Australian Bureau of Statistics

30 June 1995

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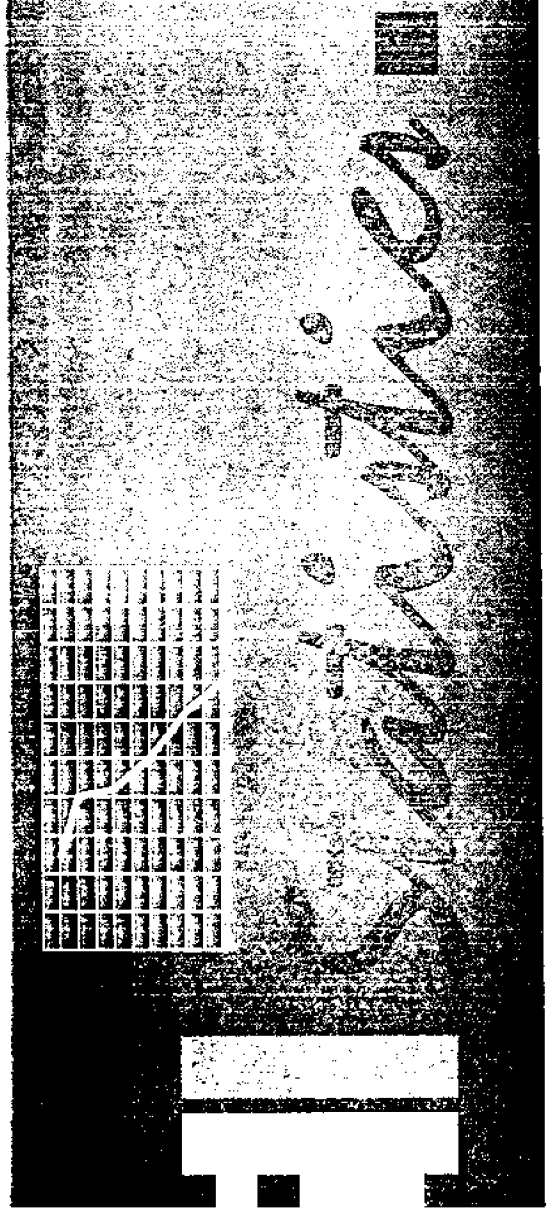
Australian National Accounts: National Balance Sheet



AUSTRALIAN NATIONAL ACCOUNTS:
NATIONAL BALANCE SHEET
30 JUNE 1995

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AUSTRALIAN BUREAU OF STATISTICS

CATALOGUE NO. 5241.0

Produced by the Australian Government Publishing Service

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PREFACE

In March 1995, the Australian Bureau of Statistics (ABS) published the *Occasional Paper: National Balance Sheets for Australia: Issues and Experimental Estimates 1989 to 1992* (5241.0). In that publication, the ABS published for the first time experimental estimates of the value of some of Australia's natural resources as well as data on produced assets and financial assets and liabilities with the rest of the world. As a result, the country's net worth was derived from these estimates.

That publication was prepared partly because the national balance sheet is part of the system of national accounts and as such is an important analytical tool, particularly given the growing recognition of the importance of wealth in understanding economic behaviour. At the same time, the inclusion of the estimates of natural resources reflected increasing concern about issues relating to the environment. The publication sought comment from users, especially on the approaches to the measurement of the value of natural resources.

Since that time, the ABS has had discussions with the users of these statistics in a variety of different forums, such as government departments, universities, environment and accounting bodies, and in international meetings. As a result of these discussions, and further work by the ABS, this present publication provides updated and improved estimates of Australia's national balance sheet. It revises some of the approaches, extends the time series to 1995 and provides estimates for the first time for the balance sheets of the four domestic sectors of the economy (households, government, non-financial corporations and financial corporations) including their net worth.

Among the modifications in methods in this publication has been the way in which the 'real' rate of discount has been calculated. Derivation of a real rate of discount is an important element in the calculation of the net present value of sub-soil assets and forests. In the previous publication the rate was derived by deducting the annual change in the Consumer Price Index (CPI) from the Commonwealth government's long-term bond rate. The approach taken on this occasion has been to use the annual change in a weighted average of the purchasers' prices of the inputs to the mining and forest industries deducted from the corporate borrowing rate for large businesses. The ABS believes that this approach is more appropriate. Even so, care should be taken when interpreting the results for Australia's natural resources because of the difficulties of valuation, and the size of the resource stock being valued: economic demonstrated sub-soil assets represent only an (unknown) proportion of Australia's total resource stock as companies involved in sub-soil exploitation tend to identify resource bodies only to the extent that they intend exploiting them in the foreseeable future.

Valuation of natural resources is a difficult and contentious undertaking. It will be some time, both internationally and domestically, before there is an accepted method of identifying the nature and extent of the

resources being valued as well as agreement on the valuation techniques that are appropriate for the exercise. For this reason the estimates of natural resources presented in this publication are experimental. It is recommended that the interpretation of the monetary values be undertaken in conjunction with the physical measures, which are also shown in this publication.

The estimates included in this publication are consistent with the September Quarter 1996 releases of *Australian National Accounts: National Income, Expenditure and Product* (5206.0), *International Investment Position, Australia* (5306.0) and *Australian National Accounts: Financial Accounts* (5232.0) and with the 1994–95 release of *Australian National Accounts: Capital Stock* (5221.0)

Comments are welcome. Written comments should be addressed to the Director, National Accounts Research Section, Australian Bureau of Statistics (PO Box 10, Belconnen, ACT 2616; fax (06) 251 6009 or email on john.joisce@abs.gov.au.) For phone enquiries please contact John Joisce (06) 252 6170, Holman Durie (06) 252 6489 or Sean Thompson (06) 252 7121.

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March 1997

CHAPTER 1 — NATIONAL BALANCE SHEET ESTIMATES

The estimates of Australia's Consolidated Balance Sheet and Accumulation and Revaluation Accounts as at 30 June 1989 to 1995 are presented in tables 1.2 to 1.7. Selected estimates and associated percentage changes are shown in table 1.1.

NET WORTH

Net worth is defined as the difference between total assets and liabilities (including shares). Australia's net worth was estimated at $1,840 billion at the end of June 1995, an increase of 18% over the six years from June 1989. Throughout this period the level of net worth (with the exception of the year ended 30 June 1992) grew continuously, and consistently represented at least four times the level of annual Gross Domestic Product (GDP).

Changes in net worth can be explained in the light of changes in the various components of the balance sheet.

PRODUCED ASSETS

Total produced assets were estimated at $1,317 billion as at 30 June 1995 in current prices, an increase of almost one-quarter over the level six years earlier. The estimated value of produced assets rose at an average annual rate of 4.1% between 30 June 1989 and 30 June 1995 and consistently accounted for about 60% of total assets throughout the period.

The estimated value of produced assets represented 68% of net worth at 30 June 1989, and during the period reached a peak of slightly more than 73% (at 30 June 1992) before falling to about 72% at the end of the period.

Produced assets have been split into tangible fixed assets and inventories, and at 30 June 1995 over 90% of produced assets were tangible fixed assets. Most of these were dwellings and non-dwelling construction, with machinery and equipment making up most of the rest. The remainder of produced assets (just over 6%) are recorded as inventories, the majority of which is private non-farm stocks. Plantation forests accounted for less than 1% of produced assets.

TABLE 1.1 SUMMARY OF CONSOLIDATED NATIONAL BALANCE SHEET, AT 30 JUNE 1989 TO 1995

	1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
Non-financial produced assets				($billion)			
Fixed assets	990.9	1 067.8	1 100.1	1 123.6	1 156.2	1 190.8	1 236.6
Inventories (excluding plantation forests)	60.8	68.3	72.5	70.4	69.7	72.3	72.8
Plantation forests	4.8	5.4	6.2	6.4	5.5	6.9	7.2
Total	*1 056.5*	*1 141.5*	*1 178.8*	*1 200.4*	*1 231.4*	*1 270.0*	*1 316.6*
Non-financial non-produced assets							
Land	541.7	533.1	544.8	525.8	557.5	597.6	625.2
Sub-soil assets	99.6	82.6	99.3	102.1	115.6	126.2	149.8
Native forests	8.1	8.5	8.9	8.9	9.0	9.0	9.1
Total	*649.4*	*624.3*	*653.0*	*636.8*	*682.1*	*732.7*	*784.0*
Financial assets (with the rest of the world)	*101.0*	*112.1*	*113.0*	*123.7*	*139.2*	*149.2*	*158.2*
Total assets	**1 806.9**	**1 877.8**	**1 944.8**	**1 961.0**	**2 052.6**	**2 152.0**	**2 258.8**
Less							
Total liabilities (to the rest of the world)	*253.1*	*282.4*	*303.7*	*323.6*	*355.9*	*387.6*	*418.7*
Equals							
Net worth	**1 553.8**	**1 595.4**	**1 641.1**	**1 637.4**	**1 696.7**	**1 764.4**	**1 840.1**
Memorandum items							
Foreign direct investment in Australia	85.5	96.1	101.5	107.3	113.8	123.1	129.4
Australian direct investment abroad	37.3	39.5	38.4	44.7	46.8	49.1	53.3
Non-rateable land	n.a.	n.a.	n.a.	n.a.	26.9	28.3	30.2
	AS A PERCENTAGE OF NET WORTH						
Produced assets	68.0	71.5	71.8	73.3	72.6	72.0	71.6
Non-produced assets	41.8	39.1	39.8	38.9	40.2	41.5	42.6
Net international investment position with the rest of the world(a)	–9.8	–10.7	–11.6	–12.2	–12.8	–13.5	–14.2
	ANNUAL GROWTH RATE (%)						
Produced assets	n.a.	8.0	3.3	1.8	2.6	3.1	3.7
Non-produced assets	n.a.	–3.9	4.6	–2.5	7.1	7.4	7.0
Net foreign debt	n.a.	12.0	12.0	4.8	8.4	10.0	9.3
Financial assets with the rest of the world	n.a.	11.0	0.8	9.5	12.5	7.2	6.0
Liabilities to the rest of the world	n.a.	11.6	7.5	6.6	10.0	8.9	8.0
Net worth	n.a.	2.7	2.9	-0.2	3.6	4.0	4.3

(a) Net International Investment position with the rest of the world is the difference between Australia's foreign financial assets and liabilities. A negative outcome indicates that the level of foreign liabilities is greater than the level of foreign assets.

NON-PRODUCED ASSETS

The value of non-produced assets rose from $649 billion at 30 June 1989, to $784 billion by 30 June 1995, a rise of about 20%. The value of non-produced assets fell in the year ending 30 June 1990 and again in the year ended 30 June 1992. In the former case falls in the value of both land and sub-soil assets contributed to the drop, whilst on the latter occasion the fall was a result of a drop in the value of land.

Overall, the contribution of non-produced assets to net worth has remained at about 40% throughout the period.

Non-produced assets comprise mainly land, which represented around 80% of total non-produced assets throughout the period. Sub-soil assets accounted for up to 19% and native forests the remainder.

POSITION WITH REST OF THE WORLD

The level of financial assets with the rest of the world held by Australian residents stood at just over $158 billion at 30 June 1995, an increase of about 55% since 30 June 1989. These assets were mainly in the form of shares and other equity or loans which together accounted for almost three-quarters of the total. Official reserve assets represented almost 13% of total financial assets with the rest of the world at 30 June 1995. For the last three years the estimated level of financial assets with the rest of the world accounted for slightly more than 8% of net worth.

The level of liabilities to non-residents was $419 billion at 30 June 1995, up 65% over the level six years earlier. Over 95% of this was in the form of either shares and other equity ($167 billion), securities other than shares ($167 billion), or loans ($70 billion).

The difference between Australia's assets and liabilities with the rest of the world represents the net international investment position. From 30 June 1989 to 30 June 1995 this amount rose 71% to $261 billion or 14.2% of net worth at the end of June 1995. This was up from 9.8% at the end of June 1989. Most of the increase is attributable to the current account deficits recorded during the period, reflecting Australia's shortage of domestic saving.

TABLE 1.2 AUSTRALIA'S CONSOLIDATED BALANCE SHEET AND ACCUMULATION AND REVALUATION ACCOUNTS, 1989-90
($ billion)

	Opening balance sheet 30 June 1989	*Net capital formation*	*Financial transactions*	*Other changes in volume of assets account*	*Re-valuation account*	*Closing balance sheet 30 June 1990*
TOTAL ASSETS	**1,806.9**	**39.3**	**8.2**	**5.0**	**17.0**	**1,877.8**
Non-financial assets	**1,705.9**	**39.3**		**5.0**	**14.1**	**1,765.7**
Produced assets	**1,056.5**	**39.3**		**n.a.**	**44.2**	**1,141.5**
Fixed assets	*990.9*	*34.1*		*n.a*	*42.7*	*1,067.8*
Tangible fixed assets	*990.9*	*34.1*		*n.a.*	*42.7*	*1,067.8*
Dwellings	319.8	11.0		n.a.	24.0	354.9
Non-dwelling construction	405.5	13.4		n.a.	20.3	439.1
Machinery and equipment	206.0	8.7		n.a.	3.9	218.5
Livestock - fixed assets	14.8	0.6		n.a.	-2.4	13.0
Real estate transfer expenses (a)	44.8	0.4		n.a.	-3.0	42.2
Intangible fixed assets	*n.a.*	*n.a.*		*n.a.*	*n.a.*	*n.a.*
Inventories	*65.6*	*5.2*		*n.a.*	*1.5*	*73.7*
Private non-farm stocks	50.1	1.8		n.a.	1.8	55.1
Farm stocks	1.8	-0.2		n.a.	-0.1	1.5
Public marketing authorities	1.5	3.1		n.a.	-0.7	3.8
Other public authorities	2.1	0.3		n.a.	-	2.3
Livestock - inventories	5.4	0.2		n.a.	-0.1	5.5
Plantation forests	4.8	0.1		n.a.	0.5	5.4
Valuables	*n.a.*	*n.a.*		*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**649.4**			**5.0**	**-30.1**	**624.3**
Tangible non-produced assets	*649.4*			*5.0*	*-30.1*	*624.3*
Land	541.7			n.a.	-8.6	533.1
Subsoil assets	99.6			4.9	-21.8	82.6
Native forests	8.1			0.1	0.4	8.5
Water resources	n.a.			n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*			*n.a.*	*n.a.*	*n.a.*
Financial assets with Rest of the World (b)	**101.0**		**8.2**		**2.9**	**112.1**
Official reserves (c)	20.4		2.2		-0.7	21.9
Cash and deposits	2.9		1.5		-	4.4
Securities other than shares	2.4		0.6		-0.3	2.7
Loans	14.1		2.0		0.1	16.2
Shares and other equity	53.6		1.4		3.0	58.0
Other claims	7.7		0.7		0.5	8.9
LIABILITIES to Rest of the World (b)	**253.1**		**27.5**		**1.8**	**282.4**
Cash and deposits	4.3		0.3		2.5	7.1
Securities other than shares	100.7		13.8		1.6	116.1
Loans	58.3		7.8		-6.7	59.4
Shares and other equity	87.4		5.6		4.4	97.4
Other claims	2.5		-0.2		-	2.3
NET WORTH	**1,553.8**	**39.3**	**-19.3**	**5.0**	**15.2**	**1,595.4**
Memorandum items:						
Consumer durables	81.1	4.0		n.a.	n.a.	85.1
Direct investment						
- foreign investment in Australia	85.5		7.5		3.1	96.1
- Australian investment abroad	37.3		2.4		-0.2	39.5
Non-rateable land	n.a.			n.a.	n.a.	n.a.

(a) The SNA recommends that these expenses should be allocated between: dwellings, non-dwelling construction and land. However, there are insufficient data available for this to be done in these balance sheets. Amounts shown in the Revaluation Account column for Financial assets and liabilities include values for "other changes in volume of assets", as well as revaluations see Australian National Accounts - Financial Accounts (5252.0) for a description of this approach. (c) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).
N.B. Totals may not sum due to rounding.
n.a. not available

TABLE 1.3 AUSTRALIA'S CONSOLIDATED BALANCE SHEET AND ACCUMULATION AND REVALUATION ACCOUNTS,1990-91
($ billion)

	Opening balance sheet 30 June 1990	*Net capital formation*	*Financial trans-actions*	*Other changes in volume of assets account*	*Re-valuation account*	*Closing balance sheet 30 June 1991*
TOTAL ASSETS	**1,877.8**	**21.5**	**2.4**	**4.2**	**34.3**	**1,944.8**
Non-financial assets	**1,765.7**	**21.5**		**4.2**	**35.8**	**1,831.8**
Produced assets	**1,141.5**	**21.5**		**n.a.**	**11.2**	**1,178.8**
Fixed assets	*1,067.8*	*23.2*		*n.a.*	*9.2*	*1,100.1*
Tangible fixed assets	*1,067.8*	*23.2*		*n.a.*	*9.2*	*1,100.1*
Dwellings	354.9	9.0		n.a.	6.6	370.5
Non-dwelling construction	439.1	10.4		n.a.	5.4	454.9
Machinery and equipment	218.5	3.2		n.a.	3.5	225.3
Livestock - fixed assets	13.0	0.2		n.a.	-1.6	11.6
Real estate transfer expenses (a)	42.2	0.4		n.a.	-4.7	37.8
Intangible fixed assets	*n.a.*	*n.a.*		*n.a.*	*n.a.*	*n.a.*
Inventories	*73.7*	*-1.7*		*n.a.*	*2.0*	*78.7*
Private non-farm stocks	55.1	-3.0		n.a.	2.2	59.1
Farm stocks	1.5	-0.1		n.a.	-	1.4
Public marketing authorities	3.8	1.5		n.a.	-0.9	4.4
Other public authorities	2.3	-0.2		n.a.	-	2.1
Livestock - inventories	5.5	0.1		n.a.	-	5.5
Plantation forests	5.4	0.1		n.a.	0.7	6.2
Valuables	*n.a.*	*n.a.*		*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**624.3**			**4.2**	**24.6**	**653.0**
Tangible non-produced assets	624.3			4.2	24.6	653.0
Land	533.1			n.a.	11.7	544.8
Subsoil assets	82.6			4.2	12.5	99.3
Native forests	8.5			-	0.4	8.9
Water resources	n.a.			n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*			*n.a.*	*n.a.*	*n.a.*
Financial assets with Rest of the World (b)	**112.1**		**2.4**		**-1.5**	**113.0**
Official reserves (c)	21.9		1.4		0.7	24.0
Cash and deposits	4.4		0.3		-0.5	4.2
Securities other than shares	2.7		1.3		0.6	4.6
Loans	16.2		0.1		-1.1	15.2
Shares and other equity	58.0		-0.9		-0.8	56.3
Other claims	8.9		0.2		-0.5	8.6
LIABILITIES to Rest of the World (b)	**282.4**		**18.6**		**2.7**	**303.7**
Cash and deposits	7.1		1.2		-1.0	7.3
Securities other than shares	116.1		7.9		3.7	127.7
Loans	59.4		0.2		1.4	61.0
Shares and other equity	97.4		9.3		-1.5	105.2
Other claims	2.3		-		0.1	2.4
NET WORTH	**1,595.4**	**21.5**	**-16.2**	**4.2**	**31.6**	**1,641.1**
Memorandum items:						
Consumer durables	85.1	2.2		n.a.	n.a.	87.3
Direct investment						
- foreign investment in Australia	96.1		7.3		-1.9	101.5
- Australian investment abroad	39.5		-0.9		-0.2	38.4
Non-rateable land	n.a.			n.a.	n.a.	n.a.

(a) The SNA recommends that these expenses should be allocated between: dwellings, non-dwelling construction and land. However, there are insufficient data available for this to be done in these balance sheets. Amounts shown in the Revaluation Account column for Financial assets and liabilities include values for "other changes in volume of assets", as well as revaluations see Australian National Accounts - Financial Accounts (5232.0) for a description of this approach. (c) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).
N.B. Totals may not sum due to rounding.
n.a. not available

TABLE 1.4 AUSTRALIA'S CONSOLIDATED BALANCE SHEET AND ACCUMULATION AND REVALUATION ACCOUNTS, 1991-92
($ billion)

	Opening balance sheet 30 June 1991	*Net capital formation*	*Financial trans-actions*	*Other changes in volume of assets account*	*Re-valuation account*	*Closing balance sheet 30 June 1992*
TOTAL ASSETS	**1,944.8**	**15.6**	**1.4**	**2.6**	**-2.0**	**1,961.0**
Non-financial assets	**1,831.8**	**15.6**		**2.6**	**-11.3**	**1,837.3**
Produced assets	**1,178.8**	**15.6**		**n.a.**	**7.4**	**1,200.4**
Fixed assets	*1,100.1*	*17.9*		*n.a.*	*5.6*	*1,123.6*
Tangible fixed assets	*1,100.1*	*17.9*		*n.a.*	*5.6*	*1,123.6*
Dwellings	370.5	8.7		n.a.	0.5	379.7
Non-dwelling construction	454.9	6.7		n.a.	-1.5	460.1
Machinery and equipment	225.3	1.3		n.a.	7.4	234.1
Livestock - fixed assets	11.6	0.4		n.a.	-0.3	11.7
Real estate transfer expenses (a)	37.8	0.7		n.a.	-0.5	38.1
Intangible fixed assets	*n.a.*	*n.a.*		*n.a.*	*n.a.*	*n.a.*
Inventories	*78.7*	*-2.3*		*n.a.*	*1.8*	*76.8*
Private non-farm stocks	59.1	-1.7		n.a.	1.6	57.6
Farm stocks	1.4	0.1		n.a.	-	1.5
Public marketing authorities	4.4	-0.4		n.a.	0.1	4.1
Other public authorities	2.1	-		n.a.	-	2.1
Livestock - inventories	5.5	-0.3		n.a.	-	5.2
Plantation forests	6.2	-		n.a.	0.1	6.4
Valuables	*n.a.*	*n.a.*		*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**653.0**			**2.6**	**-18.7**	**636.8**
Tangible non-produced assets	*653.0*			*2.6*	*-18.7*	*636.8*
Land	544.8			n.a.	-19.0	525.8
Subsoil assets	99.3			2.5	0.4	102.1
Native forests	8.9			0.1	-0.1	8.9
Water resources	n.a.			n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*			*n.a.*	*n.a.*	*n.a.*
Financial assets with Rest of the World (b)	**113.0**		**1.4**		**9.3**	**123.7**
Official reserves (c)	24.0		-3.9		2.1	22.2
Cash and deposits	4.2		-1.1		-0.4	2.7
Securities other than shares	4.6		1.8		1.5	7.9
Loans	15.2		2.1		0.5	17.8
Shares and other equity	56.3		3.9		5.6	65.8
Other claims	8.6		-1.0		-0.4	7.2
LIABILITIES to Rest of the World (b)	**303.7**		**16.4**		**3.5**	**323.6**
Cash and deposits	7.3		-		0.6	7.9
Securities other than shares	127.7		8.1		2.5	138.3
Loans	61.0		3.3		-0.3	64.0
Shares and other equity	105.2		4.8		0.9	110.9
Other claims	2.4		0.2		-0.1	2.5
NET WORTH	**1,641.1**	**15.6**	**-15.0**	**2.6**	**-5.5**	**1,637.4**
Memorandum items:						
Consumer durables	87.3	1.9		n.a.	n.a.	89.2
Direct investment						
- foreign investment in Australia	101.5		6.8		-1.0	107.3
- Australian investment abroad	38.4		2.5		3.8	44.7
Non-rateable land	n.a.			n.a.	n.a.	n.a.

