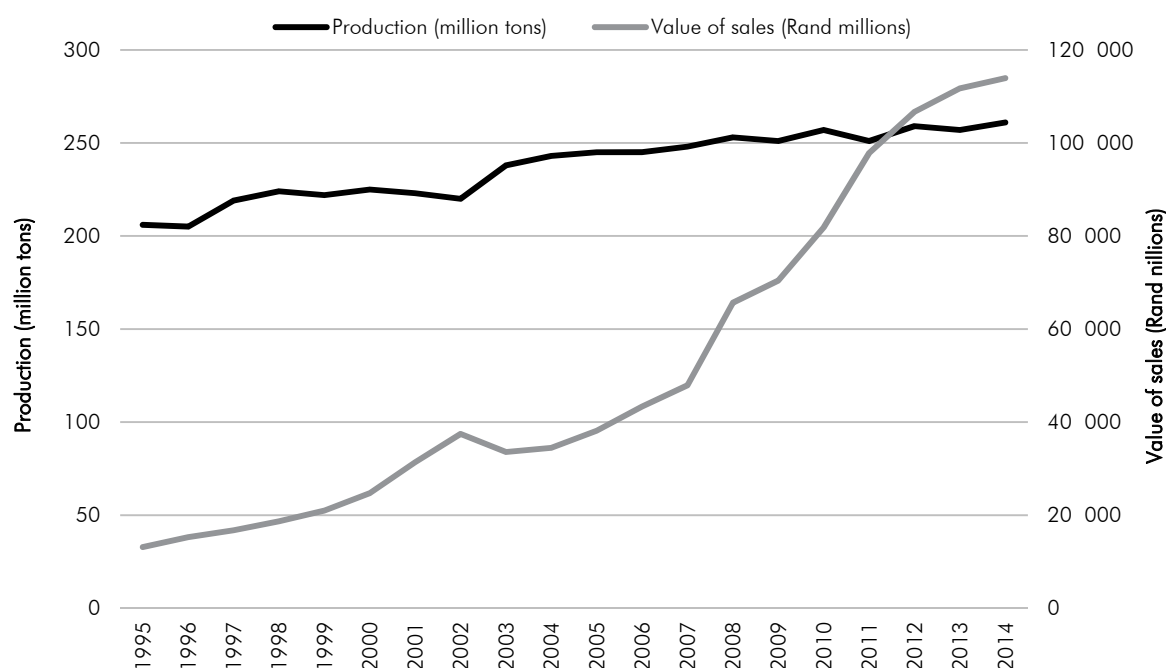
Units	Spatial scale	Frequency
Number of employees	National	Annually
Production (million tons)		
Value of sales (Rand millions)		

Figure 4.8a: Production of coal and employment in the coal-mining industry, 1995–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Figure 4.8b: Production of coal and value of sales in the coal-mining sector, 1995–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 4.8: Production of coal, employment and value of sales in the coal-mining industry, 1995–2014

1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Production (million tons)									
206	205	219	224	222	225	223	220	238	243
Number of employees									
62 064	63 397	61 607	60 309	55 378	51 346	50 740	47 469	47 239	50 327
Value of sales (Rand millions)									
13 138	15 285	16 765	18 680	20 993	24 728	31 370	37 459	33 588	34 464
2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Production (million tons)									
245	245	248	253	251	257	251	259	257	261
Number of employees									
56 971	57 778	60 439	65 484	70 791	74 025	78 579	83 244	88 039	86 242
Value of sales (Rand millions)									
38 132	43 342	47 933	65 683	70 427	81 831	97 817	106 675	111 723	113 930

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded.

Table 4.8 and Figure 4.8a show the production of coal and the number of employees in the coal-mining industry from 1995 to 2014. Figure 4.8b shows the production of coal and the value of sales in the coal-mining industry from 1995 to 2014. From 1995 to 2014, coal production rose from 206 million tons to 261 million tons, an increase of 26,7%. Employment in the coal-mining industry rose from 62 064 employees in 1995 to 86 242 in 2014, an increase of 38,9%. The value of sales was R113 930 million in 2014, up 1,9% from R111 723 million the year before.