(a) The SNA recommends that these expenses should be allocated between: dwellings, non-dwelling construction and land. However, there are insufficient data available for this to be done in these balance sheets. Amounts shown in the Revaluation Account column for Financial assets and liabilities include values for "other changes in volume of assets", as well as revaluations see Australian National Accounts - Financial Accounts (5232.0) for a description of this approach. (c) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).
N.B. Totals may not sum due to rounding.
n.a. not available

TABLE 1.5 AUSTRALIA'S CONSOLIDATED BALANCE SHEET AND ACCUMULATION AND REVALUATION ACCOUNTS, 1992-93
($ billion)

	Opening balance sheet 30 June 1992	*Net capital formation*	*Financial trans-actions*	*Other changes in volume of assets account*	*Re-valuation account*	*Closing balance sheet 30 June 1993*
TOTAL ASSETS	**1,961.0**	**19.3**	**3.5**	**3.4**	**65.3**	**2,052.6**
Non-financial assets	**1,837.3**	**19.3**		**3.4**	**53.3**	**1,913.4**
Produced assets	**1,200.4**	**19.3**		**n.a.**	**11.5**	**1,231.4**
Fixed assets	*1,123.6*	*19.5*		*n.a.*	*12.9*	*1,156.2*
Tangible fixed assets	*1,123.6*	*19.5*		*n.a.*	*12.9*	*1,156.2*
Dwellings	379.7	11.2		n.a.	2.9	393.8
Non-dwelling construction	460.1	4.9		n.a.	-	465.0
Machinery and equipment	234.1	2.2		n.a.	7.2	243.4
Livestock - fixed assets	11.7	0.6		n.a.	0.7	13.1
Real estate transfer expenses (a)	38.1	0.7		n.a.	2.1	40.9
Intangible fixed assets	*n.a.*	*n.a.*		*n.a.*	*n.a.*	*n.a.*
Inventories	*76.8*	*-0.2*		*n.a.*	*-1.4*	*75.2*
Private non-farm stocks	57.6	-0.2		n.a.	-0.9	56.5
Farm stocks	1.5	-0.1		n.a.	-	1.3
Public marketing authorities	4.1	0.5		n.a.	-0.2	4.4
Other public authorities	2.1	-0.2		n.a.	-	1.9
Livestock - inventories	5.2	-0.1		n.a.	0.6	5.6
Plantation forests	6.4	-		n.a.	-0.9	5.5
Valuables	*n.a.*	*n.a.*		*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**636.8**			**3.4**	**41.9**	**682.1**
Tangible non-produced assets	*636.8*			*3.4*	*41.9*	*682.1*
Land	525.8			n.a.	31.7	557.5
Subsoil assets	102.1			3.4	10.1	115.6
Native forests	8.9			-	0.1	9.0
Water resources	n.a.			n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*			*n.a.*	*n.a.*	*n.a.*
Financial assets with Rest of the World (b)	**123.7**		**3.5**		**12.0**	**139.2**
Official reserves (c)	22.2		-2.8		1.4	20.8
Cash and deposits	2.7		-		-0.1	2.6
Securities other than shares	7.9		3.4		1.9	13.2
Loans	17.8		0.6		2.5	20.9
Shares and other equity	65.8		1.9		5.7	73.4
Other claims	7.2		0.5		0.6	8.3
LIABILITIES to Rest of the World (b)	**323.6**		**17.4**		**14.9**	**355.9**
Cash and deposits	7.9		0.5		-	8.4
Securities other than shares	138.3		12.8		1.6	152.7
Loans	64.0		0.2		5.4	69.6
Shares and other equity	110.9		3.8		7.8	122.5
Other claims	2.5		-		0.3	2.8
NET WORTH	**1,637.4**	**19.3**	**-13.9**	**3.4**	**50.4**	**1,696.7**
Memorandum items:						
Consumer durables	89.2	2.6		n.a.	n.a.	91.8
Direct investment						
- foreign investment in Australia	107.3		5.4		1.1	113.8
- Australian investment abroad	44.7		2.8		-0.7	46.8
Non-rateable land	n.a.			n.a.	n.a.	26.9

(a) The SNA recommends that these expenses should be allocated between: dwellings, non-dwelling construction and land. However, there are insufficient data available for this to be done in these balance sheets. Amounts shown in the Revaluation Account column for Financial assets and liabilities include values for "other changes in volume of assets", as well as revaluations see Australian National Accounts - Financial Accounts (5232.0) for a description of this approach. (c) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).
N.B. Totals may not sum due to rounding.
n.a. not available

TABLE 1.6 AUSTRALIA'S CONSOLIDATED BALANCE SHEET AND ACCUMULATION AND REVALUATION ACCOUNTS, 1993-94
($ billion)

	Opening balance sheet 30 June 1993	*Net capital formation*	*Financial trans-actions*	*Other changes in volume of assets account*	*Re-valuation account*	*Closing balance sheet 30 June 1994*
TOTAL ASSETS	**2,052.6**	**23.9**	**12.0**	**2.7**	**60.9**	**2,152.0**
Non-financial assets	**1,913.4**	**23.9**		**2.7**	**62.9**	**2,002.8**
Produced assets	**1,231.4**	**23.9**		**n.a.**	**14.9**	**1,270.0**
Fixed assets	*1,156.2*	*22.7*		*n.a.*	*11.9*	*1,190.8*
Tangible fixed assets	*1,156.2*	*22.7*		*n.a.*	*11.9*	*1,190.8*
Dwellings	393.8	13.0		n.a.	7.6	414.4
Non-dwelling construction	465.0	4.4		n.a.	3.2	472.7
Machinery and equipment	243.4	3.2		n.a.	-1.4	245.2
Livestock - fixed assets	13.1	0.8		n.a.	1.3	15.2
Real estate transfer expenses (a)	40.9	1.2		n.a.	1.2	43.3
Intangible fixed assets	*n.a.*	*n.a.*		*n.a.*	*n.a.*	*n.a.*
Inventories	*75.2*	*1.2*		*n.a.*	*3.0*	*79.2*
Private non-farm stocks	56.5	0.8		n.a.	0.8	58.1
Farm stocks	1.3	-0.1		n.a.	-	1.2
Public marketing authorities	4.4	-		n.a.	0.7	5.1
Other public authorities	1.9	-0.1		n.a.	-	1.8
Livestock - inventories	5.6	0.5		n.a.	0.1	6.1
Plantation forests	5.5	0.1		n.a.	1.4	6.9
Valuables	*n.a.*	*n.a.*		*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**682.1**			**2.7**	**48.0**	**732.7**
Tangible non-produced assets	*682.1*			*2.7*	*48.0*	*732.7*
Land	557.5			n.a.	40.1	597.6
Subsoil assets	115.6			2.5	8.0	126.2
Native forests	9.0			0.1	-0.1	9.0
Water resources	n.a.			n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*			*n.a.*	*n.a.*	*n.a.*
Financial assets with Rest of the World (b)	**139.2**		**12.0**		**-2.0**	**149.2**
Official reserves (c)	20.8		0.9		-1.0	20.7
Cash and deposits	2.6		-0.2		0.6	3.0
Securities other than shares	13.2		-2.4		-1.2	9.6
Loans	20.9		4.5		-2.5	22.9
Shares and other equity	73.4		8.4		3.3	85.1
Other claims	8.3		0.5		-0.9	7.9
LIABILITIES to Rest of the World (b)	**355.9**		**24.0**		**7.7**	**387.6**
Cash and deposits	8.4		1.0		0.8	10.2
Securities other than shares	152.7		6.3		-10.2	148.8
Loans	69.6		-0.9		-1.3	67.4
Shares and other equity	122.5		16.5		17.1	156.1
Other claims	2.8		1.4		0.9	5.1
NET WORTH	**1,696.7**	**23.9**	**-12.0**	**2.7**	**53.2**	**1,764.4**
Memorandum items:						
Consumer durables	91.8	2.6		n.a.	n.a.	94.5
Direct investment						
- foreign investment in Australia	113.8		5.8		3.5	123.1
- Australian investment abroad	46.8		6.2		-3.9	49.1
Non-rateable land	26.9			n.a.	n.a.	28.3

(a) The SNA recommends that these expenses should be allocated between: dwellings, non-dwelling construction and land. However, there are insufficient data available for this to be done in these balance sheets. Amounts shown in the Revaluation Account column for Financial assets and liabilities include values for "other changes in volume of assets", as well as revaluations see Australian National Accounts - Financial Accounts (5232.0) for a description of this approach. (c) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).
N.B. Totals may not sum due to rounding.
n.a. not available

TABLE 1.7 AUSTRALIA'S CONSOLIDATED BALANCE SHEET AND ACCUMULATION AND REVALUATION ACCOUNTS, 1994-95
($ billion)

	Opening balance sheet 30 June 1994	*Net capital formation*	*Financial trans-actions*	*Other changes in volume of assets account*	*Re-valuation account*	*Closing balance sheet 30 June 1995*
TOTAL ASSETS	**2,152.0**	**32.7**	**-4.2**	**3.6**	**74.7**	**2,258.8**
Non-financial assets	**2,002.8**	**32.7**		**3.6**	**61.5**	**2,100.6**
Produced assets	**1,270.0**	**32.7**		**n.a.**	**13.9**	**1,316.6**
Fixed assets	*1,190.8*	*30.3*		*n.a.*	*15.5*	*1,236.6*
Tangible fixed assets	*1,190.8*	*30.3*		*n.a.*	*15.5*	*1,236.6*
Dwellings	414.4	14.3		n.a.	8.0	436.8
Non-dwelling construction	472.7	5.2		n.a.	10.5	488.4
Machinery and equipment	245.2	9.6		n.a.	-2.4	252.4
Livestock - fixed assets	15.2	0.2		n.a.	-0.8	14.6
Real estate transfer expenses (a)	43.3	0.9		n.a.	0.2	44.4
Intangible fixed assets	n.a.	*n.a.*		*n.a.*	*n.a.*	*n.a.*
Inventories	*79.2*	*2.4*		*n.a.*	*-1.6*	*80.0*
Private non-farm stocks	58.1	3.4		n.a.	-2.2	59.3
Farm stocks	1.2	0.5		n.a.	0.1	1.8
Public marketing authorities	5.1	-1.5		n.a.	0.4	4.0
Other public authorities	1.8	0.2		n.a.	-	2.0
Livestock - inventories	6.1	-0.1		n.a.	-0.2	5.7
Plantation forests	6.9	-		n.a.	0.3	7.2
Valuables	*n.a.*	*n.a.*		*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**732.7**			**3.6**	**47.6**	**784.0**
Tangible non-produced assets	*732.7*			*3.6*	*47.6*	*784.0*
Land	597.6			n.a.	27.6	625.2
Subsoil assets	126.2			3.6	20.0	149.8
Native forests	9.0			-	-	9.1
Water resources	n.a.			n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*			*n.a.*	*n.a.*	*n.a.*
Financial assets with Rest of the World (b)	**149.2**		**-4.2**		**13.2**	**158.2**
Official reserves (c)	20.7		-1.9		1.4	20.2
Cash and deposits	3.0		0.1		0.2	3.3
Securities other than shares	9.6		-		0.4	10.0
Loans	22.9		-0.8		1.2	23.3
Shares and other equity	85.1		-1.5		9.6	93.2
Other claims	7.9		-0.2		0.4	8.1
LIABILITIES to Rest of the World (b)	**387.6**		**18.5**		**12.6**	**418.7**
Cash and deposits	10.2		-		-0.2	10.0
Securities other than shares	148.8		12.3		5.5	166.6
Loans	67.4		-0.6		2.8	69.6
Shares and other equity	156.1		6.9		4.2	167.2
Other claims	5.1		0.3		-	5.4
NET WORTH	**1,764.4**	**32.7**	**-22.7**	**3.6**	**62.1**	**1,840.1**
Memorandum items:						
Consumer durables	94.5	3.5		-	-	98.0
Direct investment						
- foreign investment in Australia	123.1		8.6		-2.3	129.4
- Australian investment abroad	49.1		3.5		0.7	53.3
Non-rateable land	28.3					30.2

(a) The SNA recommends that these expenses should be allocated between: dwellings, non-dwelling construction and land. However, there are insufficient data available for this to be done in these balance sheets. Amounts shown in the Revaluation Account column for Financial assets and liabilities include values for "other changes in volume of assets", as well as revaluations see Australian National Accounts - Financial Accounts (5242.0) for a description of this approach. (c) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).
N.B. Totals may not sum due to rounding.
n.a. not available

CHAPTER 2 — SECTORAL ESTIMATES

SECTOR DEFINITIONS

The Australian national accounts identify four domestic institutional sectors within the economy. Transactor units are assigned to a sector according to their functional role in the economy. The institutional sectors are:

- households and unincorporated enterprises;
- general government;
- financial enterprises; and
- non-financial corporations.

Households and unincorporated enterprises are grouped together in one sector because the owners of partnerships and sole proprietorships frequently combine their business and personal transactions. In addition, this sector includes non-profit institutions engaged in the market production of goods and non-financial services: for example, hospitals, schools, labour unions, church groups or trade associations.

The *general government* sector consists of all government departments, including defence, offices and other bodies mainly engaged in the production of goods and services outside the normal market mechanism. Their costs of production are mainly financed from public revenues and they provide goods and services to the general public free of charge or at charges well below the cost of production.

Financial enterprises are distinguished from non-financial enterprises in that they are mainly engaged in financial market transactions which involve both incurring liabilities and acquiring financial assets. These include banks, building societies, life and superannuation offices, and the Reserve Bank of Australia.

Non-financial corporations (or corporate trading enterprises) consist of both private and public trading enterprises whose main activity is providing goods and non-financial services to the market. Also included are partnerships of companies and unincorporated branches of foreign-based enterprises. Examples include private companies, manufacturers of steel or motor vehicles, retail companies, and public trading enterprises such as Telstra and Australia Post.

DERIVATION OF SECTORAL ESTIMATES

Fixed assets (excluding livestock)

Sectoral estimates of dwellings, non-dwelling construction, machinery and equipment and total real estate transfer expenses have been obtained from *Australian National Accounts, Capital Stock* (5221.0). Unpublished ABS data on quarterly real estate transfer expenses were used to derive sectoral estimates.

Inventories (excluding livestock)

Sectoral estimates of private non-farm stock levels were based on taxation statistics and ABS estimates.

Farm stocks are held by either unincorporated enterprises or non-financial corporations. The ABS has estimated that the ratio is 9:1, unincorporated enterprises: non-financial corporations, on the basis of gross operating surplus (GOS).

Public marketing authority stocks are all owned by public trading enterprises and are therefore included in the non-financial corporations sector.

'Other public authority' stocks were broken down between general government and public trading enterprises on a ratio of 50:50 because of a lack of data.

Livestock

There are some 20 different livestock types to be allocated across the sectors. The major sectors which own livestock are the household and unincorporated businesses sector and the non-financial corporate trading enterprises sector. The major source of information on which to make the split was the Australian Tax Office (ATO) *Taxation Statistics*[1] publication which identified income earned by type of primary producer by sector. Based on these data, 90% of the value of cattle, sheep and lambs was allocated to unincorporated enterprises and the remaining portion was attributed to non-financial corporate businesses. For pigs and chickens, industry publications and contacts were used. The result was to allocate 30% of the value of pigs to unincorporated businesses and 10% of the value of chickens to unincorporated businesses with the remaining part of the value allocated to non-financial corporate businesses. Zoo animals were allocated to the general government sector. All other livestock types were deemed to be owned by unincorporated businesses. The ratios derived above were held constant for the whole seven year estimation period.

Land

Estimates for institutional sector land values were only available for South Australia and the Australian Capital Territory. In the former, the breakdown is only available for 30 June 1995, while for the latter, annual estimates were provided from 30 June 1992 to 30 June 1995.

In South Australia and the Australian Capital Territory, at 30 June 1995, households owned 75.5% and 75% of total land values respectively. These values are slightly lower than the proportion of total land value classified as residential. This is consistent with the assumption that households own most of all available residential and rural land (some of the residential land is owned by public trading enterprises in Housing Commission land, and by companies purchasing land and houses for their employees, while both companies and general government also own some rural land).

1 ATO *'Taxation Statistics 1993–94'*, Australian Government Publishing Service 1995.

Given a lack of suitable data, sector land values for the other States and Territories were derived as a simple average of the estimates for South Australia and the Australian Capital Territory at 30 June 1995. Estimates for this year provided the benchmark estimates from which earlier annual estimates were obtained.

Sub-soil assets

Sub-soil assets are considered to be wholly owned by the general government sector. Accordingly, the net present value (NPV) of their future stream of economic rent has been allocated to that sector. While the corporate sector may earn some economic rent from extracting the resource over and above the royalty payments made to the government (as owner of the resource), in principle the whole of this rent should be allocated to the owner of the assets. The owners are mainly the State governments but also some off-shore resource value accrues to the Commonwealth.

Standing timber

The term 'standing timber' refers to both plantation and native forests. The data underlying the balance sheet estimates of standing timber are provided with a split between public and private ownership. They are presented in tables 3.12, 3.13 and 3.14. These data needed to be allocated to the various institutonal sectors.

Public ownership indicates the forests are owned by general government or public trading enterprises (the latter forms part of the non-financial corporate sector). Privately owned forests will be held by either the household and unincorporated enterprise sector or the non-financial corporate sector.

Given the lack of data upon which to disaggregate the estimates further, estimates were derived using other data sources. Sectoral estimates of GOS for the forestry, fishing and hunting industry provided a basis upon which forest ownership was assigned between companies, unincorporated enterprises and public trading enterprises. It was assumed that the contribution of these sectors and sub-sectors to total gross operating surplus for the industry represented the ownership breakdown of these assets. It was assumed that financial enterprises hold little or no forest area.

Private forests were divided between households and unincorporated enterprises and non-financial corporations on the basis of the breakdown of forestry, fishing and hunting GOS for the two sectors.

Financial assets and liabilities

Sectoral estimates of financial assets and liabilities were drawn from the September quarter 1996 issue of *Australian National Accounts: Financial Accounts* (5232.0).

COMMENTS ON THE ESTIMATES

The estimates of Australia's consolidated balance sheets and the sectoral balance sheets, as at 30 June, 1989 to 1995, are presented in tables 2.1 to 2.11.

The sectoral estimates for non-produced assets are experimental, due to insufficient data sources. Many of the estimates were derived using fixed ratios or using related data as an indicator of sectoral ownership.

Produced assets

The contribution of each sector to total produced assets remained fairly constant over the period. At 30 June 1995, households and unincorporated enterprises accounted for almost 43% of the total produced assets, non-financial corporations for approximately 40%, general government for about 13%, and financial enterprises the balance.

Produced assets held by the households and unincorporated enterprises sector totalled $561 billion at 30 June 1995 and consisted mainly of dwellings, which accounted for almost three-quarters of the total.

At the end of June 1995, non-financial corporations holdings of produced assets was estimated at $527 billion, and comprised mainly fixed assets ($467 billion, over half of which represented non-dwelling construction). The sector also held $60 billion in inventories, most of which was private non-farm stocks.

Produced assets held by the general government sector at the end of June 1995 was estimated at $176 billion almost 90% of which was 'non-dwelling construction'.

Livestock

The value of livestock fixed assets and inventories held by the households and unincorporated enterpries sector at 30 June 1995 was $18 billion, down from $19 billion a year earlier (the highest level reached since 1989). Most of the value of livestock owned by this sector at the end of June 1995 was classed as fixed assets ($13 billion). The value of livestock owned by non-financial corporations at that date was much less, at just under $2 billion.

Non-produced assets

Land

From 30 June 1989 to 30 June 1995 the household and unincorporated enterprise sector accounted for by far the largest proportion of the estimated value of land in Australia. At 30 June 1995, the estimated total value of land held by this sector was just over $500 billion, which represents more than three-quarters of the total value of land in that year. This large contribution is consistent with the land use estimates[2] which suggest that just over 76% of Australian land was residential and 11% was rural land at 30 June 1995.

The non-financial corporations sector accounted for the second largest percentage of total land value. Its holding was estimated at $101 billion at 30 June 1995 (around 15% of total land value). The value of land owned by the financial corporations sector was estimated at $21 billion (or just over 3% of the total Australian land value).

2 Australian Valuation Office, 1984–91 and State and Territory land valuation offices 1992–95.

Sub-soil assets

The value of sub-soil assets as at 30 June 1995 was estimated to be $150 billion using the Producer Price Index (PPI) approach[3], the largest estimate in the annual time series for these assets. All the value of sub-soil assets has been allocated to general government.

Native forests

The general government sector accounted for by far the largest proportion of the estimated value of native forests over the period 30 June 1989 to 30 June 1995. At 30 June 1995, the estimated value of native forests held by this sector was $6 billion, which represented just under 70% of the total value of native forests at that date. This contribution has remained quite stable over the six years since June 1989.

Native forests owned by the household and unincorporated enterprises' sector were valued at $2 billion at 30 June 1995, representing 19% of the value of native forests. The value of this sector's holdings was unchanged from a year earlier and only marginally lower than the peak at 30 June 1991.

Non-financial corporations owned the remaining proportion of native forests with their holdings valued at $1.1 billion at 30 June 1995 (or 12% of the total value of these forests).

Financial assets and liabilities

At 30 June 1995, the households and unincorporated enterprises sector held $589 billion in financial assets, of which technical reserves of life insurance companies and superannuation funds were the most important. Cash and deposits and shares were also major assets. Total liabilities of households stood at $259 billion at that date, almost entirely in the form of loans. As a result, households' net financial position (financial assets less liabilities) was $331 billion at 30 June 1995, up from $223 billion at 30 June 1989.

General government's net financial position at 30 June 1995 was $12 billion, compared with $65 billion six years earlier. Shares in public enterprises were this sector's most important asset, while debt securities outstanding accounted for almost all of their liabilities.

Non-financial corporations' financial assets were held mainly as deposits at banks as at 30 June 1995. Their primary debt instruments were securities and loans at that date. Debt securities have become less important since 1992. Loan debt has not yet returned to its peak in 1991.

Net worth

Tables 2.1 to 2.7 indicate that throughout the period 30 June 1989 to 30 June 1995, households and unincorporated enterprises accounted for roughly three-quarters of Australia's net worth. The value of this sector's net worth was estimated at $1,397 billion at 30 June 1995, up from $1,073 billion at the end of June 1989, representing a rise of over 30%.

3 See page 73 in the Appendix for a description of this approach.

The general government sector consistently recorded roughly one-fifth of the nation's net worth throughout the period. The estimated net worth for this sector rose from $318 billion at 30 June 1989, to $344 billion at 30 June 1995.

Net worth of corporations, within a national accounting framework, represents the residual resulting from the sum of their assets less liabilities, the latter defined to include the market value of the shares issued by these corporations. In a perfect system of estimating the corporate sector's net worth, there would be no such residual as the market value of shares on issue should reflect company net worth. It should be noted that corporations are not the ultimate owners of themselves — the owners are the holders of the shares, the value of which is included in their sectors' balance sheets (i.e. as the share assets of households, general government and non-residents). Accordingly, if corporations' net worth were to include their shares outstanding (as is the normal accounting practice) this would represent a double count in a national accounting framework. As a result, the 'net worth' shown in the sectoral balance sheets should be interpreted with this in mind.

TABLE 2.1 AUSTRALIA'S CONSOLIDATED BALANCE SHEET AND SECTORAL BALANCE SHEETS, AT 30 JUNE 1989
($ billion)

	Consolidated National Balance Sheet	*Households & unincorporated*	*General government*	*Financial enterprises*	*Non-financial corporations*
TOTAL ASSETS	**1,806.9**	**1,232.4**	**437.3**	**566.8**	**681.6**
Non-financial assets	**1,705.9**	**850.5**	**252.9**	**64.8**	**537.6**
Produced assets	**1,056.5**	**442.9**	**147.7**	**41.6**	**424.4**
Fixed assets	*990.9*	*430.8*	*143.1*	*41.6*	*375.4*
Tangible fixed assets	*990.9*	*430.8*	*143.1*	*41.6*	*375.4*
Dwellings	319.8	297.6	2.2	0.1	19.9
Non-dwelling construction	405.5	30.8	132.6	31.6	210.5
Machinery and equipment	206.0	50.1	7.9	8.7	139.2
Livestock - fixed assets	14.8	13.6	-	-	1.2
Real estate transfer expenses	44.8	38.7	0.3	1.2	4.6
Intangible fixed assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Inventories	*65.6*	*12.1*	*4.6*	-	*49.0*
Private non-farm stocks	50.1	5.0	-	-	45.1
Farm stocks (excluding livestock)	1.8	1.6	-	-	0.2
Public marketing authorities	1.5	-	-	-	1.5
Other public authorities	2.1	-	1.1	-	1.1
Livestock - inventories	5.4	4.6	-	-	0.7
Plantation forests	4.8	0.8	3.6	-	0.4
Valuables	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a*
Non-produced assets	**649.4**	**407.7**	**105.3**	**23.2**	**113.2**
Tangible non-produced assets	*649.4*	*407.7*	*105.3*	*23.2*	*113.2*
Land	541.7	406.1	-	23.2	112.4
Subsoil assets	99.6	-	99.6	-	-
Native forests	8.1	1.6	5.7	-	0.8
Water resources	n.a.	n.a.	n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Financial assets	**101.0**	**381.9**	**184.4**	**502.0**	**144.0**
Official reserves (a)	20.4	-	-	20.4	-
Cash and deposits	2.9	135.6	7.7	2.9	53.3
Securities other than shares	2.4	31.5	8.0	110.1	9.2
Loans	14.1	5.9	48.5	284.2	9.8
Shares and other equity	53.6	59.7	117.1	69.7	34.8
Technical reserves of life offices, pension funds	-	145.5	-	-	-
Other claims	7.7	3.7	3.1	14.7	36.9
LIABILITIES (including share capital)	**253.1**	**159.4**	**119.5**	**511.6**	**574.1**
Cash and deposits	4.3	-	1.2	199.6	-
Securities other than shares	100.7	2.6	101.5	69.1	84.0
Loans	58.3	156.8	15.1	37.6	183.2
Shares and other equity	87.4	-	-	39.3	275.9
Technical reserves of life offices, pension funds	-	-	-	145.5	-
Other claims	2.5	-	1.7	20.5	31.0
NET WORTH	**1,553.8**	**1,073.0**	**317.8**	**55.2**	**107.5**

(a) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).

TABLE 2.2 AUSTRALIA'S CONSOLIDATED BALANCE SHEET AND SECTORAL BALANCE SHEETS, AT 30 JUNE 1990
($ billion)

	Consolidated National Balance Sheet	*Households & unincorporated*	*General government*	*Financial enterprises*	*Non-financial corporations*
TOTAL ASSETS	**1,877.8**	**1,299.1**	**446.8**	**626.5**	**708.1**
Non-financial assets	**1,765.7**	**883.8**	**245.8**	**69.8**	**565.9**
Produced assets	**1,141.5**	**476.5**	**157.3**	**48.0**	**459.5**
Fixed assets	*1,067.8*	*463.9*	*152.1*	*48.0*	*403.7*
Tangible fixed assets	*1067.8*	*463.9*	*152.1*	*48.0*	*403.7*
Dwellings	354.9	330.1	2.4	0.1	22.3
Non-dwelling construction	439.1	33.4	140.2	37.2	228.3
Machinery and equipment	218.5	52.4	9.2	9.3	147.7
Livestock - fixed assets	13.0	11.8	-	-	1.1
Real estate transfer expenses	42.2	36.2	0.4	1.4	4.2
Intangible fixed assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Inventories	*73.7*	*12.6*	*5.2*	-	*55.8*
Private non-farm stocks	55.1	5.5	-	-	49.6
Farm stocks (excluding livestock)	1.5	1.4	-	-	0.2
Public marketing authorities	3.8	-	-	-	3.8
Other public authorities	2.3	-	1.2	-	1.2
Livestock - inventories	5.5	4.7	-	-	0.7
Plantation forests	5.4	1.0	4.0	-	0.4
Valuables	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**624.3**	**407.4**	**88.5**	**21.8**	**106.4**
Tangible non-produced assets	*624.3*	*407.4*	*88.5*	*21.8*	*106.4*
Land	533.1	405.6	-	21.8	105.6
Subsoil assets	82.6	-	82.6	-	-
Native forests	8.5	1.8	5.9	-	0.8
Water resources	n.a.	n.a.	n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Financial assets	**112.1**	**415.3**	**201.0**	**556.7**	**142.2**
Official reserves (a)	21.9	-	-	21.9	-
Cash and deposits	4.4	152.5	8.6	4.2	50.0
Securities other than shares	2.7	32.0	8.5	114.5	7.5
Loans	16.2	7.5	52.1	320.2	11.4
Shares and other equity	58.0	57.5	127.9	78.1	34.5
Technical reserves of life offices, pension funds	-	164.4	-	-	-
Other claims	8.9	1.4	3.9	17.8	38.8
LIABILITIES (including share capital)	**282.4**	**181.3**	**121.6**	**561.2**	**621.9**
Cash and deposits	7.1	-	1.3	216.8	-
Securities other than shares	116.1	2.9	102.7	77.2	93.3
Loans	59.4	176.1	15.4	42.1	200.8
Shares and other equity	97.4	-	-	42.2	295.3
Technical reserves of life offices, pension funds	-	-	-	164.4	-
Other claims	2.3	2.3	2.2	18.5	32.5
NET WORTH	**1,595.4**	**1,117.8**	**325.2**	**65.3**	**86.2**

(a) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).

TABLE 2.3 AUSTRALIA'S CONSOLIDATED BALANCE SHEET AND SECTORAL BALANCE SHEETS, AT 30 JUNE 1991
($ billion)

	Consolidated National Balance Sheet	*Households & unincorporated*	*General government*	*Financial enterprises*	*Non-financial corporations*
TOTAL ASSETS	**1,944.8**	**1,350.8**	**480.7**	**667.9**	**715.4**
Non-financial assets	**1,831.8**	**914.0**	**268.7**	**70.1**	**578.9**
Produced assets	**1,178.8**	**487.2**	**163.2**	**49.5**	**478.8**
Fixed assets	*1,100.1*	*474.0*	*157.5*	*49.5*	*419.0*
Tangible fixed assets	*1,100.1*	*474.0*	*157.5*	*49.5*	*419.0*
Dwellings	370.5	344.5	2.5	0.1	23.4
Non-dwelling construction	454.9	34.2	144.6	38.6	237.5
Machinery and equipment	225.3	52.6	10.0	9.3	153.4
Livestock - fixed assets	11.6	10.5	-	-	1.0
Real estate transfer expenses	37.8	32.3	0.4	1.5	3.7
Intangible fixed assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Inventories	*78.7*	*13.2*	*5.7*	*-*	*59.8*
Private non-farm stocks	59.1	5.9	-	-	53.2
Farm stocks (excluding livestock)	1.4	1.3	-	-	0.1
Public marketing authorities	4.4	-	-	-	4.4
Other public authorities	2.1	-	1.1	-	1.1
Livestock - inventories	5.5	4.7	-	-	0.7
Plantation forests	6.2	1.3	4.6	-	0.3
Valuables	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**653.0**	**426.8**	**105.5**	**20.6**	**100.1**
Tangible non-produced assets	*653.0*	*426.8*	*105.5*	*20.6*	*100.1*
Land	544.8	424.7	-	20.6	99.5
Subsoil assets	99.3	-	99.3	-	-
Native forests	8.9	2.1	6.2	-	0.6
Water resources	n.a.	n.a.	n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Financial assets	**113.0**	**436.8**	**212.0**	**597.8**	**136.5**
Official reserves (a)	24.0	-	-	24.0	-
Cash and deposits	4.2	156.6	7.8	3.2	49.5
Securities other than shares	4.6	34.5	9.1	129.9	9.1
Loans	15.2	7.4	56.5	335.8	10.6
Shares and other equity	56.3	52.6	133.6	84.7	31.8
Technical reserves of life offices, pension funds	-	178.3	-	-	-
Other claims	8.6	7.4	5.0	20.2	35.5
LIABILITIES (including share capital)	**303.7**	**187.6**	**135.3**	**603.9**	**646.9**
Cash and deposits	7.3	-	1.3	218.9	-
Securities other than shares	127.7	2.5	117.8	86.4	99.1
Loans	61.0	185.1	13.5	49.0	208.5
Shares and other equity	105.2	-	-	44.9	306.5
Technical reserves of life offices, pension funds	-	-	-	178.3	-
Other claims	2.4	-	2.7	26.4	32.8
NET WORTH	**1,641.1**	**1,163.2**	**345.4**	**64.0**	**68.5**

(a) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).

TABLE 2.4 AUSTRALIA'S CONSOLIDATED BALANCE SHEET AND SECTORAL BALANCE SHEETS, AT 30 JUNE 1992
($ billion)

	Consolidated National Balance Sheet	*Households & unincorporated*	*General government*	*Financial enterprises*	*Non-financial corporations*
TOTAL ASSETS	**1,961.0**	**1,376.2**	**492.2**	**709.7**	**720.7**
Non-financial assets	**1,837.3**	**914.1**	**274.0**	**69.8**	**579.2**
Produced assets	**1,200.4**	**495.9**	**165.7**	**51.0**	**487.6**
Fixed assets	*1,123.6*	*483.1*	*159.9*	*51.0*	*429.5*
Tangible fixed assets	*1,123.6*	*483.1*	*159.9*	*51.0*	*429.5*
Dwellings	379.7	353.1	2.7	0.1	23.8
Non-dwelling construction	460.1	33.9	145.9	38.8	241.4
Machinery and equipment	234.1	53.2	10.8	10.4	159.6
Livestock - fixed assets	11.7	10.6	-	-	1.0
Real estate transfer expenses	38.1	32.2	0.5	1.7	3.7
Intangible fixed assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Inventories	*76.8*	*12.8*	*5.8*	-	*58.1*
Private non-farm stocks	57.6	5.8	-	-	51.8
Farm stocks (excluding livestock)	1.5	1.4	-	-	0.2
Public marketing authorities	4.1	-	-	-	4.1
Other public authorities	2.1	-	1.1	-	1.1
Livestock - inventories	5.2	4.5	-	-	0.7
Plantation forests	6.4	1.2	4.7	-	0.4
Valuables	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**636.8**	**418.2**	**108.3**	**18.8**	**91.5**
Tangible non-produced assets	*636.8*	*418.2*	*108.3*	*18.8*	*91.5*
Land	525.8	416.2	-	18.8	90.8
Subsoil assets	102.1	-	102.1	-	-
Native forests	8.9	2.0	6.2	-	0.7
Water resources	n.a.	n.a.	n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Financial assets	**123.7**	**462.1**	**218.2**	**639.9**	**141.5**
Official reserves (a)	22.2	-	-	22.2	-
Cash and deposits	2.7	162.2	6.7	2.7	50.6
Securities other than shares	7.9	24.5	9.7	161.6	9.1
Loans	17.8	7.2	61.1	328.3	13.8
Shares and other equity	65.8	65.1	136.5	102.6	35.5
Technical reserves of life offices, pension funds	-	203.1	-	-	-
Other claims	7.2	-	4.2	22.5	32.5
LIABILITIES (including share capital)	**323.6**	**197.8**	**162.3**	**635.1**	**666.4**
Cash and deposits	7.9	-	1.3	226.0	-
Securities other than shares	138.3	3.6	146.2	85.4	100.1
Loans	64.0	194.0	11.9	51.5	199.1
Shares and other equity	110.9	-	-	48.8	336.1
Technical reserves of life offices, pension funds	-	-	-	203.1	-
Other claims	2.5	0.2	2.9	20.3	31.1
NET WORTH	**1,637.4**	**1,178.4**	**329.9**	**74.6**	**54.3**

(a) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).

TABLE 2.5 AUSTRALIA'S CONSOLIDATED BALANCE SHEET AND SECTORAL BALANCE SHEETS, AT 30 JUNE 1993
($ billion)

	Consolidated National Balance Sheet	*Households & unincorporated*	*General government*	*Financial enterprises*	*Non-financial corporations*
TOTAL ASSETS	**2,052.6**	**1,463.4**	**512.3**	**742.0**	**744.8**
Non-financial assets	**1,913.4**	**962.0**	**288.9**	**70.6**	**591.7**
Produced assets	**1,231.4**	**513.6**	**167.1**	**51.7**	**498.7**
Fixed assets	*1,156.2*	*501.0*	*162.1*	*51.7*	*441.1*
Tangible fixed assets	*1,156.2*	*501.0*	*162.1*	*51.7*	*441.1*
Dwellings	393.8	366.0	2.8	0.1	24.9
Non-dwelling construction	465.0	34.2	147.1	38.8	244.9
Machinery and equipment	243.4	54.6	11.7	10.6	166.5
Livestock - fixed assets	13.1	11.8	-	-	1.1
Real estate transfer expenses	40.9	34.5	0.5	2.2	3.7
Intangible fixed assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Inventories	*75.2*	*12.6*	*5.0*	-	*57.6*
Private non-farm stocks	56.5	5.6	-	-	50.9
Farm stocks (excluding livestock)	1.3	1.2	-	-	0.1
Public marketing authorities	4.4	-	-	-	4.4
Other public authorities	1.9	-	1.0	-	1.0
Livestock - inventories	5.6	4.8	-	-	0.7
Plantation forests	5.5	1.0	4.0	-	0.4
Valuables	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**682.1**	**448.4**	**121.9**	**18.9**	**93.0**
Tangible non-produced assets	*682.1*	*448.4*	*121.9*	*18.9*	*93.0*
Land	557.5	446.6	-	18.9	92.1
Subsoil assets	115.6	-	115.6	-	-
Native forests	9.0	1.8	6.3	-	0.9
Water resources	n.a.	n.a.	n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Financial assets	**139.2**	**501.4**	**223.4**	**671.4**	**153.1**
Official reserves (a)	20.8	-	-	20.8	-
Cash and deposits	2.6	170.4	9.2	2.6	54.0
Securities other than shares	13.2	18.7	11.9	176.5	9.6
Loans	20.9	6.7	55.3	332.7	15.8
Shares and other equity	73.4	87.4	143.1	113.5	37.8
Technical reserves of life offices, pension funds	-	218.2	-	-	-
Other claims	8.3	-	3.9	25.3	35.9
LIABILITIES (including share capital)	**355.9**	**213.9**	**191.0**	**671.9**	**689.6**
Cash and deposits	8.4	-	1.3	240.7	-
Securities other than shares	152.7	3.6	175.8	84.7	92.3
Loans	69.6	201.9	11.5	53.3	192.5
Shares and other equity	122.5	-	-	60.7	370.4
Technical reserves of life offices, pension funds	-	-	-	218.2	-
Other claims	2.8	8.4	2.4	14.3	34.4
NET WORTH	**1,696.7**	**1,249.5**	**321.3**	**70.1**	**55.2**

(a) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).

TABLE 2.6 AUSTRALIA'S CONSOLIDATED BALANCE SHEET AND SECTORAL BALANCE SHEETS, AT 30 JUNE 1994
($ billion)

	Consolidated National Balance Sheet	*Households & unincorporated*	*General government*	*Financial enterprises*	*Non-financial corporations*
TOTAL ASSETS	**2,152.0**	**1,584.9**	**520.1**	**784.0**	**764.0**
Non-financial assets	**2,002.8**	**1,020.4**	**303.2**	**71.4**	**607.6**
Produced assets	**1,270.0**	**538.2**	**170.8**	**51.5**	**509.3**
Fixed assets	*1,190.8*	*525.0*	*164.7*	*51.5*	*449.4*
Tangible fixed assets	*1,190.8*	*525.0*	*164.7*	*51.5*	*449.4*
Dwellings	414.4	385.6	3.0	0.1	25.8
Non-dwelling construction	472.7	35.1	149.3	39.0	249.3
Machinery and equipment	245.2	54.1	11.9	10.1	169.1
Livestock - fixed assets	15.2	13.8	-	-	1.3
Real estate transfer expenses	43.3	36.4	0.6	2.4	3.9
Intangible fixed assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Inventories	*79.2*	*13.2*	*6.0*	-	*59.8*
Private non-farm stocks	58.1	5.8	-	-	52.3
Farm stocks (excluding livestock)	1.2	1.1	-	-	0.1
Public marketing authorities	5.1	-	-	-	5.1
Other public authorities	1.8	-	0.9	-	0.9
Livestock - inventories	6.1	5.2	-	-	0.8
Plantation forests	6.9	1.2	5.1	-	0.6
Valuables	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**732.7**	**482.2**	**132.5**	**19.9**	**98.3**
Tangible non-produced assets	*732.7*	*482.2*	*132.5*	*19.9*	*98.3*
Land	597.6	480.5	-	19.9	97.2
Subsoil assets	126.2	-	126.2	-	-
Native forests	9.0	1.7	6.3	-	1.1
Water resources	n.a.	n.a.	n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Financial assets	**149.2**	**564.5**	**216.9**	**712.6**	**156.4**
Official reserves (a)	20.7	-	-	20.7	-
Cash and deposits	3.0	182.5	8.1	2.7	55.5
Securities other than shares	9.6	17.8	10.8	172.3	9.4
Loans	22.9	7.5	57.6	362.1	14.5
Shares and other equity	85.1	111.0	136.4	134.1	41.9
Technical reserves of life offices, pension funds	-	238.3	-	-	-
Other claims	7.9	7.4	4.0	20.7	35.1
LIABILITIES (including share capital)	**387.6**	**232.9**	**197.7**	**723.8**	**734.6**
Cash and deposits	10.2	-	1.4	254.7	-
Securities other than shares	148.8	3.8	182.5	84.7	78.5
Loans	67.4	229.1	10.7	53.4	193.2
Shares and other equity	156.1	-	-	71.0	423.3
Technical reserves of life offices, pension funds	-	-	-	238.3	-
Other claims	5.1	-	3.1	21.7	39.6
NET WORTH	**1,764.4**	**1,352.0**	**322.4**	**60.2**	**29.4**

(a) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).

TABLE 2.7 AUSTRALIA'S CONSOLIDATED BALANCE SHEET AND SECTORAL BALANCE SHEETS, AT 30 JUNE 1995
($ billion)

	Consolidated National Balance Sheet	*Households & unincorporated*	*General government*	*Financial enterprises*	*Non-financial corporations*
TOTAL ASSETS	**2,258.8**	**1,655.7**	**563.1**	**836.4**	**800.8**
Non-financial assets	**2,100.6**	**1,066.4**	**332.3**	**72.9**	**629.0**
Produced assets	**1,316.6**	**561.3**	**176.3**	**52.0**	**527.0**
Fixed assets	*1,236.6*	*547.5*	*170.1*	*52.0*	*466.9*
Tangible fixed assets	*1,236.6*	*547.5*	*170.1*	*52.0*	*466.9*
Dwellings	436.8	406.1	3.2	0.0	27.4
Non-dwelling construction	488.4	36.1	153.9	39.6	258.9
Machinery and equipment	252.4	54.7	12.3	9.9	175.5
Livestock - fixed assets	14.6	13.3	-	-	1.2
Real estate transfer expenses	44.4	37.3	0.7	2.4	4.0
Intangible fixed assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Inventories	*80.0*	*13.7*	*6.2*	-	*60.0*
Private non-farm stocks	59.3	5.9	-		53.4
Farm stocks (excluding livestock)	1.8	1.6	-	-	0.2
Public marketing authorities	4.0	-	-	-	4.0
Other public authorities	2.0	-	1.0	-	1.0
Livestock - inventories	5.7	4.9	-	-	0.7
Plantation forests	7.2	1.3	5.2	-	0.7
Valuables	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**784.0**	**505.2**	**156.1**	**20.9**	**102.0**
Tangible non-produced assets	*784.0*	*505.2*	*156.1*	*20.9*	*102.0*
Land	625.2	503.5	-	20.9	100.9
Subsoil assets	149.8	-	149.8	-	-
Native forests	9.1	1.7	6.3	-	1.1
Water resources	n.a.	n.a.	n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Financial assets	**158.2**	**589.3**	**230.8**	**763.5**	**171.8**
Official reserves (a)	20.2	-	-	20.2	-
Cash and deposits	3.3	186.7	10.1	3.2	63.0
Securities other than shares	10.0	20.7	10.7	180.1	9.1
Loans	23.3	6.8	59.0	394.1	16.6
Shares and other equity	93.2	108.6	146.0	143.4	46.2
Technical reserves of life offices, pension funds	-	253.7	-	-	-
Other claims	8.1	12.8	5.0	22.5	36.9
LIABILITIES (including share capital)	**418.7**	**258.7**	**218.7**	**776.6**	**762.1**
Cash and deposits	10.0	-	1.5	268.2	-
Securities other than shares	166.6	3.5	202.7	94.2	76.7
Loans	69.6	255.2	9.7	56.9	201.1
Shares and other equity	167.2	-	-	74.8	443.4
Technical reserves of life offices, pension funds	-	-	-	253.7	-
Other claims	5.4	-	4.8	28.8	40.9
NET WORTH	**1,840.1**	**1,397.0**	**344.4**	**59.8**	**38.7**

(a) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).

TABLE 2.8 HOUSEHOLDS AND UNINCORPORATED ENTERPRISES' BALANCE SHEET, AT 30 JUNE 1989-95
($ billion)

	1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
TOTAL ASSETS	**1,232.4**	**1,299.1**	**1,350.8**	**1,376.2**	**1,463.4**	**1,584.9**	**1,655.7**
Non-financial assets	**850.5**	**883.8**	**914.0**	**914.1**	**962.0**	**1,020.4**	**1,066.4**
Produced assets	**442.9**	**476.5**	**487.2**	**495.9**	**513.6**	**538.2**	**561.3**
Fixed assets	*430.8*	*463.9*	*474.0*	*483.1*	*501.0*	*525.0*	*547.5*
Tangible fixed assets	*430.8*	*463.9*	*474.0*	*483.1*	*501.0*	*525.0*	*547.5*
Dwellings	297.6	330.1	344.5	353.1	366.0	385.6	406.1
Non-dwelling construction	30.8	33.4	34.2	33.9	34.2	35.1	36.1
Machinery and equipment	50.1	52.4	52.6	53.2	54.6	54.1	54.7
Livestock - fixed assets	13.6	11.8	10.5	10.6	11.8	13.8	13.3
Real estate transfer expenses	38.7	36.2	32.3	32.2	34.5	36.4	37.3
Intangible fixed assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Inventories	*12.1*	*12.6*	*13.2*	*12.8*	*12.6*	*13.2*	*13.7*
Private non-farm stocks	5.0	5.5	5.9	5.8	5.6	5.8	5.9
Farm stocks (excluding livestock)	1.6	1.4	1.3	1.4	1.2	1.1	1.6
Public marketing authorities	-	-	-	-	-	-	-
Other public authorities	-	-	-	-	-	-	-
Livestock - inventories	4.6	4.7	4.7	4.5	4.8	5.2	4.9
Plantation forests	0.8	1.0	1.3	1.2	1.0	1.2	1.3
Valuables	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**407.7**	**407.4**	**426.8**	**418.2**	**448.4**	**482.2**	**505.2**
Tangible non-produced assets	*407.7*	*407.4*	*426.8*	*418.2*	*448.4*	*482.2*	*505.2*
Land	406.1	405.6	424.7	416.2	446.6	480.5	503.5
Subsoil assets	-	-	-	-	-	-	-
Native forests	1.6	1.8	2.1	2.0	1.8	1.7	1.7
Water resources	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Financial assets	**381.9**	**415.3**	**436.8**	**462.1**	**501.4**	**564.5**	**589.3**
Official reserves (a)	-	-	-	-	-	-	-
Cash and deposits	135.6	152.5	156.6	162.2	170.4	182.5	186.7
Securities other than shares	31.5	32.0	34.5	24.5	18.7	17.8	20.7
Loans	5.9	7.5	7.4	7.2	6.7	7.5	6.8
Shares and other equity	59.7	57.5	52.6	65.1	87.4	111.0	108.6
Technical reserves of life offices, pension funds	145.5	164.4	178.3	203.1	218.2	238.3	253.7
Other claims	3.7	1.4	7.4	-	-	7.4	12.8
LIABILITIES (including share capital)	**159.4**	**181.3**	**187.6**	**197.8**	**213.9**	**232.9**	**258.7**
Cash and deposits	-	-	-	-	-	-	-
Securities other than shares	2.6	2.9	2.5	3.6	3.6	3.8	3.5
Loans	156.8	176.1	185.1	194.0	201.9	229.1	255.2
Shares and other equity	-	-	-	-	-	-	-
Technical reserves of life offices, pension funds	-	-	-	-	-	-	-
Other claims	-	2.3	-	0.2	8.4	-	-
NET WORTH	**1,073.0**	**1,117.8**	**1,163.2**	**1,178.4**	**1,249.5**	**1,352.0**	**1,397.0**

(a) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).

TABLE 2.9 GENERAL GOVERNMENT BALANCE SHEET, AT 30 JUNE 1989-95
($ billion)

	1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
TOTAL ASSETS	**437.3**	**446.8**	**480.7**	**492.2**	**512.3**	**520.1**	**563.1**
Non-financial assets	**252.9**	**245.8**	**268.7**	**274.0**	**288.9**	**303.2**	**332.3**
Produced assets	**147.7**	**157.3**	**163.2**	**165.7**	**167.1**	**170.8**	**176.3**
Fixed assets	*143.1*	*152.1*	*157.5*	*159.9*	*162.1*	*164.7*	*170.1*
Tangible fixed assets	*143.1*	*152.1*	*157.5*	*159.9*	*162.1*	*164.7*	*170.1*
Dwellings	2.2	2.4	2.5	2.7	2.8	3.0	3.2
Non-dwelling construction	132.6	140.2	144.6	145.9	147.1	149.3	153.9
Machinery and equipment	7.9	9.2	10.0	10.8	11.7	11.9	12.3
Livestock - fixed assets	-	-	-	-	-	-	-
Real estate transfer expenses	0.3	0.4	0.4	0.5	0.5	0.6	0.7
Intangible fixed assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Inventories	**4.6**	**5.2**	**5.7**	**5.8**	**5.0**	**6.0**	**6.2**
Private non-farm stocks	-	-	-	-	-	-	-
Farm stocks (excluding livestock)	-	-	-	-	-	-	-
Public marketing authorities	-	-	-	-	-	-	-
Other public authorities	1.1	1.2	1.1	1.1	1.0	0.9	1.0
Livestock - inventories	-	-	-	-	-	-	-
Plantation forests	3.6	4.0	4.6	4.7	4.0	5.1	5.2
Valuables	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**105.3**	**88.5**	**105.5**	**108.3**	**121.9**	**132.5**	**156.1**
Tangible non-produced assets	*105.3*	*88.5*	*105.5*	*108.3*	*121.9*	*132.5*	*156.1*
Land	-	-	-	-	-	-	-
Subsoil assets	99.6	82.6	99.3	102.1	115.6	126.2	149.8
Native forests	5.7	5.9	6.2	6.2	6.3	6.3	6.3
Water resources	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Financial assets	**184.4**	**201.0**	**212.0**	**218.2**	**223.4**	**216.9**	**230.8**
Official reserves (a)	-	-	-	-	-	-	-
Cash and deposits	7.7	8.6	7.8	6.7	9.2	8.1	10.1
Securities other than shares	8.0	8.5	9.1	9.7	11.9	10.8	10.7
Loans	48.5	52.1	56.5	61.1	55.3	57.6	59.0
Shares and other equity	117.1	127.9	133.6	136.5	143.1	136.4	146.0
Technical reserves of life offices, pension funds	-	-	-	-	-	-	-
Other claims	3.1	3.9	5.0	4.2	3.9	4.0	5.0
LIABILITIES (including share capital)	**119.5**	**121.6**	**135.3**	**162.3**	**191.0**	**197.7**	**218.7**
Cash and deposits	1.2	1.3	1.3	1.3	1.3	1.4	1.5
Securities other than shares	101.5	102.7	117.8	146.2	175.8	182.5	202.7
Loans	15.1	15.4	13.5	11.9	11.5	10.7	9.7
Shares and other equity	-	-	-	-	-	-	-
Technical reserves of life offices, pension funds	-	-	-	-	-	-	-
Other claims	1.7	2.2	2.7	2.9	2.4	3.1	4.8
NET WORTH	**317.8**	**325.2**	**345.4**	**329.9**	**321.3**	**322.4**	**344.4**

(a) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).