Data sources

- Statistics South Africa. Environmental Economic Accounts Tables. Pretoria, South Africa.
- Department of Mineral Resources, 2017. *South Africa's Mineral Industry, 2014–2015*. Pretoria, South Africa. <http://www.dmr.gov.za/publications/south-africas-mineral-industry-sami.html/>

4.10 Gold: Production compared with employment and the value of sales in the gold-mining sector, 1995 to 2014

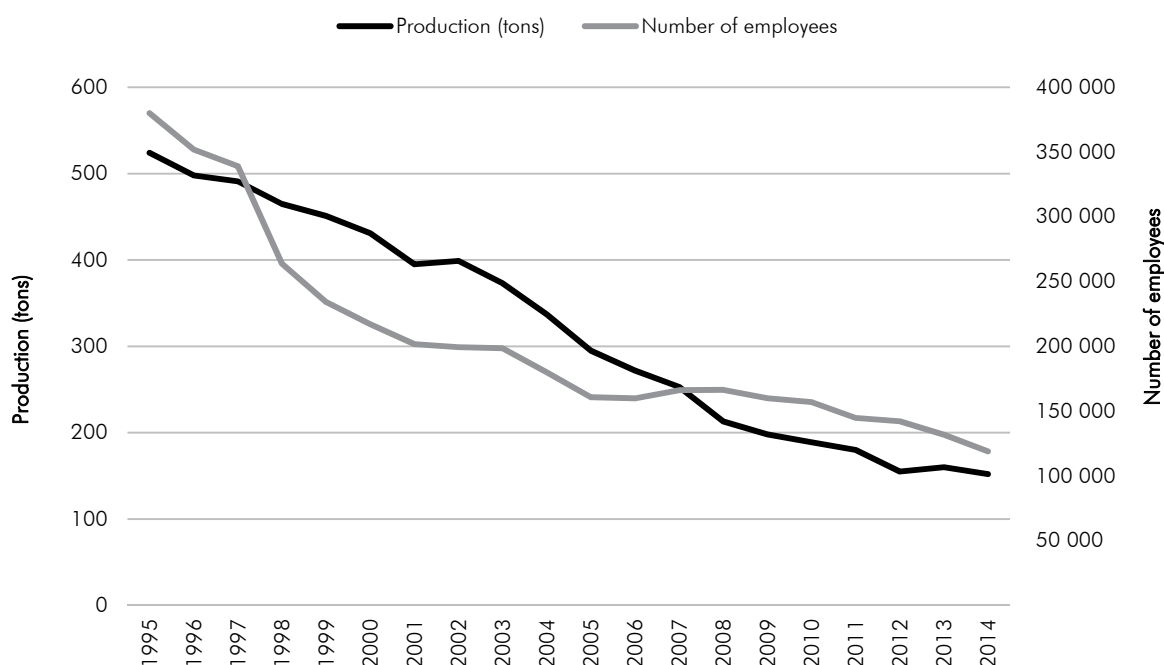
Description

Production of gold, number of workers employed and the value of sales in the gold-mining sector.

Measurement

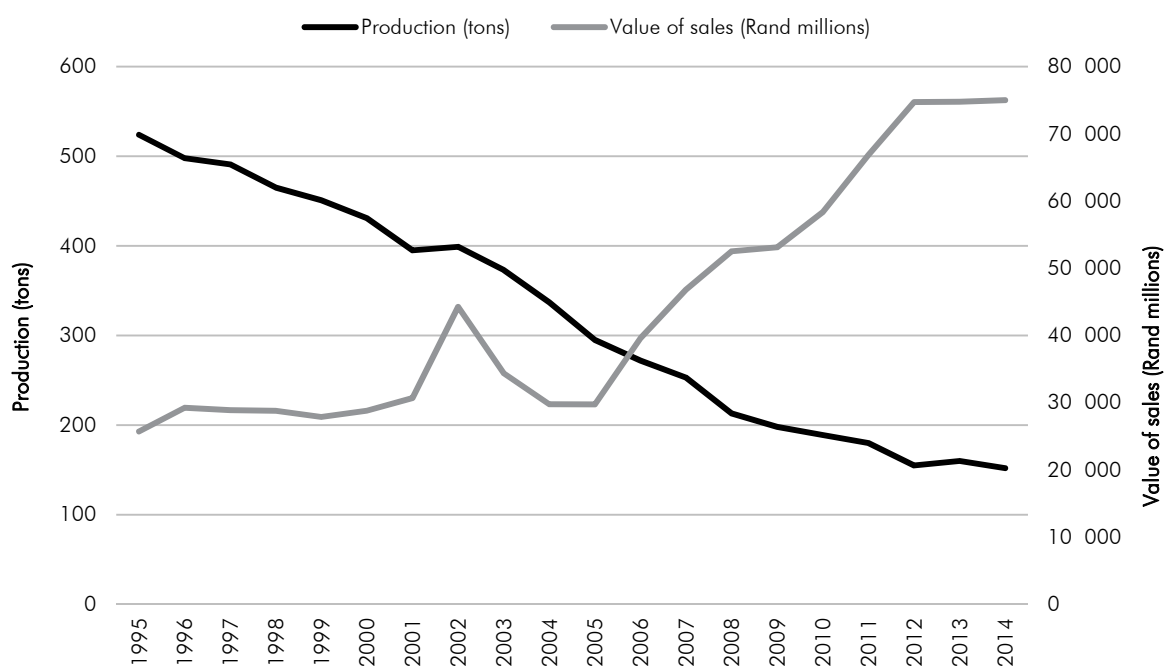
Units	Spatial scale	Frequency
Number of employees	National	Annually
Production (tons)		
Value of sales (Rand millions)		

Figure 4.9a: Production of gold and employment in the gold-mining industry, 1995–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Figure 4.9b: Production of gold and value of sales in the gold-mining industry, 1995–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 4.9: Production of gold, employment and value of sales in the gold-mining industry, 1995–2014

1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Production (tons)									
524	498	491	465	451	431	395	399	373	337
Number of employees									
380 086	352 039	339 078	263 869	234 206	216 982	201 673	199 378	198 465	179 964
Value of sales (Rand millions)									
25 714	29 238	28 881	28 788	27 893	28 825	30 704	44 271	34 395	29 765
2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Production (tons)									
295	272	253	213	198	189	180	155	160	152
Number of employees									
160 634	159 782	166 063	166 424	159 925	157 019	144 799	142 201	131 738	118 939
Value of sales (Rand millions)									
29 751	39 606	46 824	52 533	53 135	58 357	66 855	74 736	74 772	75 004

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded.

Table 4.9, Figure 4.9a and Figure 4.9b show the production of gold, the number of employees in the gold-mining industry and value of sales from 1995 to 2014. From 1995 to 2014, gold production decreased by 70,9% from 524 tons to 152 tons. Employment in the gold-mining industry decreased by 68,7% from 380 086 employees in 1995 to 118 939 in 2014. The value of sales was R75 004 million in 2014, up 191,7% from R25 714 million in 1995.

Data sources

- Statistics South Africa. Environmental Economic Accounts Tables. Pretoria, South Africa.
- Department of Mineral Resources, 2017. *South Africa's Mineral Industry, 2014–2015*. Pretoria, South Africa. <http://www.dmr.gov.za/publications/south-africas-mineral-industry-sami.html/>

4.11 Platinum group metals: Production compared with employment and the value of sales in the PGM-mining sector, 1995 to 2014

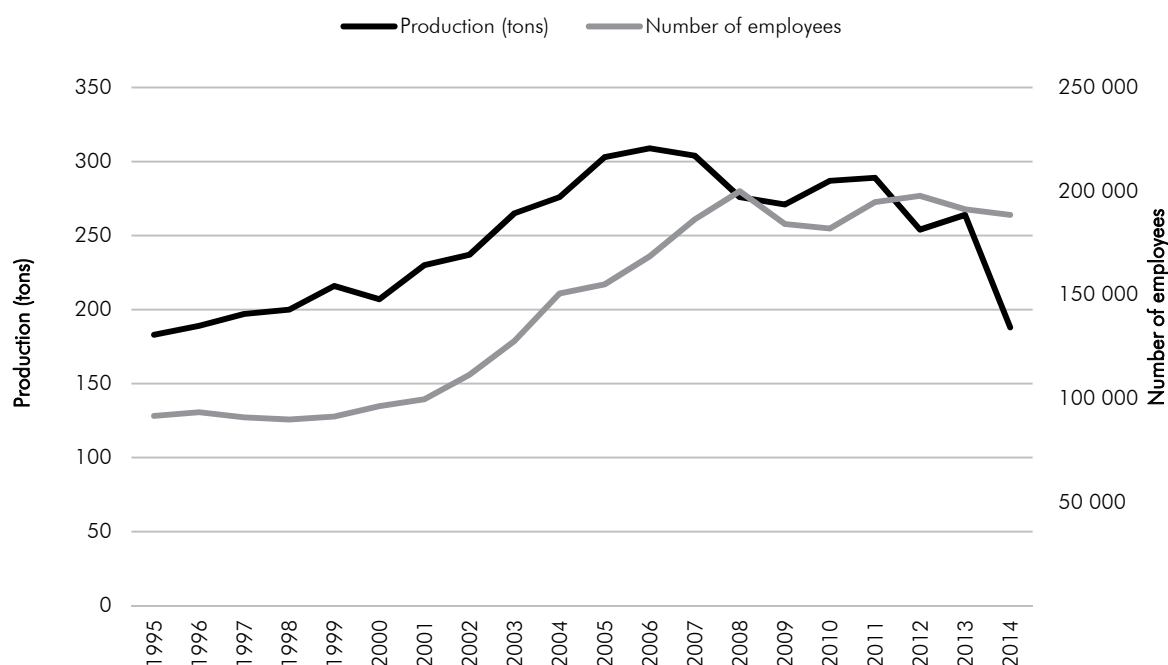
Description

Production of PGMs, number of workers employed and sales in the PGM-mining sector.