TABLE 2.10 FINANCIAL ENTERPRISES BALANCE SHEET, AT 30 JUNE 1989-95
($ billion)

	1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
TOTAL ASSETS	**566.8**	**626.5**	**667.9**	**709.7**	**742.0**	**784.0**	**836.4**
Non-financial assets	**64.8**	**69.8**	**70.1**	**69.8**	**70.6**	**71.4**	**72.9**
Produced assets	**41.6**	**48.0**	**49.5**	**51.0**	**51.7**	**51.5**	**52.0**
Fixed assets	*41.6*	*48.0*	*49.5*	*51.0*	*51.7*	*51.5*	*52.0*
Tangible fixed assets	*41.6*	*48.0*	*49.5*	*51.0*	*51.7*	*51.5*	*52.0*
Dwellings	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Non-dwelling construction	31.6	37.2	38.6	38.8	38.8	39.0	39.6
Machinery and equipment	8.7	9.3	9.3	10.4	10.6	10.1	9.9
Livestock - fixed assets	-	-	-	-	-	-	-
Real estate transfer expenses	1.2	1.4	1.5	1.7	2.2	2.4	2.4
Intangible fixed assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Inventories	-	-	-	-	-	-	-
Private non-farm stocks	-	-	-	-	-	-	-
Farm stocks (excluding livestock)	-	-	-	-	-	-	-
Public marketing authorities	-	-	-	-	-	-	-
Other public authorities	-	-	-	-	-	-	-
Livestock - inventories	-	-	-	-	-	-	-
Plantation forests	-	-	-	-	-	-	-
Valuables	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**23.2**	**21.8**	**20.6**	**18.8**	**18.9**	**19.9**	**20.9**
Tangible non-produced assets	*23.2*	*21.8*	*20.6*	*18.8*	*18.9*	*19.9*	*20.9*
Land	23.2	21.8	20.6	18.8	18.9	19.9	20.9
Subsoil assets	-	-	20.6	-	-	-	-
Native forests	-	-	-	-	-	-	-
Water resources	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Financial assets	**502.0**	**556.7**	**597.8**	**639.9**	**671.4**	**712.6**	**763.5**
Official reserves (a)	20.4	21.9	24.0	22.2	20.8	20.7	20.2
Cash and deposits	2.9	4.2	3.2	2.7	2.6	2.7	3.2
Securities other than shares	110.1	114.5	129.9	161.6	176.5	172.3	180.1
Loans	284.2	320.2	335.8	328.3	332.7	362.1	394.1
Shares and other equity	69.7	78.1	84.7	102.6	113.5	134.1	143.4
Technical reserves of life offices, pension funds	-	-	-	-	-	-	-
Other claims	14.7	17.8	20.2	22.5	25.3	20.7	22.5
LIABILITIES (including share capital)	**511.6**	**561.2**	**603.9**	**635.1**	**671.9**	**723.8**	**776.6**
Cash and deposits	199.6	216.8	218.9	226.0	240.7	254.7	268.2
Securities other than shares	69.1	77.2	86.4	85.4	84.7	84.7	94.2
Loans	37.6	42.1	49.0	51.5	53.3	53.4	56.9
Shares and other equity	39.3	42.2	44.9	48.8	60.7	71.0	74.8
Technical reserves of life offices, pension funds	145.5	164.4	178.3	203.1	218.2	238.3	253.7
Other claims	20.5	18.5	26.4	20.3	14.3	21.7	28.8
NET WORTH	**55.2**	**65.3**	**64.0**	**74.6**	**70.1**	**60.2**	**59.8**

(a) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).

TABLE 2.11 NON-FINANCIAL CORPORATIONS BALANCE SHEET, AT 30 JUNE 1989-95
($ billion)

	1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
TOTAL ASSETS	**681.6**	**708.1**	**715.4**	**720.7**	**744.8**	**764.0**	**800.8**
Non-financial assets	**537.6**	**565.9**	**578.9**	**579.2**	**591.7**	**607.6**	**629.0**
Produced assets	**424.4**	**459.5**	**478.8**	**487.6**	**498.7**	**509.3**	**527.0**
Fixed assets	*375.4*	*403.7*	*419.0*	*429.5*	*441.1*	*449.4*	*466.9*
Tangible fixed assets	*375.4*	*403.7*	*419.0*	*429.5*	*441.1*	*449.4*	*466.9*
Dwellings	19.9	22.3	23.4	23.8	24.9	25.8	27.4
Non-dwelling construction	210.5	228.3	237.5	241.4	244.9	249.3	258.9
Machinery and equipment	139.2	147.7	153.4	159.6	166.5	169.1	175.5
Livestock - fixed assets	1.2	1.1	1.0	1.0	1.1	1.3	1.2
Real estate transfer expenses	4.6	4.2	3.7	3.7	3.7	3.9	4.0
Intangible fixed assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Inventories	*49.0*	*55.8*	*59.8*	*58.1*	*57.6*	*59.8*	*60.0*
Private non-farm stocks	45.1	49.6	53.2	51.8	50.9	52.3	53.4
Farm stocks (excluding livestock)	0.2	0.2	0.1	0.2	0.1	0.1	0.2
Public marketing authorities	1.5	3.8	4.4	4.1	4.4	5.1	4.0
Other public authorities	1.1	1.2	1.1	1.1	1.0	0.9	1.0
Livestock - inventories	0.7	0.7	0.7	0.7	0.7	0.8	0.7
Plantation forests	0.4	0.4	0.3	0.4	0.4	0.6	0.7
Valuables	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Non-produced assets	**113.2**	**106.4**	**100.1**	**91.5**	**93.0**	**98.3**	**102.0**
Tangible non-produced assets	*113.2*	*106.4*	*100.1*	*91.5*	*93.0*	*98.3*	*102.0*
Land	112.4	105.6	100.1	90.8	92.1	97.2	100.9
Subsoil assets	-	-	99.5	-	-	-	-
Native forests	0.8	0.8	-	0.7	0.9	1.1	1.1
Water resources	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Intangible non-produced assets	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*	*n.a.*
Financial assets	**144.0**	**142.2**	**136.5**	**141.5**	**153.1**	**156.4**	**171.8**
Official reserves (a)	-	-	-	-	-	-	-
Cash and deposits	53.3	50.0	49.5	50.6	54.0	55.5	63.0
Securities other than shares	9.2	7.5	9.1	9.1	9.6	9.4	9.1
Loans	9.8	11.4	10.6	13.8	15.8	14.5	16.6
Shares and other equity	34.8	34.5	31.8	35.5	37.8	41.9	46.2
Technical reserves of life offices, pension funds	-	-	-	-	-	-	-
Other claims	36.9	38.8	35.5	32.5	35.9	35.1	36.9
LIABILITIES (including share capital)	**574.1**	**621.9**	**646.9**	**666.4**	**689.6**	**734.6**	**762.1**
Cash and deposits	-	-	-	-	-	-	-
Securities other than shares	84.0	93.3	99.1	100.1	92.3	78.5	76.7
Loans	183.2	200.8	208.5	199.1	192.5	193.2	201.1
Shares and other equity	275.9	295.3	306.5	336.1	370.4	423.3	443.4
Technical reserves of life offices, pension funds	-	-	-	-	-	-	-
Other claims	31.0	32.5	32.8	31.1	34.4	39.6	40.9
NET WORTH	**107.5**	**86.2**	**68.5**	**54.3**	**55.2**	**29.4**	**38.7**

(a) Includes monetary gold and special drawing rights in the International Monetary Fund (IMF).

CHAPTER 3 — NATURAL RESOURCES ESTIMATES[4]

LIVESTOCK

Total livestock

Table 3.1 contains summary estimates of Australian livestock. The total value of Australia's livestock, both fixed assets and inventories, was just over $20 billion at 30 June 1995. This represents 1.5% of total produced assets.

The pattern of the estimated value of inventories was somewhat different from that for fixed assets over the seven years to 30 June 1995. The value of livestock inventories rose each year up to 1991, dropped in 1992, and rose again in 1993 and 1994, before falling again in 1995. The value of livestock as fixed assets, on the other hand, after rising sharply between 1988 and 1989, fell in each of the following two years, rose through 1994 before falling in 1995. The major influence on the movement of the value of livestock inventories was beef cattle whereas for livestock fixed assets, dairy cattle, sheep and thoroughbreds were major factors in addition to beef cattle. The vagaries of Australia's weather played an important role in depressing these movements in the early 1990s when much of eastern Australia was affected by drought. In addition, adverse price movements also had an impact: the collapse of wool prices and the removal of wool price support appear to have influenced the value of sheep and lambs in 1991 whereas falls in the price of beef have contributed to the overall decline in the value of livestock in 1995.

Livestock fixed assets represented around 70% of the total livestock estimate between 1988 and 1995. This proportion reflects the broad range of animal types considered to be fixed assets. Included in the definition of fixed assets are breeding stock, sheep for wool, cattle for milk and animals for entertainment, such as thoroughbred horses. These classifications capture most animals in Australia with the significant exceptions being cattle, lambs, pigs and chickens for slaughter which are all classified as inventories.

The key animal types in the calculation of the value of livestock are beef cattle, dairy cattle, sheep and lambs and thoroughbreds. Combined, these animal types averaged around 90% of the total value of livestock from 1988 to 1995. This large proportion is primarily driven by the large numbers of these animals in comparison to all other livestock types but also reflects relatively high prices per head for beef cattle, dairy cattle and thoroughbreds compared with poultry and pigs for example.

4 The time series for natural resources compiled by the ABS was constructed every year where the data was available. For land, sub-soil assets and livestock the time series extends back to 1984, 1985 and 1988 respectively. In comparison, the complete balance sheet covers from 30 June 1989 to 1995. In order to cater for user requirements, the complete time series have been provided and commented upon.

TABLE 3.1 TOTAL VALUE OF AUSTRALIA'S LIVESTOCK, FIXED ASSETS AND INVENTORIES, AT 30 JUNE 1988–95

	1988	1989	1990	1991	1992	1993	1994	1995
				LIVESTOCK ($billion)				
Total livestock	17.7	20.2	18.5	17.1	16.9	18.7	21.3	20.4
Fixed assets	13.3	14.8	13.0	11.6	11.7	13.1	15.2	14.6
Inventories	4.5	5.4	5.5	5.5	5.2	5.6	6.1	5.7
				AS A PERCENTAGE OF TOTAL LIVESTOCK				
Fixed assets	74.8	73.4	70.4	67.8	69.4	69.9	71.4	71.8
Inventories	25.2	26.6	29.6	32.2	30.6	30.1	28.6	28.2
				AS A PERCENTAGE OF PRODUCED ASSETS				
Total livestock	n.a.	1.9	1.6	1.5	1.4	1.5	1.7	1.5
Fixed assets	n.a.	1.4	1.1	1.0	1.0	1.1	1.2	1.1
Inventories	n.a.	0.5	0.5	0.5	0.4	0.5	0.5	0.4

Beef cattle

Beef cattle represented the largest component of total livestock value. At June 30 1995 beef cattle fixed assets and inventories contributed a little over half of the total value of livestock with the value evenly split between fixed assets and inventories. The level of beef cattle fixed assets in 1995 was 23% above its value in 1988 but some 16% below its peak in June 1994. The rise over the past seven years is attributable to a 12% rise in numbers of beef cattle fixed assets and a 9% rise in price per head. However, in the year from June 1994 to June 1995 falling cattle prices, down 11%, and a 5% decline in the number of beef cattle fixed assets contributed to a fall in the total value. It should be noted that 1994 was a peak year for beef cattle with prices and numbers of cattle at their highest points over the measured seven year period. Increasing export sales have helped buoy the beef cattle market.

The value of beef cattle inventories has also shown strong growth over the seven year period (29%), but has not suffered as large a decline in the most recent period as beef cattle fixed assets. The 6% fall from June 1994 to June 1995 reflects a fall in prices (17%) which is offset to a large extent by a 13% rise in numbers of beef cattle inventories. This rise may be explained in part by a falling demand for beef during 1994–95 which led to farmers holding cattle that they might otherwise have sold.

Dairy cattle

Dairy cattle represented just over 10% of the total value of livestock, with virtually all of the value of dairy cattle relating to fixed assets. The small size of inventories reflects the value of dairy bull calves which are treated as inventories until one year of age in line with 1993 System of National Accounts (SNA93) recommendations. The value of dairy cattle has grown reasonably steadily over the period. The steady rise reflects growth in the prices obtained for dairy products over the period. Overall, the relatively large value of dairy cattle is attributable to high prices per head for dairy cows and heifers.

Sheep and lambs

Sheep and lambs are by far the most numerous of all livestock held in Australia. While the number of sheep and lambs has been in almost continual decline over the period, there were still some 126 million sheep and lambs in Australia at 30 June 1995, a level substantially higher

than every other livestock group and almost five times larger than the number of beef cattle. Despite these large numbers, the value of sheep and lambs has remained between 11% and 17% of the total value of livestock over the period. This reflects a relatively low price per head (especially in relation to cattle) and falls in price in response to both drought and the depressed international wool market.

Prices have recovered somewhat from a low in 1991 but the total value of sheep and lambs at 30 June 1995 remained below the value estimated for both 1988 and 1989. There has been a 22.3% fall in the number of sheep and lambs fixed assets over the seven year period which can at least partly be attributed to instability in the wool market. The effect of the 1990–91 drought on the number of sheep is not strongly evident in the estimates, in part because the estimation approach used data at the national rather than State level which may mask any regional impact (on sheep numbers). In addition, the data do not pick up any decline in the condition of sheep, only births and deaths. However, the effect of the drought is reflected in exceptionally low prices obtained during 1991. Estimated prices of ewes at June 1991 were around half the estimated prices at both June 1988 and June 1995.

Thoroughbreds

All thoroughbreds are classed as fixed assets in their role as animals for entertainment. Over the seven year estimation period, the value of thoroughbreds has fallen from 15% of total livestock to 9% with the drop in numbers (down 25%) the prime reason. However, there have also been quite significant variations in prices per head with values falling by over 50% between 1989 and 1991. These falls in prices are believed to be related to the economic downturn during the period but since 1993 prices have recovered almost to the June 1988 levels.

Other livestock

The remaining 15 livestock types identified in the estimates averaged about 10% of the total value of livestock over the period. In general, these estimates have remained steady over the period with exceptions being strong rises in the value of chickens, ostriches, alpacas and bees, and falls in the value of deer and goats. The value of pigs has remained relatively steady reflecting the steady State nature of production in that industry.

LAND

Total land

Table 3.2 provides annual estimates of the site value of land in Australia, by State and land use, from 30 June 1984 to 30 June 1995. For more detail see tables 3.8 and 3.9 at the end of this chapter.

From table 3.2, it can be seen that the site value of land in Australia was estimated to be $625 billion at the end of June 1995, up from $542 billion at 30 June 1989 and $245 billion in 1984. The change over this time was far from linear, but most of the increase was attributable to residential land during the high inflation years of the 1980s.

At 30 June 1995, residential land was valued at $476 billion (representing 76% of the total land value), commercial land was valued

at $81 billion (13% of the total), and rural land at $68 billion (or 11% of the total).

Whereas the estimated value of residential land has risen in all but one year (1990 was the exception) albeit unevenly, commercial land, having reached a peak of $111 billion in 1989 (over two and one half times its value five years earlier) fell to $76 billion in 1993 and has recovered only slightly since. On the other hand, the estimated value of rural land rose strongly during the 1980's, peaked in 1991 and fell sharply in 1992 (affected by the impact of the drought). Since then it has increased to register a new peak in 1995.

Residential land

Estimated residential land values exhibited significantly faster growth rates early in the period from 1984 to 1995. This growth ended with an estimated fall in land values during the year ended 30 June 1990. A more modest growth path has occurred since then.

Most States did not experience falls in residential land values, with only one State, Victoria, recording more than one fall. Further, estimated residential land values grew faster over the reference period than the other two types of land uses, with Western Australia and Queensland experiencing the fastest growth rate over the total period.

Commercial land

The estimates indicate that commercial land values up to 30 June 1995 had not yet recovered to pre-recession levels. Moreover, from 30 June 1989, total commercial land values fell for four consecutive years, and subsequently experienced marginal growth up to 30 June 1995. New South Wales, Victoria and South Australia saw their values at 30 June 1995 at barely two-thirds of their peaks. Commercial land values in the other States had decreased only marginally or increased over the period from 30 June 1989, with Western Australia and the Northern Territory experiencing strong growth since 30 June 1992.

Throughout the period from 1984 to 1995, the commercial land values rose faster and slumped further than either rural or residential land. The pattern of growth displayed indicates that commercial land values are more sensitive to slowdowns in the business cycle.

Rural land

Estimated rural land values for Australia grew quite strongly from 30 June 1984 to 30 June 1988. From 30 June 1988 to 30 June 1991, growth was moderate (at about 3%), before dropping sharply in 1992 (by 14%) mainly as a result of the severe drought affecting most of Eastern Australia. Since that time, rural land values have recovered over most of Australia except in New South Wales and South Australia, where values as at 30 June 1995 were only four-fifths and two-thirds of their respective 30 June 1991 values.[5]

5 While for Western Australia rural land values show an increase of 50% in the 12 months to 30 June 1994, this is largely the result of 'urban rural land' being included in rural land for the first time (previously these values were apportioned between all three land uses).

TABLE 3.2 LAND, SITE VALUE BY LAND USE AND STATE, AT 30 JUNE 1984 TO 1995

	1984	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
						BY LAND USE ($billion)						
Residential	161.3	185.5	198.0	233.9	316.6	368.0	366.7	387.4	390.2	421.3	453.5	475.9
Commercial	41.9	47.7	53.5	68.1	94.9	111.4	101.9	90.7	78.5	76.3	78.9	81.4
Rural	42.0	46.6	51.1	55.6	60.1	62.3	64.5	66.7	57.1	59.9	65.2	67.8
Total	*245.2*	*279.7*	*302.6*	*357.6*	*471.5*	*541.7*	*533.1*	*544.8*	*525.8*	*557.5*	*597.6*	*625.2*
						AS A PERCENTAGE OF TOTAL LAND						
Residential	65.8	66.3	65.4	65.4	67.1	67.9	68.8	71.1	74.2	75.6	75.9	76.1
Commercial	17.1	17.0	17.7	19.0	20.1	20.6	19.1	16.7	14.9	13.7	13.2	13.0
Rural	17.1	16.7	16.9	15.6	12.8	11.5	12.1	12.2	10.9	10.7	10.9	10.9
						BY STATE/TERRITORY ($billion)						
New South Wales	109.0	119.7	128.5	157.3	224.5	248.0	231.1	238.7	234.3	235.6	246.0	260.9
Victoria	60.1	73.9	82.8	98.6	123.6	146.2	136.3	133.9	113.4	130.8	136.4	139.3
Queensland	31.4	33.7	34.7	39.9	48.9	63.5	72.7	79.1	82.0	85.7	95.8	98.0
South Australia	19.4	22.7	24.2	25.6	27.7	30.8	34.5	35.2	34.3	35.0	35.7	37.3
Western Australia	17.4	21.0	22.7	25.4	34.9	40.1	44.4	42.5	44.3	51.4	63.4	68.0
Tasmania	3.4	3.7	4.0	4.3	5.1	5.9	6.3	7.0	7.4	8.0	8.5	9.1
Northern Territory	1.3	1.6	1.7	1.8	1.7	1.7	1.8	1.9	2.0	2.6	3.1	3.6
Australian Capital Territory	3.2	3.4	4.0	4.6	5.1	5.5	6.0	6.5	7.6	8.4	8.7	9.0
						ANNUAL PERCENTAGE CHANGE						
New South Wales		9.8	7.4	22.5	42.6	10.5	–6.8	3.3	–1.8	0.6	4.4	6.1
Victoria		23.0	11.9	19.2	25.4	18.3	–6.8	–1.8	–15.3	15.4	4.3	2.2
Queensland		7.3	2.7	15.3	22.6	29.9	14.5	8.8	3.7	4.5	11.8	2.3
South Australia		17.5	6.1	5.8	7.8	11.6	12.0	2.0	–2.6	2.0	2.0	4.5
Western Australia		20.7	8.1	11.9	37.4	14.9	10.7	–4.3	4.3	16.0	23.3	7.3
Tasmania		8.8	8.1	7.5	18.6	15.7	6.8	11.1	5.7	7.5	6.7	7.7
Northern Territory		23.1	6.3	5.9	–5.6	0.0	5.9	5.6	5.3	32.3	17.3	14.8
Australian Capital Territory		6.3	17.6	12.5	13.3	7.8	9.1	8.3	17.4	10.1	3.5	3.0

SUB-SOIL ASSETS

Estimated sub-soil values using two different moving average discount rates are presented in table 3.3. Estimates based on the PPI approach (the ABS's preferred approach[6]) are shown in column 3, and estimates based on the CPI approach appear in column 5. (More detail is provided in table 3.10 at the end of this chapter.)

To derive the Net Present Value (NPV) of a resource it is appropriate to use a 'real' (i.e. inflation adjusted) rate of discount as the future stream of income is expressed in 'real' terms (i.e. no attempt has been made to forecast any increases in prices or costs). The real rates of interest have been derived by using the bank lending rates to large corporations, as the nominal rate, less the change in percentage points in either the PPI or CPI. Estimates derived using the CPI approach are consistently higher than those derived from the PPI approach because the rate of change for the PPI was consistently lower than the rate of change for the CPI. As a result, the real discount rates using the PPI are higher (the PPI derived real discount rate moved through a range 9.0% to 13.1%; the CPI derived rate moved from 7.2% to 9.7%). Consequently, the estimates of the value of sub-soil assets using the rate of change in the PPI as a deflator are consistently lower than using the rate of change in the CPI. The two discount rates options are presented to:

- demonstrate how sensitive the magnitude of the estimates is to the discount rate adopted; and
- encourage user feedback on what is the most appropriate discount rate to use.

TABLE 3.3 TOTAL VALUE OF AUSTRALIA'S ECONOMIC DEMONSTRATED SUB-SOIL ASSETS, AT 30 JUNE 1985 TO 1995

	Real discount rate using the PPI	**Value using the PPI**	*Real discount rate using the CPI*	*Alternative value using the CPI*
Year	**%**	**$billion**	*%*	*$billion*
1985	**9.5**	**142 972**	7.2	185 762
1986	**12.0**	**117 498**	7.6	180 083
1987	**11.5**	**106 280**	7.7	153 134
1988	**11.4**	**116 987**	8.4	153 850
1989	**12.3**	**99 593**	8.6	136 437
1990	**13.1**	**82 615**	8.6	119 539
1991	**11.1**	**99 270**	9.1	117 120
1992	**11.5**	**102 143**	9.7	117 289
1993	**11.0**	**115 599**	9.7	128 362
1994	**10.3**	**126 154**	8.8	143 279
1995	**9.0**	**149 749**	8.0	165 447

Other than in magnitude, both approaches present a very similar story. The two series demonstrate the volatility of the estimates and the

6 The ABS feels that PPI, which reflect price changes to the major inputs of the mining industry (using 1992–93 input-output tables for commodity weights), are a more relevant measure of price change for the mining industry than the more general CPI.

influence that the discount rate has on the outcomes. Both series move in the same direction and display the same turning points. Australia's sub-soil assets represent 8% of Australia's net worth as at 30 June 1995, using the PPI approach.

The value of Australia's sub-soil assets was $150 billion as at 30 June 1995. This represents a rise of 5% from the estimated value of sub-soil assets at 30 June 1985 and a 19% rise in the value of sub-soil assets since 30 June 1994. Values fell sharply in 1985–86 and 1988–89 and rose strongly during 1990–91 and 1994–95.

Over the period from 30 June 1985 to 30 June 1986, the fall in the estimated value of sub-soil assets was the result of two main factors:

- a two and a half percentage point increase in the real discount rate; and
- a fall in the price of petroleum products.

Further, the rise in the value of sub-soil assets from 30 June 1994 to 30 June 1995 was the result of three main factors:

- a fall in the real rate of discount rate of over one percentage point;
- an increase in the prices of bauxite and diamonds; and
- a rise in the economically demonstrated resources (EDR) for crude oil combined with a small increase in prices.

The values of Australia's EDR during the period 1985 to 1995, shown in table 3.3, demonstrate considerable volatility, as they are very sensitive to changes in prices, the discount rate and assumptions about a 'normal return to capital' for the mining industry. However, even though a resource, such as copper, may be uneconomic to produce in one particular year (1987, for example) the resource is commercially viable over a longer period; consequently, the resource continues to be extracted.

STANDING TIMBER

Standing timber value

From table 3.4 it can be seen that at 30 June 1995 the estimated value of standing timber (that is, plantation and native forests) in Australia was $16.3 billion, compared with $12.9 billion six years earlier. Plantation forests, although covering only 5% of the area available for cutting, accounted for over 40% of the value in 1995. The value of standing timber rose in every year except for a fall during the year ending June 1993 when the total fell 6%, the result of the fall in the value of coniferous forests, which dropped by almost $1 billion.