Measurement

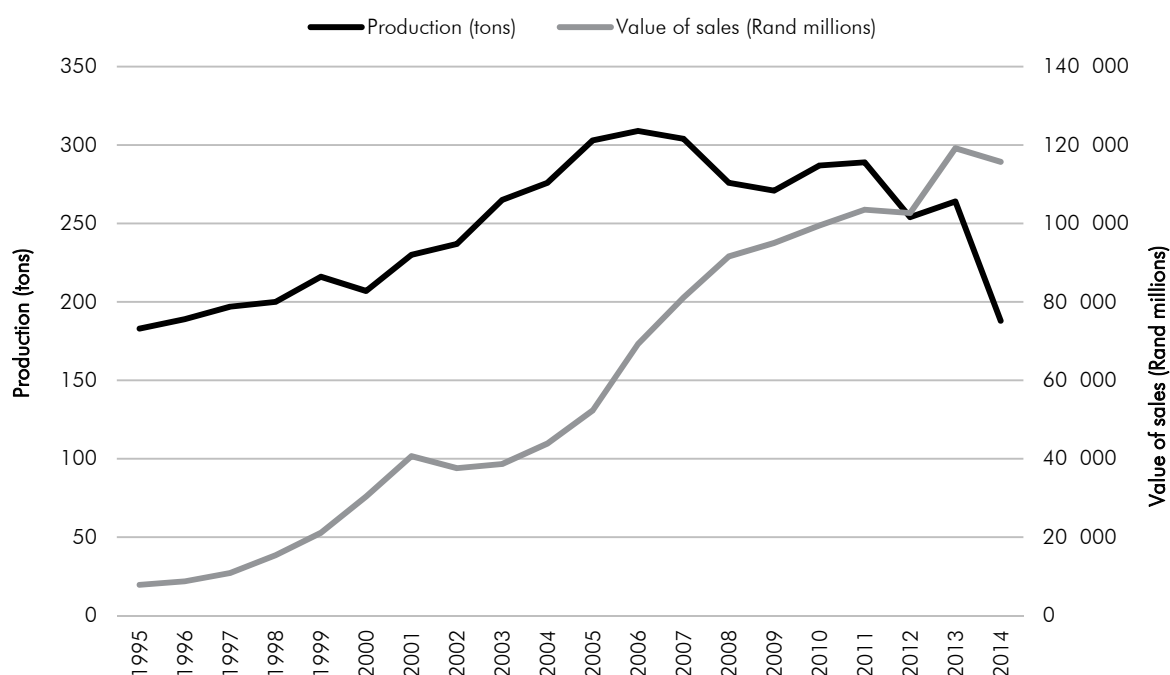
Units	Spatial scale	Frequency
Number of employees	National	Annually
Production (tons)		
Value of sales (Rand millions)		

Figure 4.10a: Production of PGMs and employment in the PGM-mining industry, 1995–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Figure 4.10b: Production of PGMs and value of sales in the PGM-mining industry, 1995–2014



Source: Statistics South Africa. Environmental Economic Accounts Tables.

Table 4.10: Production of PGMs, employment and value of sales in the PGM-mining industry, 1995–2014

1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Production (tons)									
183	189	197	200	216	207	230	237	265	276
Number of employees									
91 528	93 304	90 876	89 781	91 269	96 273	99 575	111 419	127 672	150 630
Value of sales (Rand millions)									
7 839	8 727	10 867	15 392	21 083	30 383	40 652	37 612	38 657	43 871
2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Production (tons)									
303	309	304	276	271	287	289	254	264	188
Number of employees									
155 034	168 530	186 411	199 948	184 163	181 969	194 745	197 752	191 261	188 512
Value of sales (Rand millions)									
52 338	69 286	81 108	91 609	95 050	99 498	103 525	102 650	119 198	115 726

Source: Statistics South Africa. Environmental Economic Accounts Tables.

Note: Figures are rounded.

Table 4.10, Figure 4.10a and Figure 4.10b show the production of PGMs, the number of employees in the PGM-mining industry and value of sales from 1995 to 2014. From 1995 to 2014, PGM production increased by 2,7% from 183 tons to 188 tons. Employment in the PGM-mining industry increased by 105,9% from 91 528 employees in 1995 to 188 512 in 2014. The value of sales decreased by 3,2% from R119 198 million in 2013 to R115 726 million in 2014.

Data sources

- Statistics South Africa. Environmental Economic Accounts Tables. Pretoria, South Africa.
- Department of Mineral Resources, 2017. *South Africa's Mineral Industry, 2014–2015*. Pretoria, South Africa. <http://www.dmr.gov.za/publications/south-africas-mineral-industry-sami.html/>

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<http://www.agenda2063.au.int>
- 16 Department of Agriculture, Forestry and Fisheries, 2014. *Status of the South African Marine Fishery Resources 2014*. Cape Town, South Africa.