Native forests represent around 60% of the total value of standing timber (ranging from a high of 63% of total timber value in June 1989 to a low of 56% in June 1994 and 1995) while coniferous forests account for most of the rest. Broadleaved plantations represent roughly 1% of the value of total standing timber assets.

TABLE 3.4 VALUE OF STANDING TIMBER, BY FOREST TYPE, AT 30 JUNE 1989 TO 1995

	1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
			($million)				
Native forests	8 084	8 546	8 930	8 901	8 952	8 991	9 054
Coniferous plantations	4 729	5 339	6 108	6 239	5 326	6 776	7 050
Broadleaved plantations	70	80	104	115	131	164	189
Total	*12 883*	*13 965*	*15 142*	*15 255*	*14 409*	*15 931*	*16 293*
			AS A PERCENTAGE OF TOTAL VALUE				
Native forests	62.7	61.2	59.0	58.3	62.1	56.4	55.6
Coniferous plantations	36.7	38.2	40.3	40.9	37.0	42.5	43.3
Broadleaved plantations	0.5	0.6	0.7	0.8	0.9	1.0	1.2
			ANNUAL PERCENTAGE CHANGE				
Native forests		5.7	4.5	-0.3	0.6	0.4	0.7
Coniferous plantations		12.9	14.4	2.1	-14.6	27.2	4.0
Broadleaved plantations		14.3	30.0	10.6	14.8	24.2	15.2

The total value of coniferous forests (slightly more than $7 billion as at 30 June 1995) is more volatile than the total value of native forests (which reached slightly more than $9 billion by June 1995). The former changed by more than 10% in four out of six years (and by 27% during the year ended 30 June 1994), while the latter only fluctuated by more than 5% on one occasion.

The estimates indicate that overall relative State holdings of standing timber assets did not change significantly throughout the period 1989 to 1995. Tasmania is estimated to hold the largest proportion of the value of Australia's standing timber assets, and although this proportion fell from 24% at 30 June 1989 to 21% at 30 June 1995, the value of these assets rose from $3.1 billion to almost $3.5 billion at the end of the period. The value of Tasmania's standing timber also recorded its fastest growth rates within the period during the years ended June 1994 and 1995. The relative value of Queensland's standing timber resources grew throughout the period, and by 1995 represented almost 21% of total value of Australian standing timber resources. Victorian standing timber assets displayed a very similar pattern, but a small drop occurred during the year ended June 1993. Western Australia was the only State within which the value of standing timber assets did not record at least one annual drop.

In New South Wales, Victoria and Queensland the value of both native and coniferous forest assets was significant, whilst in Western Australia and Tasmania native forests account for a much larger share of the value of standing timber assets.

In South Australia, the Australian Capital Territory and the Northern Territory, the value of timber resources was small. Points to note are:

- there are no native forest assets available for production within South Australia, and only insignificant levels of broadleaved forests;
- there are no broadleaved forests in the Northern Territory, and native forests account for most of the standing timber;

- the Australian Capital Territory contains only coniferous forest assets; and
- each held less than 5% of the total value of Australian standing timber resources as at 30 June 1995.

Standing timber area

Native forest

The total area of native forest available for wood production in Australia[7] was estimated at 22.3 million hectares at 30 June 1995. This represented a marginal rise of about one-third of a million hectares during the period 1989 to 1995. Privately owned forests were estimated at 8.2 million hectares at June 1995 (37% of the total area available) while publicly owned forests accounted for the balance. These contributions have remained stable over the period.

Of the States and Territories, the Northern Territory has by far the largest area of native forest available for production, accounting for a third of the total area.[8] Queensland accounts for just over 6 million hectares, or 27% of total native forest area. Native forest area available for production in New South Wales is also significant (4.4 million hectares), while Western Australia, Victoria and Tasmania make up the remainder (4.7 million hectares). South Australia and the Australian Capital Territory have no native forests available for production.

Plantation area

The total area of coniferous forests in Australia increased by 4% in the six years to 30 June 1995. Publicly owned coniferous forests represented just under three-quarters of the total coniferous forest area and represent the largest proportion of ownership in all of the States and Territories, except in the Northern Territory which was largely privately owned. In Victoria, ownership was roughly equal between public and private.

While broadleaved plantation forests accounted for only 14% of the 1.1 million hectares of plantation forests as at 30 June 1995, they have experienced much faster increases since 30 June 1989 than coniferous forests. Between 30 June 1989 and 1995, the broadleaved plantation area rose by over 80%. Broadleaved plantation ownership has swung from over 60% public ownership at 30 June 1989 to almost 60% private ownership at 30 June 1995, largely as a result of rapid increases in the number of privately owned hectares in Western Australia and Tasmania.

Tasmania held the largest proportion of broadleaved forest area at 30 June 1995, accounting for 37% of the total. Western Australia accounted for 29% of the area at the same time. New South Wales and

7 The Resource Assessment Commission describes timber available for production as: those areas where logging is permitted; where the timber owner is prepared to sell the timber; where the timber is sufficiently accessible to enable economic extraction; and, irrespective of area, there must be a market for the timber (*Forest and Timber Inquiry Final Report*, Vol 1 March 1992 para. 3.28).

8 While the area of native forest in the Northern Territory is quite large the values are quite low, mainly as a result of the sparse forest canopy leading to low yields per hectare.

Victoria also held considerable amounts of broadleaved plantation forest at this time (18.5 and 13.4%, respectively).

Detailed estimates of standing timber can be found in tables 3.11 to 3.19 at the end of this chapter.

OTHER CHANGES IN ASSETS ACCOUNT

Table 3.5 summarises the two components of the Other Changes in Assets Account: the Other Change in Volume of Assets Account and the Revaluation Account.

Other changes in volume of assets account

Land

The total area of land in Australia does not change from year to year[9]. However, that area which is covered in practice by the national balance sheets may. For example, the balance sheets include values for private leasehold and freehold land, as well as land owned by Commonwealth business enterprises. Crown land was not valued. If ownership of land were to change from Crown land to one of the categories for which values are included in the balance sheets, then there would be a change in the volume of land measured. However, as data on the physical area of land are not available, these changes, if any, are not separately identified.

Sub-soil assets

Other volume changes for sub-soil assets reflect either changes in the level of EDR due to discoveries, reclassification by the Bureau of Resource Sciences, and/or depletion. While these categories of volume change are not separately identifiable, total volume changes are derived as a residual after calculating changes due to revaluation of these assets.

Changes in the value of other volume changes for sub-soil assets were positive over the whole of the period 1989–95. The largest change in value was $4.9 billion for the 12 months ended 30 June 1990.

Native forests

Other volume changes consist of changes in the area of standing timber available for production from native forests. Changes in this area may be the result of natural growth or depletion due to a range of factors such as harvesting, fires, disease, etc. At this stage, insufficient data are available to separately identify the causes for the volume changes.

Other volume changes recorded for native forests, were marginal over the period 1989–95. These low values reflect the very slow growth in the area of native forest over the period.

9 Except in exceptional circumstances such as when embassies and consulates are bought and sold. Under national accounting concepts, embassies and consulates are regarded as being within the physical boundaries of the country which owns the embassy or consulate.

TABLE 3.5 OTHER CHANGES IN ASSETS ACCOUNT SUMMARY, YEAR ENDING JUNE 1990–95

	1989–90	1990–91	1991–92	1992–93	1993–94	1994–95
		($billion)				
Other change in volume of assets						
Subsoil assets	4.9	4.2	2.5	3.4	2.5	3.6
Land	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Native forests	0.1	—	0.1	—	0.1	—
Revaluation changes						
Subsoil assets	–21.8	12.5	0.4	10.1	8.0	20.0
Land	–8.6	11.7	–19.0	31.7	40.1	27.6
Native forests	0.4	0.4	–0.1	0.1	–0.1	—

Revaluation account

Land Changes in the estimated value of land have been attributed entirely to movements in price, and the entries in this account represent the value of nominal holding gains or losses accruing to asset holders (nominal holding gains or losses have not been broken down into neutral and real holding gains/losses).

Sub-soil assets The changes in the levels of sub-soil assets that appear in the revaluation account represent changes in price, extraction costs and discount rates.

The estimates of the value of changes due to revaluation for sub-soil assets remained positive throughout the period 1990–95 but in 1989–90 there was a fall of $22 billion. The largest annual rise ($20 billion) occured during 1994–95.

Native forests The change in levels attributed to the revaluation account for native forests represent changes in stumpage fees as well as changes in the discount rate.

TABLE 3.6 TOTAL VALUE OF AUSTRALIA'S LIVESTOCK, FIXED ASSETS AND INVENTORIES, AT 30 JUNE 1988-95
($ million)

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
Fixed assets								
Beef cattle	4,575	5,347	5,552	5,217	5,093	6,000	6,687	5,639
Dairy cattle	1,913	2,120	2,078	1,875	1,784	2,029	2,349	2,242
Sheep & lambs	2,823	2,730	1,877	1,471	1,768	1,913	2,105	2,333
Thoroughbreds	2,698	3,345	2,227	1,579	1,542	1,289	1,768	1,903
Horses	416	384	423	517	543	733	931	1,140
Standards	237	251	259	250	242	227	236	234
Goats	14	12	7	5	4	2	3	5
Pigs	113	116	98	102	95	90	94	89
Deer	108	103	95	71	27	32	33	35
Poultry - Chickens	78	81	88	89	85	93	110	96
Poultry - Other	5	3	4	4	5	5	3	4
Bees	29	35	38	38	40	38	60	55
Ostriches	0	9	32	102	202	319	483	492
Emus	1	1	2	3	6	9	14	14
Alpacas	0	8	17	29	35	45	95	121
Buffalo	4	4	3	5	3	2	3	3
Camels, donkeys, mules	1	1	1	1	3	4	4	3
Greyhounds	235	235	234	236	238	220	203	190
Zoo animals	13	13	13	14	14	14	14	14
Total fixed assets	*13,263*	*14,798*	*13,048*	*11,608*	*11,729*	*13,064*	*15,195*	*14,612*
Inventories								
Beef cattle	4,066	4,835	4,966	4,847	4,631	5,104	5,576	5,258
Dairy cattle	6	6	6	6	5	7	8	6
Lambs	114	233	237	360	256	204	195	173
Goats	5	6	5	4	3	3	2	2
Pigs	239	248	214	232	212	234	223	212
Deer	4	4	4	5	5	6	6	6
Poultry - Chickens	39	36	45	47	57	66	64	74
Poultry - Other	6	4	4	5	5	5	4	6
Buffalo	1	1	1	2	1	2	1	1
Total inventories	*4,480*	*5,373*	*5,482*	*5,508*	*5,175*	*5,631*	*6,079*	*5,738*
Total livestock	**17,743**	**20,171**	**18,530**	**17,116**	**16,904**	**18,695**	**21,274**	**20,350**
	percentage of total livestock value							
Total Fixed Assets/Total Livestock	*74.8*	*73.4*	*70.4*	*67.8*	*69.4*	*69.9*	*71.4*	*71.8*
Cattle, Sheep/Total Livestock	*76.1*	*75.7*	*79.4*	*80.5*	*80.1*	*81.6*	*79.5*	*76.9*
Beef Cattle/Total Livestock	48.7	50.5	56.8	58.8	57.5	59.4	57.6	53.5
Dairy Cattle/Total Livestock	10.8	10.5	11.2	11.0	10.6	10.9	11.1	11.0
Sheep and Lambs/Total Livestock	16.6	14.7	11.4	10.7	12.0	11.3	10.8	12.3
All Horses/Total Livestock	*18.9*	*19.7*	*15.7*	*13.7*	*13.8*	*12.0*	*13.8*	*16.1*

TABLE 3.7 AUSTRALIAN LIVESTOCK NUMBERS, FIXED ASSETS AND INVENTORIES, AT 30 JUNE 1988-95 ('000)

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
Fixed assets								
Beef cattle	11,009	11,503	11,933	11,932	11,957	12,528	12,989	12,327
Dairy cattle	2,585	2,569	2,540	2,482	2,488	2,559	2,715	2,768
Sheep & lambs	153,675	158,201	155,533	148,925	137,832	131,150	125,446	119,461
Thoroughbreds	126	122	126	125	119	102	99	94
Horses	305	290	317	343	361	373	385	396
Standards	107	107	105	102	99	96	94	93
Goats	651	709	602	471	351	239	221	202
Pigs	363	373	361	329	374	336	347	332
Deer	43	50	63	79	92	116	136	160
Poultry - Chickens	20,034	18,865	19,184	18,211	16,944	18,224	18,549	16,170
Poultry - Other	438	314	343	394	384	308	269	338
Bees	499	526	526	501	476	424	626	545
Ostriches	0	1	2	4	7	14	28	42
Emus	1	3	7	15	28	45	68	69
Alpacas	0	1	1	2	3	4	7	9
Buffalo	11	10	8	12	8	5	7	7
Camels, donkeys, mules	1	2	2	3	4	4	4	4
Greyhounds	55	56	58	57	57	57	56	56
Zoo animals (a)	..	..	..	..	..	..	..	..
Total fixed assets	*189,903*	*193,702*	*191,711*	*183,987*	*171,584*	*166,584*	*162,046*	*153,073*
Inventories								
Beef cattle	9,802	10,231	10,575	10,955	10,790	10,849	10,773	12,131
Dairy cattle	9	9	8	8	8	10	10	10
Lambs	5,631	9,968	16,901	14,505	11,174	8,376	7,566	7,408
Goats	100	123	87	68	55	44	41	39
Pigs	2,247	2,333	2,310	2,203	2,462	2,337	2,456	2,347
Deer	20	24	30	37	43	39	34	28
Poultry - Chickens	48,546	40,171	44,417	40,347	45,270	51,157	50,153	54,445
Poultry - Other	2,175	1,494	1,622	1,871	1,876	1,518	1,391	1,750
Buffalo	5	3	5	6	5	6	5	5
Total inventories	*68,535*	*64,356*	*75,955*	*70,000*	*71,683*	*74,336*	*72,429*	*78,163*
Total Livestock	**258,438**	**258,058**	**267,666**	**253,987**	**243,267**	**240,920**	**234,475**	**231,236**

(a) Due to the considerable range of zoo animals, it was felt that summing their numbers was not appropriate.

TABLE 3.8 VALUE OF LAND, AUSTRALIA, AT 30 JUNE 1984-95
($ billion)

Land use by state	*1984*	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
Residential												
New South Wales	73.8	81.3	87.1	102.8	158.2	173.3	162.0	178.3	182.7	185.3	194.1	207.9
Victoria	39.4	49.1	54.3	67.5	78.7	98.0	93.0	90.8	77.2	94.5	99.3	101.3
Queensland	20.8	22.3	22.3	26.2	33.2	43.4	51.2	57.3	63.1	64.8	74.6	75.6
South Australia	11.6	14.2	14.6	15.6	16.7	18.8	21.8	22.6	24.2	26.4	27.3	28.7
Western Australia	10.4	12.8	13.4	14.9	22.1	26.2	29.4	28.2	31.2	36.4	43.3	46.4
Tasmania	1.8	2.0	2.1	2.3	2.8	3.3	3.6	4.0	4.4	5.0	5.4	5.9
Northern Territory	0.8	1.0	1.0	1.1	1.0	1.0	1.1	1.2	1.3	1.8	2.2	2.6
Australian Capital Territory	2.7	2.8	3.1	3.4	3.7	4.0	4.6	5.1	6.2	7.1	7.4	7.6
Australia	*161.3*	*185.5*	*198.0*	*233.9*	*316.6*	*368.0*	*366.7*	*387.4*	*390.2*	*421.3*	*453.5*	*475.9*
Commercial												
New South Wales	18.5	20.2	21.8	33.5	43.8	51.7	45.7	36.6	32.9	32.1	33.5	34.1
Victoria	11.0	13.8	16.1	17.4	29.9	32.7	27.3	26.5	21.2	18.8	19.6	20.5
Queensland	5.8	6.0	6.3	7.1	8.5	12.1	12.5	12.0	10.5	11.8	11.7	12.1
South Australia	2.4	2.8	3.4	3.4	3.9	5.1	5.8	5.8	5.0	4.2	3.9	4.0
Western Australia	2.8	3.4	3.9	4.5	6.2	7.1	7.9	6.9	6.0	6.4	7.1	7.6
Tasmania	0.5	0.5	0.6	0.5	0.7	0.8	0.8	0.9	0.9	1.0	1.1	1.1
Northern Territory	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7
Australian Capital Territory	0.5	0.6	0.9	1.1	1.4	1.5	1.4	1.4	1.5	1.3	1.3	1.4
Australia	*41.9*	*47.7*	*53.5*	*68.1*	*94.9*	*111.4*	*101.9*	*90.7*	*78.5*	*76.3*	*78.9*	*81.4*
Rural												
New South Wales	16.7	18.2	19.6	21.1	22.5	23.0	23.4	23.8	18.7	18.2	18.5	18.9
Victoria	9.7	11.0	12.3	13.7	15.0	15.5	16.1	16.6	15.0	17.4	17.5	17.5
Queensland	4.8	5.4	6.0	6.6	7.2	8.1	9.0	9.8	8.4	9.1	9.5	10.3
South Australia	5.4	5.8	6.2	6.6	7.0	6.9	6.9	6.8	5.1	4.4	4.4	4.6
Western Australia (a)	4.2	4.8	5.4	6.0	6.6	6.8	7.1	7.4	7.1	8.6	13.0	14.1
Tasmania	1.1	1.2	1.3	1.5	1.6	1.8	1.9	2.1	2.1	1.9	2.0	2.2
Northern Territory	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Australian Capital Territory	n.a.	-	-	-	-	-	-	-	-	-	-	-
Australia	*42.0*	*46.6*	*51.1*	*55.6*	*60.1*	*62.3*	*64.5*	*66.7*	*57.1*	*59.9*	*65.2*	*67.8*
Total												
New South Wales	109.0	119.7	128.5	157.3	224.5	248.0	231.1	238.7	234.3	235.6	246.0	260.9
Victoria	60.1	73.9	82.8	98.6	123.6	146.2	136.3	133.9	113.4	130.8	136.4	139.3
Queensland	31.4	33.7	34.7	39.9	48.9	63.5	72.7	79.1	82.0	85.7	95.8	98.0
South Australia	19.4	22.7	24.2	25.6	27.7	30.8	34.5	35.2	34.3	35.0	35.7	37.3
Western Australia	17.4	21.0	22.7	25.4	34.9	40.1	44.4	42.5	44.3	51.4	63.4	68.0
Tasmania	3.4	3.7	4.0	4.3	5.1	5.9	6.3	7.0	7.4	8.0	8.5	9.1
Northern Territory	1.3	1.6	1.7	1.8	1.7	1.7	1.8	1.9	2.0	2.6	3.1	3.6
Australian Capital Territory	3.2	3.4	4.0	4.6	5.1	5.5	6.0	6.5	7.6	8.4	8.7	9.0
Australia	**245.2**	**279.7**	**302.6**	**357.6**	**471.5**	**541.7**	**533.1**	**544.8**	**525.8**	**557.5**	**597.6**	**625.2**

Source: Australian Valuation Office 1984-1991 and State and Territory land valuation offices 1992-1995.
(a) While West Australian rural land values show an increase of 50% in the twelve months to 30 June 1994, this is largely the result of "urban rural land" being included in rural land for the first time (previously these values were apportioned between all three land uses).

TABLE 3.9 ANNUAL PERCENTAGE CHANGES IN VALUE OF LAND, AUSTRALIA, YEAR ENDED 30 JUNE 1985-95

Land use by state	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
Residential											
New South Wales	10.2	7.1	18.0	53.9	9.5	-6.5	10.1	2.5	1.4	4.7	7.1
Victoria	24.6	10.6	24.3	16.6	24.5	-5.1	-2.4	-15.0	22.4	5.0	2.0
Queensland	7.2	-	17.5	26.7	30.7	18.0	11.9	10.1	2.7	15.1	1.3
South Australia	22.4	2.8	6.8	7.1	12.6	16.0	3.7	7.1	9.1	3.4	5.2
Western Australia	23.1	4.7	11.2	48.3	18.6	12.2	-4.1	10.6	16.6	19.0	7.1
Tasmania	11.1	5.0	9.5	21.7	17.9	9.1	11.1	10.0	14.5	7.6	8.6
Northern Territory	25.0	-	10.0	-9.1	-	10.0	9.1	8.3	40.0	21.3	17.6
Australian Capital Territory	3.7	10.7	9.7	8.8	8.1	15.0	10.9	20.8	14.6	4.2	3.0
Australia	*15.0*	*6.7*	*18.1*	*35.4*	*16.2*	*-0.4*	*5.6*	*0.7*	*7.9*	*7.7*	*4.9*
Commercial											
New South Wales	9.2	7.9	53.7	30.7	18.0	-11.6	-19.9	-10.1	-2.4	4.2	1.8
Victoria	25.5	16.7	8.1	71.8	9.4	-16.5	-2.9	-20.0	-11.1	3.9	4.8
Queensland	3.4	5.0	12.7	19.7	42.4	3.3	-4.0	-12.5	12.4	-0.8	3.4
South Australia	16.7	21.4	-	14.7	30.8	13.7	-	-13.8	-16.0	-6.2	0.8
Western Australia	21.4	14.7	15.4	37.8	14.5	11.3	-12.7	-13.0	6.7	11.5	5.8
Tasmania	-	20.0	-16.7	40.0	14.3	-	12.5	-	13.3	3.0	4.1
Northern Territory	-	25.0	-	-	-	-	-	-	22.0	10.7	9.6
Australian Capital Territory	20.0	50.0	22.2	27.3	7.1	-6.7	-	5.0	-8.8	-0.7	3.2
Australia	*13.8*	*12.2*	*27.3*	*39.4*	*17.4*	*-8.5*	*-11.0*	*-13.5*	*-2.7*	*3.3*	*3.2*
Rural											
New South Wales	9.0	7.7	7.7	6.6	2.2	1.7	1.7	-21.5	-2.5	1.5	2.4
Victoria	13.4	11.8	11.4	9.5	3.3	3.9	3.1	-9.6	16.3	0.6	-
Queensland	12.5	11.1	10.0	9.1	12.5	11.1	8.9	-14.3	8.3	4.4	8.4
South Australia	7.4	6.9	6.5	6.1	-1.4	-	-1.4	-25.0	-14.2	1.1	3.3
Western Australia	14.3	12.5	11.1	10.0	3.0	4.4	4.2	-3.9	21.6	50.0	8.7
Tasmania	9.1	8.3	15.4	6.7	12.5	5.6	10.5	-	-9.7	6.1	7.3
Northern Territory	100.0	-	-	-	-	-	-	-	8.0	2.5	2.5
Australian Capital Territory	-	-	-	-	-	-	-	-	-	-	-
Australia	*11.0*	*9.7*	*8.8*	*8.1*	*3.7*	*3.5*	*3.4*	*-14.4*	*4.9*	*8.8*	*4.1*
Total											
New South Wales	9.8	7.4	22.4	42.7	10.5	-6.8	3.3	-1.8	0.6	4.4	6.1
Victoria	23.0	12.0	19.1	25.4	18.3	-6.8	-1.8	-15.3	15.4	4.3	2.2
Queensland	7.3	3.0	15.0	22.6	29.9	14.5	8.8	3.7	4.5	11.8	2.3
South Australia	17.0	6.6	5.8	8.2	11.2	12.0	2.0	-2.6	2.0	2.0	4.5
Western Australia	20.7	8.1	11.9	37.4	14.9	10.7	-4.3	4.3	16.0	23.3	7.3
Tasmania	8.8	8.1	7.5	18.6	15.7	6.8	11.1	5.7	7.5	6.7	7.7
Northern Territory	23.1	6.3	5.9	-5.6	-	5.9	5.6	5.3	32.3	17.3	14.8
Australian Capital Territory	6.3	17.6	15.0	10.9	7.8	9.1	8.3	17.4	10.1	3.5	3.0
Australia	**14.1**	**8.2**	**18.2**	**31.9**	**14.9**	**-1.6**	**2.2**	**-3.5**	**6.0**	**7.2**	**4.6**

TABLE 3.10 VALUE OF AUSTRALIA'S DEMONSTRATED SUB-SOIL ASSETS, BY COMMODITY, AT 30 JUNE 1985-95

		Economic demonstrated resources(a)	5 year lagged moving average of prices at 30 June $/unit	Cost including normal return on capital $/unit	Annual Production (physical units)	5 year lagged moving average of production (physical units)	5 year lagged moving average of resource life (years)	Net present value of assets, $million	
								Rate of discount	
								PPI approach(b)	CPI approach(b)
Antimony		*Kilo-tonne*	*Tonne*	*Tonne*	*Kilo-tonne*	*Kilo-tonne*			
	1985	13.9	3,628	20	1.45	1.04	13	28	32
	1986	14.1	3,634	19	1.39	1.09	13	25	32
	1987	16.0	3,676	20	1.34	1.11	14	28	35
	1988	15.4	3,538	18	1.28	1.21	13	28	33
	1989	15.2	3,362	18	1.36	1.36	11	27	32
	1990	14.5	3,147	19	1.34	1.34	11	24	29
	1991	39.5	2,821	19	1.42	1.35	29	32	38
	1992	63.5	2,483	19	1.55	1.39	46	30	35
	1993	116.5	2,771	19	1.76	1.48	78	37	42
	1994	88.1	3,564	18	1.69	1.55	57	53	62
	1995	97.9	4,410	18	1.71	1.63	60	79	88
Bauxite		*Giga-tonne*	*Tonne*	*Tonne*	*Giga-tonne*	*Giga-tonne*			
	1985	2.9	268	23	0.03	0.03	108	69,189	91,246
	1986	2.9	254	23	0.03	0.03	101	54,268	85,636
	1987	2.8	225	23	0.03	0.03	96	52,026	77,639
	1988	3.2	195	21	0.03	0.03	102	48,195	65,390
	1989	5.5	167	21	0.03	0.03	170	38,913	55,655
	1990	5.6	135	22	0.04	0.03	170	28,703	43,722
	1991	6.4	121	22	0.04	0.03	187	30,366	37,039
	1992	2.4	115	21	0.04	0.04	67	29,069	34,417
	1993	2.6	116	23	0.04	0.04	70	31,147	35,291
	1994	2.5	119	25	0.04	0.04	66	35,213	41,122
	1995	2.5	129	24	0.04	0.04	64	46,107	51,702
Black coal - recoverable		*Giga-tonne*	*Tonne*	*Tonne*	*Giga-tonne*	*Giga-tonne*			
	1985	34.0	55	52	0.13	0.11	306	3,533	4,661
	1986	34.0	55	52	0.14	0.12	288	2,970	4,689
	1987	49.5	55	53	0.15	0.13	390	2,143	3,201
	1988	49.7	54	46	0.15	0.14	365	8,967	12,170
	1989	50.8	53	48	0.16	0.14	352	6,145	8,789
	1990	51.1	52	49	0.16	0.15	339	3,986	6,071
	1991	51.4	52	50	0.17	0.16	328	3,523	4,297
	1992	52.0	53	51	0.16	0.16	324	2,562	3,037
	1993	52.0	54	46	0.17	0.16	319	11,051	12,532
	1994	49.0	55	49	0.17	0.17	295	10,874	12,728
	1995	49.0	56	49	0.18	0.17	290	13,770	15,492
Brown coal - recoverable		*Giga-tonne*	*Tonne*	*Tonne*	*Giga-tonne*	*Giga-tonne*			
	1985	41.9	7	8	0.04	0.04	1,187	-	-
	1986	41.9	7	8	0.04	0.04	1,155	-	-
	1987	41.9	7	8	0.04	0.04	1,149	-	-
	1988	41.8	8	6	0.04	0.04	1,116	392	533
	1989	41.8	8	6	0.04	0.04	1,067	427	611
	1990	41.7	8	8	0.04	0.04	1,038	104	159
	1991	41.7	8	8	0.05	0.04	999	163	199
	1992	41.0	8	6	0.05	0.04	940	574	680
	1993	41.0	8	6	0.05	0.05	903	633	718
	1994	41.0	8	6	0.05	0.05	875	766	897
	1995	41.0	8	6	0.05	0.05	852	1,057	1,189
Cadmium		*Kilo-tonne*	*Tonne*	*Tonne*	*Kilo-tonne*	*Kilo-tonne*			
	1985	67.4	3,430	365	2.65	2.18	31	66	82
	1986	68.2	3,560	357	2.64	2.36	29	61	87
	1987	73.3	4,174	368	2.54	2.45	30	78	108
	1988	74.7	8,254	325	2.41	2.49	30	166	214
	1989	58.4	9,807	337	2.28	2.50	23	180	235
	1990	55.7	11,831	352	2.20	2.41	23	199	274
	1991	63.3	12,282	360	2.21	2.33	27	236	276
	1992	50.2	11,640	350	2.17	2.25	22	202	229
	1993	84.7	7,256	344	2.22	2.22	38	137	153
	1994	73.4	6,286	337	2.22	2.21	33	122	140
	1995	140.7	4,540	339	2.09	2.18	64	102	114

TABLE 3.10 VALUE OF AUSTRALIA'S DEMONSTRATED SUB-SOIL ASSETS, BY COMMODITY, AT 30 JUNE 1985-95 - continued.

		Economic demonstrated resources(a)	5 year lagged moving average of prices at 30 June $/unit	Cost including normal return on capital $/unit	Annual Production (physical units)	5 year lagged moving average of production (physical units)	5 year lagged moving average of resource life (years)	Net present value of assets, $million	
								Rate of discount	
								PPI approach(b)	CPI approach(b)
Cobalt		*Kilo-tonne*	*Tonne*	*Tonne*	*Kilo-tonne*	*Kilo-tonne*			
	1985	33.0	22,893	53,809	2.15	2.72	12	-	-
	1986	22.0	22,893	52,513	2.20	2.50	9	-	-
	1987	22.0	22,612	54,133	2.29	2.28	10	-	-
	1988	21.0	22,293	47,867	2.30	2.07	10	-	-
	1989	18.0	25,236	49,595	2.32	2.25	8	-	-
	1990	85.0	29,758	51,918	2.26	2.27	37	-	-
	1991	80.0	38,234	49,433	2.06	2.24	36	-	-
	1992	53.0	47,444	44,085	1.81	2.15	25	58	67
	1993	52.0	51,888	43,221	1.49	1.99	26	146	162
	1994	52.0	60,298	42,463	1.17	1.76	30	288	327
	1995	274.0	68,778	42,787	1.02	1.51	181	436	491
Copper		*Mega-tonne*	*Tonne*	*Tonne*	*Mega-tonne*	*Mega-tonne*			
	1985	16.1	2,220	2,025	0.26	0.24	66	500	655
	1986	16.0	2,200	2,152	0.25	0.25	64	99	155
	1987	16.9	2,204	2,308	0.25	0.25	68	-	-
	1988	17.1	2,376	2,193	0.24	0.25	68	401	542
	1989	17.3	2,688	2,305	0.25	0.25	69	779	1,111
	1990	17.5	2,969	2,350	0.26	0.25	70	1,186	1,801
	1991	17.7	3,185	2,431	0.28	0.26	69	1,734	2,111
	1992	17.3	3,349	2,385	0.29	0.26	65	2,215	2,622
	1993	20.2	3,308	2,497	0.33	0.28	72	2,073	2,349
	1994	20.2	3,154	2,525	0.36	0.30	67	1,850	2,160
	1995	24.0	3,243	2,382	0.37	0.33	74	3,106	3,488
Diamond - gem and cheap gem		*Million carats*	*Carat*	*Carat*	*Million carats*	*Million carats*			
	1985	187.2	247	7	2.09	2.63	71	6,616	8,681
	1986	173.5	201	7	2.65	2.64	66	4,247	6,656
	1987	160.0	159	7	5.45	3.20	50	4,206	6,154
	1988	192.7	193	7	7.46	4.13	47	6,724	8,971
	1989	179.0	156	7	10.17	5.56	32	6,562	8,939
	1990	223.0	125	7	12.82	7.71	29	6,727	9,576
	1991	197.7	137	7	14.48	10.08	20	10,284	11,764
	1992	172.4	173	7	14.82	11.95	14	13,651	15,060
	1993	147.0	131	7	15.95	13.65	11	10,394	11,020
	1994	130.0	129	7	16.62	14.94	9	10,128	10,741
	1995	101.0	140	7	17.30	15.83	6	9,892	10,209
Diamond - Industrial		*Million carats*	*Carat*	*Carat*	*Million carats*	*Million carats*			
	1985	228.8	7	7	3.10	3.48	66	-	-
	1986	212.0	7	7	3.04	3.37	63	-	-
	1987	196.4	6	7	5.64	3.83	51	-	-
	1988	188.7	7	7	8.66	4.88	39	17	22
	1989	214.0	7	7	12.18	6.52	33	-	-
	1990	298.0	6	7	14.64	8.83	34	-	-
	1991	261.7	7	7	17.58	11.74	22	-	-
	1992	225.3	11	7	19.09	14.43	16	374	415
	1993	189.0	24	7	19.90	16.68	11	1,832	1,947
	1994	168.0	30	7	20.40	18.32	9	2,428	2,581
	1995	128.0	38	7	22.29	19.85	6	2,904	2,997
Gold		*Tonne*	*Kilogram*	*Kilogram*	*Tonne*	*Tonne*			
	1985	959.3	15,350	12,986	47.57	29.89	32	703	876
	1986	1,026.0	15,574	12,292	64.36	39.23	26	1,017	1,445
	1987	1,274.0	16,494	12,327	90.62	53.06	24	1,782	2,388
	1988	1,378.0	16,992	9,931	127.32	72.66	19	3,920	4,785
	1989	1,486.0	17,039	10,104	185.37	103.05	14	4,719	5,781
	1990	2,129.0	17,039	10,452	224.10	138.35	15	5,911	7,620
	1991	2,145.0	16,750	10,660	240.77	173.64	12	6,932	7,658
	1992	2,466.0	15,648	9,931	241.47	203.81	12	7,417	8,093
	1993	3,003.0	15,433	10,209	244.60	227.26	13	8,076	8,639
	1994	3,434.0	15,705	11,389	256.18	241.42	14	7,607	8,273
	1995	4,263.0	16,081	12,153	248.75	246.35	17	8,332	8,903

TABLE 3.10 VALUE OF AUSTRALIA'S DEMONSTRATED SUB-SOIL ASSETS, BY COMMODITY, AT 30 JUNE 1985-95 - continued.

		Economic demonstrated resources(a)	5 year lagged moving average of prices at 30 June $/unit	Cost including normal return on capital $/unit	Annual Production (physical units)	5 year lagged moving average of production (physical units)	5 year lagged moving average of resource life (years)	Net present value of assets, $million	
								Rate of discount	
								PPI approach(b)	CPI approach(b)
Iron ore		*Giga-tonne*	*Tonne*	*Tonne*	*Giga-tonne*	*Giga-tonne*			
	1985	16.2	24	22	0.09	0.09	189	2,003	2,643
	1986	15.9	24	22	0.09	0.09	181	1,235	1,949
	1987	14.9	23	22	0.09	0.09	168	708	1,058
	1988	16.0	22	20	0.10	0.09	177	1,356	1,840
	1989	14.3	22	21	0.10	0.09	151	866	1,239
	1990	14.7	22	21	0.10	0.10	152	664	1,012
	1991	17.9	23	21	0.10	0.10	182	1,272	1,551
	1992	17.9	24	21	0.11	0.10	177	2,598	3,081
	1993	17.9	25	21	0.11	0.10	172	3,242	3,677
	1994	18.0	25	18	0.12	0.11	168	7,140	8,357
	1995	17.8	25	18	0.12	0.11	160	7,556	8,500
Lead		*Mega-tonne*	*Tonne*	*Tonne*	*Mega-tonne*	*Mega-tonne*			
	1985	14.5	600	705	0.48	0.44	33	-	-
	1986	15.8	600	666	0.48	0.46	34	-	-
	1987	15.6	670	815	0.47	0.47	33	-	-
	1988	15.9	730	786	0.47	0.47	34	-	-
	1989	11.5	776	889	0.47	0.48	24	-	-
	1990	10.7	867	832	0.48	0.48	22	121	166
	1991	10.0	942	733	0.50	0.48	21	801	921
	1992	8.9	904	775	0.52	0.49	18	471	528
	1993	19.4	855	747	0.54	0.50	38	485	544
	1994	19.7	831	673	0.55	0.52	38	776	893
	1995	18.2	798	671	0.54	0.53	34	710	782
Lithium		*Kilo-tonne*	*Tonne*	*Tonne*	*Kilo-tonne*	*Kilo-tonne*			
	1985	n.a.	n.a.	329	8.51	8.51	n.a.	n.a.	n.a.
	1986	n.a.	n.a.	321	8.56	8.53	n.a.	n.a.	n.a.
	1987	568.4	4,899	332	8.69	8.59	66	341	506
	1988	568.4	4,854	293	12.49	7.65	74	306	414
	1989	359.1	4,797	304	17.35	11.12	32	397	540
	1990	150.0	4,807	317	25.13	14.44	10	357	434
	1991	160.0	4,880	302	31.45	19.02	8	461	497
	1992	160.0	5,016	269	38.12	24.91	6	517	546
	1993	160.0	5,330	264	41.14	30.64	5	593	613
	1994	159.0	5,675	259	43.08	35.78	4	664	688
	1995	152.0	5,873	261	42.11	39.18	4	694	709
Magnesite		*Mega-tonne*	*Tonne*	*Tonne*	*Mega-tonne*	*Mega-tonne*			
	1985	n.a.	438	41	0.09	0.10	n.a.	n.a.	n.a.
	1986	n.a.	438	40	0.08	0.11	n.a.	n.a.	n.a.
	1987	n.a.	438	41	0.07	0.11	n.a.	n.a.	n.a.
	1988	n.a.	434	36	0.06	0.12	n.a.	n.a.	n.a.
	1989	7.0	434	38	0.08	0.08	93	243	348
	1990	7.0	433	39	0.11	0.08	88	255	364
	1991	7.0	427	38	0.14	0.09	76	323	394
	1992	7.0	422	44	0.17	0.11	62	370	438
	1993	218.7	426	43	0.21	0.14	1,536	497	563
	1994	246.9	420	42	0.23	0.17	1,439	629	737
	1995	241.3	422	42	0.24	0.20	1,222	833	937
Mineral sands - Ilmenite		*Mega-tonne*	*Tonne*	*Tonne*	*Mega-tonne*	*Mega-tonne*			
	1985	41.4	46	75	1.25	1.16	36	-	-
	1986	44.1	48	75	1.26	1.15	38	-	-
	1987	49.9	54	76	1.28	1.15	43	-	-
	1988	61.2	61	67	1.30	1.22	50	-	-
	1989	64.2	67	68	1.39	1.30	50	-	-
	1990	80.7	75	70	1.47	1.34	60	45	68
	1991	102.4	80	59	1.51	1.39	74	259	316
	1992	111.8	81	68	1.56	1.45	77	164	195
	1993	116.1	81	71	1.66	1.52	77	129	146
	1994	132.5	82	73	1.67	1.57	84	137	160
	1995	135.8	83	71	1.70	1.62	84	218	245

TABLE 3.10 VALUE OF AUSTRALIA'S DEMONSTRATED SUB-SOIL ASSETS, BY COMMODITY, AT 30 JUNE 1985-95 - continued.

		Economic demonstrated resources(a)	5 year lagged moving average of prices at 30 June $/unit	Cost including normal return on capital $/unit	Annual Production (physical units)	5 year lagged moving average of production (physical units)	5 year lagged moving average of resource life (years)	Net present value of assets, $million Rate of discount PPI approach(b)	Rate of discount CPI approach(b)
Mineral sands - Rutile		*Mega-tonne*	*Tonne*	*Tonne*	*Mega-tonne*	*Mega-tonne*			
	1985	8.0	438	436	0.19	0.20	40	2	3
	1986	9.0	475	436	0.19	0.19	47	62	95
	1987	9.1	514	444	0.21	0.19	48	114	167
	1988	10.0	548	394	0.21	0.19	52	260	349
	1989	9.4	594	399	0.23	0.21	46	326	458
	1990	11.6	660	413	0.23	0.22	54	406	612
	1991	11.7	681	310	0.24	0.22	52	744	902
	1992	13.5	671	396	0.22	0.23	60	541	639
	1993	14.0	654	427	0.21	0.23	62	467	528
	1994	14.4	626	435	0.21	0.22	65	410	478
	1995	15.0	588	394	0.20	0.22	69	463	520
Mineral sands - Zircon		*Mega-tonne*	*Tonne*	*Tonne*	*Mega-tonne*	*Mega-tonne*			
	1985	11.5	124	206	0.45	0.42	27	-	-
	1986	12.9	132	218	0.45	0.43	30	-	-
	1987	13.6	152	234	0.45	0.43	31	-	-
	1988	15.7	203	255	0.45	0.44	35	-	-
	1989	15.2	285	269	0.47	0.45	33	61	84
	1990	18.0	392	284	0.47	0.46	39	377	555
	1991	19.3	462	289	0.44	0.46	42	706	849
	1992	20.3	482	212	0.42	0.45	45	1,048	1,233
	1993	20.9	441	204	0.41	0.44	47	944	1,065
	1994	21.0	380	258	0.39	0.43	49	501	582
	1995	22.5	312	273	0.40	0.41	54	177	198
Nickel		*Mega-tonne*	*Tonne*	*Tonne*	*Mega-tonne*	*Mega-tonne*			
	1985	1.7	7,930	7,155	0.08	0.18	9	825	909
	1986	1.1	7,544	7,699	0.08	0.15	7	-	-
	1987	1.1	7,176	7,745	0.08	0.12	9	-	-
	1988	1.0	9,268	7,062	0.08	0.10	11	1,284	1,472
	1989	1.1	11,306	6,915	0.07	0.08	14	2,257	2,753
	1990	3.0	12,213	7,017	0.07	0.08	39	3,025	4,460
	1991	3.4	13,244	7,008	0.07	0.07	46	4,141	4,998
	1992	2.7	14,005	6,874	0.07	0.07	38	4,362	5,098
	1993	2.9	11,991	7,066	0.07	0.07	42	3,052	3,433
	1994	2.9	10,010	6,800	0.07	0.07	43	2,068	2,391
	1995	3.7	9,588	6,617	0.07	0.07	55	2,207	2,468
Petroleum (Recoverable) - Crude Oil		*Giga-litre*	*Kilolitre*	*Kilolitre*	*Giga-litre*	*Giga-litre*			
	1985	231.0	247	94	27.83	5.90	39	9,252	11,742
	1986	224.0	221	92	27.96	11.40	20	10,971	14,812
	1987	231.0	204	95	28.07	16.93	14	12,388	15,224
	1988	246.0	182	83	28.13	22.48	11	13,463	15,456
	1989	260.0	156	87	27.68	27.93	9	10,432	12,112
	1990	264.0	136	91	27.86	27.94	9	6,640	7,965
	1991	285.0	154	92	27.89	27.93	10	10,135	11,056
	1992	258.0	157	90	27.78	27.87	9	10,337	11,109
	1993	258.0	166	88	27.56	27.75	9	12,223	12,882
	1994	244.0	170	87	27.49	27.72	9	12,916	13,704
	1995	297.0	172	87	27.09	27.56	11	15,715	16,473
Petroleum - Natural gas		*Billion m3*	*'000 m3*	*000 m3*	*Billion m3*	*Billion m3*			
	1985	691.0	178	43	12.96	11.91	58	16,830	21,927
	1986	691.0	181	42	13.22	12.30	56	14,247	22,167
	1987	832.0	174	43	13.60	12.71	65	14,394	21,348
	1988	1,069.0	161	38	14.10	13.20	81	14,205	19,253
	1989	953.0	149	40	14.66	13.71	70	12,225	17,434
	1990	853.0	139	42	16.08	14.33	60	10,642	16,102
	1991	691.0	126	42	17.38	15.16	46	11,337	13,680
	1992	950.0	124	41	18.92	16.23	59	11,649	13,773
	1993	950.0	128	40	20.62	17.53	54	13,902	15,716
	1994	1,006.0	128	40	22.69	19.14	53	16,262	18,917
	1995	1,292.0	122	40	24.49	20.82	62	18,960	21,251

TABLE 3.10 VALUE OF AUSTRALIA'S DEMONSTRATED SUB-SOIL ASSETS, BY COMMODITY, AT 30 JUNE 1985-95 - continued.

		Economic demonstrated resources(a)	*5 year lagged moving average of prices at 30 June $/unit*	*Cost including normal return on capital $/unit*	*Annual Production (physical units)*	*5 year lagged moving average of production (physical units)*	*5 year lagged moving average of resource life (years)*	*Net present value of assets, $million* Rate of discount PPI approach(b)	CPI approach(b)
Petroleum - Condensate		*Giga-litre*	*Kilolitre*	*Kilolitre*	*Giga-litre*	*Giga-litre*			
	1985	82.0	247	94	3.09	2.71	30	4,102	5,077
	1986	80.0	221	92	3.11	2.82	28	2,922	4,205
	1987	118.0	204	95	3.12	2.95	40	2,754	3,952
	1988	119.0	182	83	3.13	3.08	39	2,624	3,456
	1989	114.0	156	87	3.04	3.10	37	1,727	2,385
	1990	78.0	136	91	3.07	3.09	25	1,021	1,426
	1991	118.0	154	92	3.10	3.09	38	1,674	2,004
	1992	124.0	157	90	3.18	3.10	40	1,790	2,096
	1993	124.0	166	88	3.28	3.14	40	2,188	2,457
	1994	133.0	170	87	3.49	3.23	41	2,890	2,949
	1995	156.0	172	87	3.72	3.36	46	2,734	3,458
LPG naturally occurring		*Giga-litre*	*'000 m3*	*'000 m3*	*Giga-litre*	*Giga-litre*			
	1985	85.0	320	0	3.86	3.17	27	9,739	11,903
	1986	88.0	295	0	3.89	3.34	26	7,802	11,092
	1987	97.0	268	0	3.91	3.54	27	7,825	10,697
	1988	97.0	240	0	3.92	3.74	26	7,397	9,369
	1989	119.0	191	0	3.90	3.89	31	5,866	7,945
	1990	106.0	142	0	3.88	3.90	27	4,075	5,751
	1991	129.0	126	0	3.79	3.88	33	4,265	5,069
	1992	131.0	111	0	3.72	3.84	34	3,622	4,215
	1993	131.0	99	0	3.69	3.80	35	3,321	3,713
	1994	135.0	106	0	3.68	3.75	36	3,753	4,308
	1995	154.0	117	0	3.64	3.71	42	4,696	5,212
Platinum group (t, pt, pd)		*Tonne*	*Kilogram*	*Kilogram*	*Tonne*	*Tonne*			
	1985	n.a.	n.a.	11,889	0.08	0.08	n.a.	n.a.	n.a.
	1986	n.a.	n.a.	11,607	0.08	0.08	n.a.	n.a.	n.a.
	1987	n.a.	n.a.	11,987	0.09	0.08	n.a.	n.a.	n.a.
	1988	25.0	22,015	10,585	0.09	0.09	293	9	12
	1989	25.0	22,063	10,976	0.09	0.09	292	8	11
	1990	22.8	21,948	11,476	0.08	0.09	265	7	10
	1991	19.0	20,935	11,693	0.08	0.09	221	7	9
	1992	17.0	20,935	11,411	0.09	0.09	199	7	8
	1993	17.7	19,541	11,172	0.09	0.09	205	7	7
	1994	17.7	19,364	10,998	0.09	0.09	203	7	8
	1995	17.2	19,312	11,074	0.10	0.09	189	8	9
Rare earths (REO, Y203)		*Kilo-tonne*	*Tonne*	*Tonne*	*Kilo-tonne*	*Kilo-tonne*			
	1985	229.3	575	68	13.96	13.40	17	56	66
	1986	230.7	635	67	14.46	13.64	17	55	72
	1987	237.8	657	69	13.87	14.14	17	61	77
	1988	419.1	690	61	13.45	14.55	29	77	98
	1989	360.0	746	63	12.74	13.70	26	72	96
	1990	300.0	817	67	12.63	13.43	22	72	99
	1991	300.0	702	68	10.71	12.68	24	66	77
	1992	300.0	625	67	9.92	11.89	25	54	62
	1993	1,000.0	537	64	8.70	10.94	91	47	53
	1994	1,000.0	426	63	7.72	9.94	101	35	41
	1995	1,000.0	299	63	5.09	8.43	119	22	25
Silver		*Kilo-tonne*	*Kilogram*	*Kilogram*	*Kilo-tonne*	*Kilo-tonne*			
	1985	30.6	298	107	1.03	0.91	34	1,746	2,185
	1986	32.5	288	109	1.04	0.97	34	1,409	2,080
	1987	33.8	291	110	1.03	1.00	34	1,540	2,166
	1988	33.7	288	96	1.05	1.02	33	1,667	2,166
	1989	21.8	275	96	1.06	1.04	21	1,381	1,781
	1990	20.7	259	98	1.08	1.05	20	1,173	1,575
	1991	19.2	246	77	1.10	1.06	18	1,377	1,565
	1992	17.0	218	91	1.14	1.09	16	986	1,094
	1993	33.6	203	122	1.15	1.11	30	784	872
	1994	44.7	206	102	1.14	1.12	40	1,115	1,286
	1995	41.5	213	96	1.12	1.13	37	1,400	1,547

TABLE 3.10 VALUE OF AUSTRALIA'S DEMONSTRATED SUB-SOIL ASSETS, BY COMMODITY, AT 30 JUNE 1985-95 - continued.

		Economic demonstrated resources(a)	5 year lagged moving average of prices at 30 June $/unit	Cost including normal return on capital $/unit	Annual Production (physical units)	5 year lagged moving average of production (physical units)	5 year lagged moving average of resource life (years)	Net present value of assets, $million	
								Rate of discount	
								PPI approach(b)	CPI approach(b)
Tin		*Kilo-tonne*	*Tonne*	*Tonne*	*Kilo-tonne*	*Kilo-tonne*			
	1985	262.0	20,536	9,406	7.08	10.00	26	1,063	1,296
	1986	249.0	18,497	9,082	7.14	8.97	28	674	966
	1987	184.9	16,731	9,406	7.39	8.05	23	471	626
	1988	202.3	14,868	8,325	7.37	7.48	27	406	517
	1989	191.4	13,925	8,650	7.39	7.27	26	297	395
	1990	146.2	12,143	8,974	7.61	7.38	20	163	219
	1991	165.5	11,939	9,082	7.27	7.41	22	173	199
	1992	99.7	11,639	8,866	6.85	7.30	14	136	150
	1993	123.3	10,829	8,650	6.85	7.20	17	119	129
	1994	159.0	9,127	8,542	7.01	7.12	22	36	40
	1995	136.2	8,034	8,650	6.83	6.96	20	-	-
Tungsten ore		*Kilo-tonne*	*Tonne*	*Tonne*	*Kilo-tonne*	*Kilo-tonne*			
	1985	75.7	70	67	1.88	0.38	201	9,657	12,742
	1986	56.1	67	66	1.88	0.75	75	9,559	15,033
	1987	36.5	66	68	1.75	1.10	33	-	-
	1988	36.5	60	60	1.61	1.42	26	-	-
	1989	18.5	60	62	1.51	1.73	11	-	-
	1990	5.4	55	65	1.38	1.63	3	-	-
	1991	5.1	52	66	1.15	1.48	3	-	-
	1992	1.1	46	64	0.94	1.32	1	-	-
	1993	1.1	46	63	0.74	1.14	1	-	-
	1994	1.0	47	62	0.50	0.94	1	-	-
	1995	1.0	57	63	0.30	0.72	1	-	-
Uranium		*Kilo-tonne*	*Kilogram*	*Kilogram*	*Kilo-tonne*	*Kilo-tonne*			
	1985	465.0	92	4	4.33	4.35	107	4,047	5,336
	1986	462.0	92	3	4.35	4.55	102	3,346	5,280
	1987	470.0	91	4	4.39	4.41	107	3,349	5,000
	1988	480.0	91	3	4.36	4.36	110	3,350	4,546
	1989	474.0	88	3	4.40	4.36	109	3,011	4,306
	1990	469.0	84	3	4.35	4.37	107	2,679	4,080
	1991	474.0	76	4	4.34	4.37	109	2,863	3,492
	1992	462.0	69	3	4.31	4.35	106	2,484	2,945
	1993	631.0	60	3	4.01	4.28	147	2,197	2,492
	1994	633.0	55	3	3.57	4.11	154	2,047	2,396
	1995	629.0	51	3	3.20	3.88	162	2,038	2,292
Zinc		*Mega-tonne*	*Tonne*	*Tonne*	*Mega-tonne*	*Mega-tonne*			
	1985	21.2	1,450	1,039	1.30	0.76	28	3,015	3,702
	1986	24.9	1,420	1,064	1.18	0.89	28	2,528	3,632
	1987	24.0	1,380	1,118	1.07	0.98	25	2,074	2,789
	1988	26.3	1,392	1,183	0.96	1.03	25	1,775	2,244
	1989	20.4	1,570	1,226	0.85	1.07	19	2,669	3,398
	1990	17.9	1,756	1,142	0.76	0.96	19	4,054	5,391
	1991	16.9	1,827	1,049	0.82	0.89	19	5,396	6,157
	1992	15.0	1,944	1,177	0.88	0.85	18	4,854	5,424
	1993	37.6	1,951	1,183	0.93	0.85	44	5,879	6,621
	1994	42.6	1,785	1,140	0.99	0.88	49	5,438	6,313
	1995	38.8	1,626	1,072	1.00	0.92	42	5,532	6,143
Total net present value of the assets									
	1985							142,972	185,762
	1986							117,498	180,083
	1987							106,280	153,134
	1988							116,987	153,850
	1989							99,593	136,437
	1990							82,615	119,539
	1991							99,270	117,120
	1992							102,143	117,289
	1993							115,599	128,362
	1994							126,154	143,279
	1995							149,749	165,447

(a) See footnote 11 in the Appendix of this publication for a definition of this concept.
(b) For a description of these approaches, see "Sub-soil Assets - ABS Approach to Valuation" in the Appendix of this publication.
Sources. Prices - AMF Mineral Economics, Sydney; Australian Bureau of Agriculture and Resource Economics, Quarterly Mineral Statistics. Production rates - Quarterly Mineral Statistics: Australian Bureau of Statistics, Australian Mining Industry (Catalogue No. 8414.0). Economic Demonstrated Resources - Bureau of Resource Sciences, Australia's Identified Mineral Resources. Costs - AMF Mineral Economics.

TABLE 3.11 TOTAL VALUE OF AUSTRALIA'S STANDING TIMBER, AT 30 JUNE 1989-95(a)
($ million)

		1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
New South Wales	Native forests	1,632	1,721	1,779	1,728	1,687	1,652	1,574
	Broadleaved forests	20	23	29	34	38	44	48
	Coniferous forests	1,111	1,279	1,482	1,537	1,176	1,587	1,234
	Total	*2,763*	*3,023*	*3,290*	*3,299*	*2,901*	*3,283*	*2,856*
Victoria	Native forests	1,359	1,449	1,565	1,580	1,554	1,528	1,506
	Broadleaved forests	7	7	9	10	8	10	11
	Coniferous forests	1,070	1,221	1,401	1,439	1,234	1,579	1,902
	Total	*2,436*	*2,677*	*2,975*	*3,029*	*2,796*	*3,117*	*3,419*
Queensland	Native forests	1,258	1,392	1,570	1,554	1,643	1,701	1,798
	Broadleaved forests	1	1	1	1	1	1	1
	Coniferous forests	972	1,088	1,237	1,271	1,082	1,419	1,607
	Total	*2,231*	*2,481*	*2,808*	*2,826*	*2,726*	*3,121*	*3,406*
South Australia	Native forests	-	-	-	-	-	-	-
	Broadleaved forests	1	1	1	1	1	2	3
	Coniferous forests	640	703	798	790	658	779	769
	Total	*641*	*704*	*799*	*791*	*659*	*781*	*772*
Western Australia	Native forests	1,007	1,089	1,244	1,248	1,275	1,308	1,358
	Broadleaved forests	21	26	33	37	46	59	67
	Coniferous forests	436	490	555	548	618	709	650
	Total	*1,464*	*1,605*	*1,832*	*1,833*	*1,939*	*2,076*	*2,075*
Tasmania	Native forests	2,683	2,728	2,595	2,609	2,611	2,619	2,634
	Broadleaved forests	20	22	31	32	37	48	59
	Coniferous forests	386	438	506	528	453	571	731
	Total	*3,089*	*3,188*	*3,132*	*3,169*	*3,101*	*3,238*	*3,424*
Northern Territory	Native forests	145	167	177	182	182	183	184
	Broadleaved forests	-	-	-	-	-	-	-
	Coniferous forests	26	29	34	33	27	34	41
	Total	*171*	*196*	*211*	*215*	*209*	*217*	*225*
Australian Capital Territory	Native forests	-	-	-	-	-	-	-
	Broadleaved forests	-	-	-	-	-	-	-
	Coniferous forests	88	91	95	93	78	98	116
	Total	*88*	*91*	*95*	*93*	*78*	*98*	*116*
Australia	Native forests	8,084	8,546	8,930	8,901	8,952	8,991	9,054
	Broadleaved forests	70	80	104	115	131	164	189
	Coniferous forests	4,729	5,339	6,108	6,239	5,326	6,776	7,050
	Total	**12,883**	**13,965**	**15,142**	**15,255**	**14,409**	**15,931**	**16,293**

(a) The values of native forests and broadleaved plantations in this table were calculated using real discount rates derived using the producer price index (PPI) approach.
Sources: Australian Bureau of Agricultural and Resource Economics, Quarterly Forest Products Statistics; Resource Assessment Commission, Forest and Timber Inquiry; Forestry insurance values; Reserve Bank of Australia Bulletin; New South Wales and Tasmanian Forestry Department statistics.

TABLE 3.12 VALUE OF AUSTRALIA'S NATIVE FORESTS, BY STATE AND LAND TENURE, AT 30 JUNE 1989-95
($ million)

		1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
Producer Price Index real rate		*10.8 per cent*	*10.9 per cent*	*8.6 per cent*	*9.7 per cent*	*9.5 per cent*	*8.7 per cent*	*8.2 per cent*
New South Wales	State land	797	833	863	836	818	810	767
	Other crown land	214	229	238	234	229	224	218
	Private land	621	659	678	658	640	618	589
	Total	*1,632*	*1,721*	*1,779*	*1,728*	*1,687*	*1,652*	*1,574*
Victoria	State land	1,101	1,174	1,268	1,277	1,255	1,235	1,216
	Other crown land	72	77	83	85	84	82	81
	Private land	186	198	214	218	215	211	209
	Total	*1,359*	*1,449*	*1,565*	*1,580*	*1,554*	*1,528*	*1,506*
Queensland	State land	206	213	308	265	348	415	505
	Other crown land	535	604	640	651	654	644	648
	Private land	517	575	622	638	641	642	645
	Total	*1,258*	*1,392*	*1,570*	*1,554*	*1,643*	*1,701*	*1,798*
South Australia	State land	-	-	-	-	-	-	-
	Other crown land	-	-	-	-	-	-	-
	Private land	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-
Western Australia	State land	767	822	968	950	976	1,009	1,058
	Other crown land	-	-	-	-	-	-	-
	Private land	240	267	276	298	299	299	300
	Total	*1,007*	*1,089*	*1,244*	*1,248*	*1,275*	*1,308*	*1,358*
Tasmania	State land	1,216	1,234	1,170	1,178	1,179	1,180	1,185
	Other crown land	772	785	736	743	741	738	737
	Private land	695	709	689	688	691	701	712
	Total	*2,683*	*2,728*	*2,595*	*2,609*	*2,611*	*2,619*	*2,634*
Northern Territory	State land	-	-	-	-			
	Other crown land	87	102	106	109	109	110	111
	Private land	58	65	71	73	73	73	73
	Total	*145*	*167*	*177*	*182*	*182*	*183*	*184*
Australian Capital Territory	State land	-	-	-	-	-	-	-
	Other crown land	-	-	-	-	-	-	-
	Private land	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-
Australia	State land	4,087	4,276	4,577	4,506	4,576	4,649	*4,731*
	Other crown land	1,680	1,797	1,803	1,822	1,817	1,798	*1,795*
	Private land	2,317	2,473	2,550	2,573	2,559	2,544	*2,528*
	Total	**8,084**	**8,546**	**8,930**	**8,901**	**8,952**	**8,991**	**9,054**

		8.6 per cent	*8.6 per cent*	*9.1 per cent*	*9.7 per cent*	*9.7 per cent*	*8.8 per cent*	*8.0 per cent*
Consumer Price Index real rate								
New South Wales	State land	801	838	861	836	818	810	767
	Other crown land	214	229	238	234	229	224	218
	Private land	623	661	677	658	640	618	590
	Total	*1,638*	*1,728*	*1,776*	*1,728*	*1,687*	*1,652*	*1,575*
Victoria	State land	1,109	1,184	1,266	1,278	1,256	1,237	1,221
	Other crown land	72	77	83	85	84	83	82
	Private land	186	198	214	218	215	212	209
	Total	*1,367*	*1,459*	*1,563*	*1,581*	*1,555*	*1,532*	*1,512*
Queensland	State land	264	281	271	257	325	394	511
	Other crown land	527	604	640	651	654	634	639
	Private land	517	575	622	638	641	641	645
	Total	*1,308*	*1,460*	*1,533*	*1,546*	*1,620*	*1,669*	*1,795*
South Australia	State land	-	-	-	-	-	-	-
	Other crown land	-	-	-	-	-	-	-
	Private land	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-
Western Australia	State land	836	902	941	952	968	1,004	1,080
	Other crown land	-	-	-	-	-	-	-
	Private land	240	267	276	298	299	299	300
	Total	*1,076*	*1,169*	*1,217*	*1,250*	*1,267*	*1,303*	*1,380*
Tasmania	State land	1,226	1,245	1,168	1,179	1,179	1,182	1,190
	Other crown land	773	786	736	744	742	739	739
	Private land	713	728	684	688	690	701	717
	Total	*2,712*	*2,759*	*2,588*	*2,611*	*2,611*	*2,622*	*2,646*
Northern Territory	State land	-	-	-	-			
	Other crown land	87	107	106	108	109	110	111
	Private land	58	65	71	73	73	73	73
	Total	*145*	*172*	*177*	*181*	*182*	*183*	*184*
Australian Capital Territory	State land	-	-	-	-	-	-	-
	Other crown land	-	-	-	-	-	-	-
	Private land	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-
Australia	State land	4,236	4,450	4,507	4,502	4,546	4,627	4,769
	Other crown land	1,673	1,803	1,803	1,822	1,818	1,790	1,789
	Private land	2,337	2,494	2,544	2,573	2,558	2,544	2,534
	Total	**8,246**	**8,747**	**8,854**	**8,897**	**8,922**	**8,961**	**9,092**

Source: Resource Assessment Commission, Forest and Timber Inquiry; Australian Bureau of Agricultural and Resource Economics, Quarterly Forest Products Statistics; NSW and Tasmanian Forestry Department statistics; Reserve Bank of Australia Bulletin.

Table 3.13 VALUE OF AUSTRALIA'S BROADLEAVED PLANTATION FORESTS, BY STATE AND TERRITORY, AT 30 JUNE 1989-95 ($ million)

		1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
Producer Price Index real rate		*10.8 per cent*	*10.9 per cent*	*8.6 per cent*	*9.7 per cent*	*9.5 per cent*	*8.7 per cent*	*8.2 per cent*
New South Wales	Public	15	17	23	27	31	36	40
	Private	5	6	6	7	7	8	8
	Total	*20*	*23*	*29*	*34*	*38*	*44*	*48*
Victoria	Public	2	2	3	3	1	2	2
	Private	5	5	6	7	7	8	9
	Total	*7*	*7*	*9*	*10*	*8*	*10*	*11*
Queensland	Public	1	1	1	1	1	1	1
	Private	-	-	-	-			
	Total	*1*	*1*	*1*	*1*	*1*	*1*	*1*
South Australia	Public	-	-	-	-			
	Private	1	1	1	1	2	2	3
	Total	*1*	*1*	*1*	*1*	*2*	*2*	*3*
Western Australia	Public	18	21	24	26	30	30	22
	Private	3	5	9	11	16	29	45
	Total	*21*	*26*	*33*	*37*	*46*	*59*	*67*
Tasmania	Public	2	2	3	3	4	6	8
	Private	18	20	28	29	33	42	51
	Total	*20*	*22*	*31*	*32*	*37*	*48*	*59*
Northern Territory	Public	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-
Australian Capital Territory	Public	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-
Australia	Public	38	43	54	60	67	75	73
	Private	32	37	50	55	65	89	116
	Total	**70**	**80**	**104**	**115**	**132**	**164**	**189**
Consumer Price Index real rate		*8.6 per cent*	*8.6 per cent*	*9.1 per cent*	*9.7 per cent*	*9.7 per cent*	*8.8 per cent*	*8.0 per cent*
New South Wales	Public	18	20	23	27	31	36	40
	Private	5	6	6	7	7	8	8
	Total	*23*	*26*	*29*	*34*	*38*	*44*	*48*
Victoria	Public	2	2	3	3	1	2	2
	Private	5	5	6	7	7	8	9
	Total	-	*7*	*9*	*10*	*8*	*10*	*11*
Queensland	Public	1	1	1	1	1	1	1
	Private	-	-	-	-			
	Total	*1*	*1*	*1*	*1*	*1*	*1*	*1*
South Australia	Public	-	-	-	-			
	Private	1	1	1	1	2	3	3
	Total	*1*	*1*	*1*	*1*	*2*	*3*	*3*
Western Australia	Public	19	22	24	26	30	30	23
	Private	4	6	9	11	16	29	46
	Total	*23*	*28*	*33*	*37*	*46*	*59*	*69*
Tasmania	Public	2	3	2	3	4	6	9
	Private	22	25	26	29	33	42	52
	Total	*24*	*28*	*28*	*32*	*37*	*48*	*61*
Northern Territory	Public	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-
Australian Capital Territory	Public	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-
Australia	Public	42	48	53	60	67	75	75
	Private	37	43	48	55	65	90	118
	Total	**79**	**91**	**101**	**115**	**132**	**165**	**193**

Source: Australian Bureau of Agricultural and Resource Economics, Quarterly Forest Products Statistics; New South Wales and Tasmanian Forestry Department statistics; Reserve Bank of Australia Bulletin.

TABLE 3.14 VALUE OF AUSTRALIA'S CONIFEROUS PLANTATION FORESTS, BY STATE AND LAND TENURE USING INSURANCE DATA, AT 30 JUNE 1989-95
($ million)

		1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
New South Wales	Public	950	1,089	1,256	1,302	944	1,266	1,000
	Private	161	190	226	235	232	321	234
	Total	*1,111*	*1,279*	*1,482*	*1,537*	*1,176*	*1,587*	*1,234*
Victoria	Public	464	546	651	685	595	825	961
	Private	606	675	750	754	639	754	941
	Total	*1,070*	*1,221*	*1,401*	*1,439*	*1,234*	*1,579*	*1,902*
Queensland	Public	917	1,026	1,166	1,193	1,013	1,326	1,506
	Private	55	62	71	78	69	93	101
	Total	*972*	*1,088*	*1,237*	*1,271*	*1,082*	*1,419*	*1,607*
South Australia	Public	452	498	559	569	482	567	553
	Private	188	205	239	221	176	212	216
	Total	*640*	*703*	*798*	*790*	*658*	*779*	*769*
Western Australia	Public	362	408	459	446	510	579	529
	Private	74	82	96	102	108	130	121
	Total	*436*	*490*	*555*	*548*	*618*	*709*	*650*
Tasmania	Public	291	329	379	398	318	402	470
	Private	95	109	127	130	135	169	261
	Total	*386*	*438*	*506*	*528*	*453*	*571*	*731*
Northern Territory	Public	-	-	-	-	-	-	1
	Private	26	29	34	33	27	34	40
	Total	*26*	*29*	*34*	*33*	*27*	*34*	*41*
Australian Capital Territory	Public	88	91	95	93	78	98	116
	Private	-	-	-	-	-	-	-
	Total	*88*	*91*	*95*	*93*	*78*	*98*	*116*
Australia	Public	3,524	3,987	4,565	4,686	3,940	5,063	5,136
	Private	1,205	1,352	1,543	1,553	1,386	1,713	1,914
	Total	**4,729**	**5,339**	**6,108**	**6,239**	**5,326**	**6,776**	**7,050**

Sources: Australian Bureau of Agricultural and Resource Economics, Quarterly Forest Products Statistics and private sector insurance values for trees.

TABLE 3.15 AVERAGE STUMPAGE PRICES OF LOGS FROM PUBLIC FORESTS(a)

($ per cubic metre of wood)

		1988-89	*1989-90*	*1990-91*	*1991-92*	*1992-93(b)*	*1993-94(b)*	*1994-95(b)*
New South Wales	Hardwood sawlog	25.06	28.00	30.38	31.25	30.71	30.17	33.03
	Hardwood pulplog	9.59	10.16	11.24	11.67	13.13	14.59	14.00
	Softwood sawlog	34.69	39.00	40.53	40.71	42.46	44.20	44.76
	Softwood pulplog	12.80	14.00	14.35	13.72	12.12	10.51	11.49
Victoria(c)	Hardwood sawlog	20.75	23.18	25.15	25.87	25.95	25.95	26.08
	Hardwood pulplog	8.06	8.54	9.45	9.81	9.84	9.84	9.89
	Softwood sawlog	33.11	37.22	38.68	38.85	38.97	38.97	39.16
	Softwood pulplog	12.36	13.52	13.86	13.72	13.76	13.76	13.83
Queensland(c)	Hardwood sawlog	13.52	15.10	16.38	16.85	16.90	16.90	16.99
	Hardwood pulplog	3.19	3.38	3.74	3.88	3.89	3.89	3.91
	Softwood sawlog	36.68	41.23	42.85	43.04	43.17	43.17	43.38
	Softwood pulplog	6.83	7.47	7.66	7.58	7.60	7.60	7.64
Western Australia(d)	Hardwood sawlog	20.01	22.36	24.26	24.95	25.03	25.03	25.15
	Hardwood pulplog	10.29	10.90	12.06	12.52	12.56	12.56	12.62
	Softwood sawlog	44.48	50.01	51.97	52.20	52.36	52.36	52.62
	Softwood pulplog	7.29	7.97	8.17	7.81	7.84	7.84	7.88
South Australia(c)	Hardwood sawlog	-	-	-	-	-	-	-
	Hardwood pulplog	-	-	-	-	-	-	-
	Softwood sawlog	34.50	41.23	42.85	43.04	43.17	43.17	43.38
	Softwood pulplog	12.52	7.47	7.66	7.58	7.60	7.60	7.64
Tasmania (e)	Hardwood sawlog	14.17	17.38	19.40	19.11	19.17	19.17	19.12
	Hardwood pulplog	12.86	12.64	11.38	11.66	11.69	11.69	11.85
	Softwood sawlog	20.70	21.93	23.20	23.82	23.89	23.89	27.20
	Softwood pulplog	7.55	6.60	6.48	8.16	8.18	8.18	7.05
Australian Capital Territory	Hardwood sawlog	-	-	-	-	-	-	-
	Hardwood pulplog	-	-	-	-	-	-	-
	Softwood sawlog	23.65	n.a.	29.55	n.a.	n.a.	n.a.	n.a.
	Softwood pulplog	-	-	-	-	-	-	-

(a) Stumpage prices may not be comparable between States and Territories. (b) From 1992-93, in all States except NSW all stumpage prices have been estimated based on changes in hardwood and softwood log prices since 1991-92 (ABS Catalogue 6411.0). (c) From 1989-90, average stumpage prices were published for total forest and plantation removals. The ABS has estimates for each type of log, based on price relativities in New South Wales. As no stumpage prices are available in the Northern Territory, Queensland stumpage prices are used there. (d) From 1989-90, average stumpage prices have been estimated for each type of log based on price relativities in New South Wales. As the reason for this is that, from 1989-90, West Australian average stumpage prices included non-rent components such as additional costs of roading and managing log sales. Consequently, average stumpage prices from 1989-90 have been estimated on a consistent basis to 1988-89. (e) Tasmanian stumpage values in 1995 are from Forest Practices Board annual report.

n.a. = Not available

Source: Australian Bureau of Agricultural and Resource Economics, Commodity Statistical Bulletin 1993, Commonwealth Government Printer, Canberra.

TABLE 3.16 NATIVE FOREST AREA AVAILABLE FOR PRODUCTION IN AUSTRALIA, BY STATE AND LAND TENURE, AT 30 JUNE 1989-95 ('000 hectares)

		1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
New South Wales	State forest	2,001	1,997	1,997	1,997	1,997	1,825	1,802
	Other Crown forest	619	573	573	573	573	551	550
	Private forest	2,016	2,014	2,014	2,014	2,014	2,029	2,023
	Total	*4,636*	*4,584*	*4,584*	*4,584*	*4,584*	*4,405*	*4,375*
Victoria	State forest	1,117	1,314	1,314	1,312	1,314	1,316	1,318
	Other Crown forest	197	-	-	-	-	-	-
	Private forest	-	-	-	-	-	-	-
	Total	*1,314*	*1,314*	*1,314*	*1,312*	*1,314*	*1,316*	*1,318*
Queensland	State forest	1,778	2,127	2,127	2,127	2,127	2,127	2,127
	Other Crown forest	2,527	2,527	2,527	2,527	2,527	2,527	2,527
	Private forest	1,355	1,355	1,355	1,355	1,355	1,355	1,355
	Total	*5,660*	*6,009*	*6,009*	*6,009*	*6,009*	*6,009*	*6,009*
South Australia	State forest	-	-	-	-	-	-	-
	Other Crown forest	-	-	-	-	-	-	-
	Private forest	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-
Western Australia	State forest	1,439	1,443	1,443	1,441	1,441	1,443	1,443
	Other Crown forest	-	-	-	-	-	-	-
	Private forest	508	507	505	502	502	505	503
	Total	*1,947*	*1,950*	*1,948*	*1,943*	*1,943*	*1,948*	*1,946*
Tasmania	State forest	598	498	610	667	632	694	749
	Other Crown forest	284	284	207	142	142	142	124
	Private forest	363	330	542	541	493	501	546
	Total	*1,245*	*1,112*	*1,359*	*1,350*	*1,266*	*1,336*	*1,419*
Northern Territory	State forest	-	-	-	-	-	-	-
	Other Crown forest	3,499	3,499	3,499	3,412	3,412	3,477	3,455
	Private forest	3,660	3,660	3,660	3,892	3,892	3,718	3,777
	Total	*7,159*	*7,159*	*7,159*	*7,304*	*7,304*	*7,195*	*7,232*
Australian Capital Territory	State forest	-	-	-	-	-	-	-
	Other Crown forest	-	-	-	-	-	-	-
	Private forest	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-
Australia	State forest	6,933	7,379	7,491	7,544	7,511	7,405	7,439
	Other Crown forest	7,126	6,883	6,806	6,654	6,654	6,697	6,656
	Private forest	7,902	7,866	8,076	8,304	8,256	8,108	8,204
	Total	**21,961**	**22,128**	**22,373**	**22,502**	**22,420**	**22,210**	**22,299**

Sources: Resource Assessment Commission, Forest and Timber Inquiry, 1992; Australian Bureau of Agricultural and Resource Economics, Quarterly Forest Product Statistics; and New South Wales and Tasmanian Forestry Department data.

TABLE 3.17 NATIVE FOREST AREA UNAVAILABLE FOR PRODUCTION IN AUSTRALIA, BY STATE AND LAND TENURE, AT 30 JUNE 1989-95
('000 hectares)

		1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
New South Wales	State forest	1,252	1,250	1,250	1,250	1,250	1,505	1,486
	Other Crown forest	3,540	3,277	3,277	3,277	3,277	3,146	3,118
	Conservation reserve	1,889	2,123	2,123	2,123	2,123	2,577	2,658
	Private forest	3,184	3,182	3,182	3,182	3,182	3,159	3,165
	Total	*9,865*	*9,832*	*9,832*	*9,832*	*9,832*	*10,386*	*10,427*
Victoria	State forest	1,537	1,808	1,808	1,805	1,808	1,810	1,812
	Other Crown forest	271	-	-	-	-	-	-
	Conservation reserve	1,279	1,243	1,243	1,251	1,251	1,236	1,229
	Private forest	-	-	-	-	-	-	-
	Total	*3,087*	*3,051*	*3,051*	*3,056*	*3,059*	*3,046*	*3,041*
Queensland	State forest	465	556	556	556	556	556	556
	Other Crown forest	157	157	157	157	157	157	157
	Conservation reserve	3,458	3,224	3,224	3,224	3,224	3,224	3,224
	Private forest	-	-	-	-	-	-	-
	Total	*4,080*	*3,937*	*3,937*	*3,937*	*3,937*	*3,937*	*3,937*
South Australia	State forest	27	27	27	27	27	27	27
	Other Crown forest	-	-	-	-	-	-	-
	Conservation reserve	-	-	-	-	-	-	-
	Private forest	-	-	-	-	-	-	-
	Total	*27*	*27*	*27*	*27*	*27*	*27*	*27*
Western Australia	State forest	-	-	-	-	-	-	-
	Other Crown forest	-	-	-	-	-	-	-
	Conservation reserve	425	455	456	490	490	473	491
	Private forest	-	-	-	-	-	-	-
	Total	*425*	*455*	*456*	*490*	*490*	*473*	*491*
Tasmania	State forest	474	446	483	528	539	550	593
	Other Crown forest	304	305	223	152	152	152	133
	Conservation reserve	418	733	593	627	584	540	504
	Private forest	119	292	375	375	389	347	379
	Total	*1,315*	*1,776*	*1,674*	*1,682*	*1,664*	*1,589*	*1,609*
Northern Territory	State forest	-	-	-	-	-	-	-
	Other Crown forest	-	-	-	-	-	-	-
	Conservation reserve	1,881	1,881	1,881	2,024	2,024	1,917	1,954
	Private forest	1	1	1	1	1	1	1
	Total	*1,882*	*1,882*	*1,882*	*2,025*	*2,025*	*1,918*	*1,955*
Australian Capital Territory	State forest	-	-	-	-	-	-	-
	Other Crown forest	9	-	-	-	-	-	-
	Conservation reserve	89	98	98	98	98	98	98
	Private forest	-	-	-	-	-	-	-
	Total	*98*	*98*	*98*	*98*	*98*	*98*	*98*
Australia	State forest	3,755	4,087	4,124	4,166	4,180	4,448	4,474
	Other Crown forest	4,281	3,739	3,657	3,586	3,586	3,455	3,408
	Conservation reserve	9,439	9,757	9,618	9,837	9,794	10,065	10,158
	Private forest	3,304	3,475	3,558	3,558	3,572	3,507	3,545
	Total	**20,779**	**21,058**	**20,957**	**21,147**	**21,132**	**21,474**	**21,585**
				Total forest area				
Australia	State forest	10,688	11,466	11,615	11,710	11,691	11,853	11,914
	Other Crown forest	11,407	10,622	10,463	10,240	10,240	10,152	10,064
	Conservation reserve	9,439	9,757	9,618	9,837	9,794	10,065	10,158
	Private forest	11,206	11,341	11,634	11,862	11,828	11,615	11,749
	Total	**42,740**	**43,186**	**43,330**	**43,649**	**43,552**	**43,684**	**43,884**

Sources: Resource Assessment Commission, Forest and Timber Inquiry, 1992; Australian Bureau of Agricultural and Resource Economics, Quarterly Forest Product Statistics; and New South Wales and Tasmanian Forestry Department data.

TABLE 3.18 TOTAL AREA OF AUSTRALIA'S BROADLEAVED PLANTATION FORESTS, AT 30 JUNE 1989-95
(hectares)

		1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
New South Wales	Public	25,564	25,090	25,142	25,934	26,178	26,198	26,717
	Private	3,441	3,030	2,843	2,668	2,437	2,456	2,500
	Total	*29,005*	*28,120*	*27,985*	*28,602*	*28,615*	*28,654*	*29,217*
Victoria (a)	Public	8,853	9,697	10,590	11,030	7,351	7,704	8,205
	Private	7,041	7,894	8,302	9,621	11,000	12,375	12,907
	Total	*15,894*	*17,591*	*18,892*	*20,651*	*18,351*	*20,079*	*21,112*
Queensland	Public	1,768	1,779	1,776	1,709	1,691	1,619	1,569
	Private	-	-	-	-	-	-	-
	Total	*1,768*	*1,779*	*1,776*	*1,709*	*1,691*	*1,619*	*1,569*
South Australia	Public	1,339	1,381	1,082	1,104	1,184	1,024	1,144
	Private	-	-	-	100	330	598	600
	Total	*1,339*	*1,381*	*1,082*	*1,204*	*1,514*	*1,622*	*1,744*
Western Australia	Public	10,239	14,111	14,270	14,940	17,120	17,160	14,670
	Private	3,230	4,868	7,090	8,890	12,620	22,000	30,440
	Total	*13,469*	*18,979*	*21,360*	*23,830*	*29,740*	*39,160*	*45,110*
Tasmania	Public	4,263	4,758	5,034	6,937	8,667	10,721	12,695
	Private	20,398	23,861	30,246	33,959	39,241	44,200	46,200
	Total	*24,661*	*28,619*	*35,280*	*40,896*	*47,908*	*54,921*	*58,895*
Northern Territory	Public	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	64
	Total	-	-	-	-	-	-	*64*
Australian Capital Territory	Public	-	-	-	-	-	-	-
	Private	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-
Australia	Public	52,026	56,816	57,894	61,654	62,191	64,426	65,000
	Private	34,110	39,653	48,481	55,238	65,628	81,629	92,711
	Total	**86,136**	**96,469**	**106,375**	**116,892**	**127,819**	**146,055**	**157,711**

(a) Victorian plantation areas have been estimated from 1993 based on the percentage change in plantation areas in NSW, QLD, SA and Tas (WA plantation area is too erratic).
Source: Australian Bureau of Agricultural and Resource Economics, Quarterly Forest Products Statistics.

TABLE 3.19 TOTAL AREA OF AUSTRALIA'S CONIFEROUS PLANTATION FORESTS, AT 30 JUNE 1989-95
(hectares)

		1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
New South Wales	Public	193,124	197,855	202,083	203,122	200,324	200,566	200,880
	Private	57,364	60,088	62,084	63,091	64,555	65,464	66,019
	Total	*250,488*	*257,943*	*264,167*	*266,213*	*264,879*	*266,030*	*266,899*
Victoria (a)	Public	101,132	103,841	107,475	109,410	109,057	112,119	111,446
	Private	107,277	107,563	107,955	107,415	107,494	103,225	107,044
	Total	*208,409*	*211,404*	*215,430*	*216,825*	*216,551*	*215,344*	*218,490*
Queensland	Public	173,019	174,739	175,456	174,201	174,557	176,209	173,361
	Private	15,054	14,746	14,422	14,422	12,422	12,422	12,290
	Total	*188,073*	*189,485*	*189,878*	*188,623*	*186,979*	*188,631*	*185,651*
South Australia	Public	72,826	73,485	74,596	74,265	75,233	78,288	75,667
	Private	29,378	29,097	29,533	27,600	27,208	28,660	29,115
	Total	*102,204*	*102,582*	*104,129*	*101,865*	*102,441*	*106,948*	*104,782*
Western Australia	Public	68,993	69,673	69,460	69,750	71,450	72,090	72,230
	Private	16,867	17,394	17,749	17,790	16,500	16,540	16,640
	Total	*85,860*	*87,067*	*87,209*	*87,540*	*87,950*	*88,630*	*88,870*
Tasmania	Public	49,221	48,845	48,525	48,600	48,644	48,232	47,857
	Private	25,779	26,717	27,735	28,427	29,061	28,200	33,000
	Total	*75,000*	*75,562*	*76,260*	*77,027*	*77,705*	*76,432*	*80,857*
Northern Territory	Public	-	-	-	-	-	-	1,327
	Private	4,085	4,264	4,364	4,186	4,187	4,192	4,129
	Total	*4,085*	*4,264*	*4,364*	*4,186*	*4,187*	*4,192*	*5,456*
Australian Capital Territory	Public	14,658	14,104	14,101	13,776	14,200	14,544	14,807
	Private	-	-	-	-	-	-	-
	Total	*14,658*	*14,104*	*14,101*	*13,776*	*14,200*	*14,544*	*14,807*
Australia	Public	672,973	682,542	691,696	693,124	693,465	702,048	697,575
	Private	255,804	259,869	263,842	262,931	261,427	258,703	268,237
	Total	**928,777**	**942,411**	**955,538**	**956,055**	**954,892**	**960,751**	**965,812**

(a) Victorian plantation areas have been estimated from 1993 based on the percentage change in plantation areas of the other States and Territories.
Source: Australian Bureau of Agricultural and Resource Economics

APPENDIX — CONCEPTUAL ISSUES, SOURCES AND METHODS

GUIDELINES: SYSTEM OF NATIONAL ACCOUNTS

The balance sheet estimates are consistent with the Australian National Accounts. Details of the compilation of the Australian National Accounts are published in *Australian National Accounts: Concepts, Sources and Methods* (5216.0)

The experimental estimates of natural resources presented in this publication are valued using the recommendations of the 1993 System of National Accounts (SNA93[10]) as a guide. The rest of the balance sheet components are valued according to System of National Accounts 1968 (SNA68[11])and will be revalued according to SNA93 in 1998, along with the remainder of the national accounts.

In order to derive estimates of net worth, natural resources have been valued in monetary terms as the only way to provide a common basis for aggregation of all assets. However, the valuation of natural resources is still very much in its infancy, and the values should be interpreted with caution and in conjunction with the physical stocks of the resources (see tables 3.10, 3.16, 3.18, 3.19).

CLASSIFICATION OF ASSETS IN THE BALANCE SHEET

Under SNA93 guidelines, for an asset to be included in the national balance sheets it must be an 'economic asset':

- over which ownership rights are enforced by institutional units, individually or collectively; and
- from which economic benefits may be derived by its owner by holding it, or using it, over a period of time.

The economic benefits consist of income derived from the use of the asset and the value, including possible holding gains/losses, that could be realised by disposing of the asset or, in the case of a financial asset, by extinguishing it.

SNA93 describes three types of asset that should be included in the national balance sheets:

- non-financial produced assets;
- non-financial non-produced assets; and
- financial assets (and liabilities).

Non-financial produced assets

Non-financial produced assets come into existence through the processes of production and consist of fixed assets, inventories and valuables. Fixed assets have lives of more than one year and are used in the

10 Commission for European Communities, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations and World Bank, *'System of National Accounts 1993'* Brussels/Luxembourg, New York, Paris, Washington D.C. 1993.

11 United Nations *'System of National Accounts 1968'* Studies in Methods Series F No. 2 New York 1968.

production of other goods and services, but remain themselves unchanged, other than through depreciation. Inventories are goods which are still to be processed further or have been completed but which await sale to the final buyer. Valuables are tangible assets which are held as a store of value and are not used in any further stage of production. There are, at present, no data on valuables in Australia.

There are some types of non-financial produced assets that are not recorded in gross capital formation and so they are also excluded from the national balance sheets. Military equipment (e.g. weapons and their delivery systems) is regarded as having been consumed when purchased, so there are no fixed assets corresponding to this expenditure. Assets purchased by persons (e.g. vehicles and other consumer durables) are regarded as personal final consumption in the national accounts so are not considered to be fixed assets, although they are shown as a memorandum item in the balance sheets.

Non-financial non-produced assets

Non-financial non-produced assets come into existence other than through processes of production. Some of these assets occur in nature while others come into existence by legal or accounting actions. Non-financial non-produced assets are classified as follows:

Tangible non-produced assets

'Tangible non-produced assets are assets that occur in nature and over which ownership rights have been established. Environmental assets over which ownership rights have not, or cannot, be established, such as the high seas or air, are excluded because they do not qualify as economic assets' (SNA93, para.13.53).

- *Land* is defined as the ground itself over which ownership rights are enforced. Experimental estimates of the 'site' value of land (see *Land* p.64) which is privately held, either by freehold or by leasehold from the Crown and land occupied by Commonwealth Government business enterprises have been included in the balance sheets.
- *Sub-soil assets* are economic demonstrated resources, located on or below the earth's surface, that are economically exploitable given current technology and prices. Experimental estimates of the net present value of Australia's major mineral and energy resources are included in the balance sheets.
- *Other natural assets* such as non-cultivated biological resources should be included in the balance sheets to the extent that they have a recognised economic value that is not included in the value of the associated land. The value of native forests which are available for commercial exploitation have been included in these estimates. SNA93 also recommends that water resources which have some form of ownership or use rights, market valuation or some measure of economic control should be included in the national balance sheets. However, at this stage, there is insufficient information available to value these resources.

Intangible non-produced assets

'Intangible non-produced assets entitle their owners to engage in certain specific activities or to produce certain specific goods or services and to exclude other institutional units from doing so except with the permission of the owner' (SNA93, para.13.62). Included are patents, other transferable contracts, and purchased goodwill. These assets are not included in the balance sheets because of insufficient data.

Financial assets

Financial assets, in the most part, represent a contractual claim on another institutional unit or the rest of the world which recognises the liability to repay an agreed sum at an agreed date. Usually they earn property income. The major exception to the contractual obligations to repay a specified amount is share capital which, while entitling the owners to the residual value of a company on its dissolution, may mean there is no such value. A financial relationship exists between the shareholder and the company.

Memorandum items

SNA93 also calls for memorandum items to show assets which are not separately identified in the central national accounting framework but which are of more specialised analytical interest. These are:

- *Consumer durables* which cover private motor vehicles and other household durables (values for which were developed by the ABS for use in econometric models);
- *Direct investment* which comprises foreign financial assets and foreign liabilities arising from the provision or receipt of direct investment and are recorded in the appropriate financial assets/liabilities categories (e.g. as loans or equity capital), with the totals shown separately; and
- *Non-rateable land* which includes values for land owned by State or local governments including land under schools, government offices, parks etc. To date, values have only been compiled for New South Wales, South Australia, Tasmania, and the Northern Territory. Values are shown from 30 June 1993.

VALUATION OF ASSETS AND LIABILITIES IN THE BALANCE SHEET

General principles of valuation

Ideally, valuation should be on the basis of current, observable market prices as this is the basis on which decisions by producers, consumers, investors and other economic agents are made. However, where there are no observable market prices, because the items in question have not been purchased/sold on the market in the recent past, an attempt should be made to estimate what the prices would have been if the assets had been acquired on the market on the day to which the balance sheet relates.

In addition to observed market prices, current prices can be approximated for balance sheet purposes in two other ways. In some cases, market prices may be approximated by accumulating and revaluing acquisitions less disposals of the asset in question over its lifetime. This

method has been used to value estimates of fixed assets published in *Australian National Accounts: Capital Stock* (5221.0) as well as estimates of the value of consumer durables, both of which are included in this paper. In other cases, market prices may be approximated by the present, or discounted, value of future economic benefits expected from any given asset; this is the method used for sub-soil assets and most forests. Land and most financial assets and liabilities estimates are based on current market value.

Values observed in markets (market prices)

The ideal source of price observations for valuing balance sheet items is a market, like the stock exchange, in which each asset traded is completely homogeneous and has its market price listed at regular intervals. Such markets yield data on prices that can be multiplied by indicators of quantity to calculate the total market value of different classes of assets and liabilities held. In addition to providing direct observations on the prices of assets actually traded, information from markets can also be used to price similar assets that are not traded.

Market and market proxy prices are available for a wide range of assets and such prices have been used in the calculation of the estimates of the value of land and livestock in this publication. In addition, estimates of the value of financial assets and liabilities (from *Australian National Accounts: Financial Accounts* (5232.0)) and direct foreign investment (from *International Investment Position, Australia* (5306.0) are based on market values.

Present value of future returns (net present value)

SNA93 recommends that where no market prices are available in the case of assets for which the returns are either delayed (as with timber) or spread over a lengthy period (as with sub-soil assets) a rate of discount should be used to calculate the present value of the expected future returns as well as the market value of current output. The rate of discount should be derived from information based on transactions in the particular type of asset under consideration — forests, mines and quarries, etc. — rather than using a general rate of interest, such as one derived from the yield on government bonds.

SNA93 acknowledges that valuation of expected net returns resulting from the commercial exploitation of these assets is subject to great uncertainty and liable to considerable revision. It points out that 'as ownership of these assets does not change frequently on markets, it is difficult to obtain appropriate market prices to use for valuation purposes so that, in practice, it may be necessary to use the valuations which the owners of the assets place on them in their own accounts' (SNA93, para.13.60).

COMPONENTS OF THE BALANCE SHEET FOR AUSTRALIA

This publication provides estimates of produced, non-produced and financial assets and liabilities and net worth for the total economy and for the four domestic sectors: households, general government, financial corporations and non-financial corporations.

The range of assets included in this publication are outlined below. For produced assets (excluding plantations and livestock):

- buildings, including residential and non-residential;
- non-building construction projects, including roads;
- equipment, including plant, machinery, transport equipment, etc;
- (capitalised) real estate transfer expenses;
- private non-farm stocks;
- farm stocks;
- public marketing authority stocks; and
- other public authorities stocks.

These data have been obtained from: *Australian National Accounts: National Income, Expenditure and Product* (5206.0); and *Australian National Accounts: Capital Stock* (5221.0).

For financial assets and liabilities:

- official reserves;
- cash and deposits;
- securities other than shares;
- loans;
- shares and other equity; and
- other claims (including accounts receivable/payable).

These data have been obtained from *Australian National Accounts: Financial Accounts* (5232.0) and unpublished estimates.

OTHER CHANGES IN VOLUME OF ASSETS ACCOUNT AND REVALUATION ACCOUNT

Discoveries and depletion of subsoil assets and growth and depletion of native forests are recorded in the Other Changes in Volume of Assets Account, while any holding gains and losses are included in the Revaluation Account.

NON-PRODUCED ASSETS

SNA93 proposes the following method for deriving the monetary value of non-produced assets.

The value of the asset in the closing balance sheet equals:

- the value of the asset in the opening balance sheet; plus
- the total value of acquisitions and disposals, which redistribute the ownership of these assets among sectors but balance for the total economy; plus
- the value of other positive or negative changes in the volume of the asset held, e.g., resource additions, depletion of sub-soil deposits and destruction due to war or natural disaster (these are recorded in the other changes in the volume of assets account); plus

- the value of nominal holding gains (positive or negative) due to price changes (these are recorded in the revaluation account).

LIVESTOCK

Scope

All livestock under the economic management of institutional units within Australia are included in the balance sheet estimates. This includes those livestock used for breeding, slaughter and entertainment, and those animals which produce products on a continual basis such as sheep for wool and dairy cattle.

Wild animals, such as kangaroos which may be used as meat or for their skins are not considered to be economic assets since they are not managed directly by institutional units. Also excluded are those animals which are not used to generate income, such as domestic pets.

Livestock assets are classified as either fixed assets or inventories. Those livestock which are used in production for a period greater than one year are considered fixed assets. This covers breeding stock, animals for entertainment, sheep for wool and dairy cattle.

Inventories covers all other livestock types, within Australia, and includes those animals raised for slaughter or other one-off products (e.g. leather).

There are 21 broad animal types identified in these statistics. Both the numbers and values of these livestock are dominated by sheep, cattle, horses and chickens. There are some animal types which have not been covered such as circus animals, crocodiles in crocodile farms and animals used in aquaculture (e.g. oysters). Further development of the balance sheets may allow for these and other animals to be included.

Data sources

A large range of data sources were used. A primary data source was the annual agricultural census conducted by the ABS. This census provided the number of animals in major livestock categories as at 31 March. In the calculation of the total number of sheep and cattle ABS slaughterings and exports data were used. For some livestock types it was necessary to use industry sources and publications to obtain the required data on quantities.

Data on the prices of animals were more difficult to obtain. For sheep and cattle some data were available from the Australian Meat and Livestock Corporation which provided cents per kilogram information but more generally it was necessary to use industry publications and sources to obtain price information.

Valuation

The method used for the valuation of all livestock types is the number of animals multiplied by the price per head with both number and price being measured at 30 June.

ABS approach to valuation

Beef cattle, dairy cattle, sheep and lambs. The method used to derive values of livestock for the balance sheet was also developed to estimate, and thereby reconcile with, transactions in livestock which will be

included in the production account when SNA93 is introduced in 1998. The number of animals for each livestock type was estimated at 31 March using data from the agricultural census. The following level of detail was used:

Beef cattle	Bulls > 1 year of age
	Bull calves < 1 year of age
	Cows and heifers > 1 year of age
	Heifer calves < 1 year of age
	Other calves < 1 year of age
	Other cattle > 1 year of age
Dairy cattle	Bulls > 1 year of age
	Bull calves < 1 year of age
	Cows and heifers > 1 year of age
	Heifer calves < 1 year of age
Sheep and lambs	Rams > 1 year of age
	Ewes > 1 year of age
	Wethers > 1 year of age
	Lambs < 1 year of age

In some years this level of detail was not collected and it was necessary to use the most recent available ratios of detailed animal types to estimate the detail required.

The census data were converted to a 30 June basis using data on slaughterings and exports of sheep and cattle and estimates of births and incidental deaths during the June quarter. Data on slaughterings are compiled by the ABS on a monthly basis but are only available for the following categories:

Cattle	Bulls, bullock & steers
	Cows and heifers
	Calves
Sheep and lambs	Sheep
	Lambs

To use the slaughterings data it was necessary to split the slaughterings data to the level of detail used from the census. This was done by assuming the slaughterings were conducted in relation to the holding proportions. For example, the total slaughterings of cows and heifers was divided between beef cows and dairy cows using the relative holdings of beef and dairy cows as at 31 March.

Exports were only measured for 'other cattle' and wethers. Other exports were deemed insignificant.

Estimates of births during the June quarter were made by calculating births for the year 1 April to 31 March and dividing by four. Incidental

deaths (from disease, natural causes, etc.) were estimated at 1% of the 31 March number of animals.

For beef cattle, bull calves, other calves and other cattle were classed as inventories. All other types of beef cattle were classed as fixed assets. All dairy cattle except bull calves were classed as fixed assets. Both beef and dairy bull calves were treated as inventories since they are usually not raised for own use. Generally, bull calves will be sold after one year of age and are capitalised (become fixed assets) at that point.

All sheep over one year of age were classed as fixed assets. Lambs were classed as either fixed assets or inventories. The number of lambs classed as fixed assets was determined residually from the difference in the number of sheep at the end and at the beginning of the year, after accounting for disposals. The remaining lambs were classed as inventories.

The prices of the various types of sheep and cattle were based on additional slaughterings data compiled by the ABS. Using the total value of slaughterings and the total number of slaughterings for each available category a price per head was calculated. For those sheep and cattle classified as fixed assets this price was then adjusted to reflect the age and the capital nature of the stock. The extent of the adjustment is defined by a capitalisation factor. For example, when a dairy cow reaches maturity (around two years of age) the value of the cow is assumed to be four times the slaughter price of a cow. The capitalisation factor falls over a period of time (the period of amortisation) such that at five years of age the dairy cow is valued at its slaughter price. The capilatisation factor, and associated period of amortisation used for those animals at maturity classified as fixed assets are:

	Capitalisation factor	Period of amortisation (years)
Dairy cows	4	3
Bulls	3	2
Beef cows	1.5	2
Rams	25	5
Ewes	2	2
Wethers	1.5	2

In order to apply these capital factors it was necessary to estimate the demographics of the sheep flock and the cattle herds. Assumptions about the distribution of the livestock by age were made and then the numbers were adjusted according to births and disposals during each period. The value of sheep or cattle in a particular class is thus equal to the sum, over all ages, of the number of animals in each age group multiplied by the slaughter price per head multiplied by the applicable capital factor for each age.

For sheep and cattle classified as inventories the total balance sheet value was equal to the number of animals in each class multiplied by the slaughter price.

Thoroughbreds

Data on the number of thoroughbreds were obtained from the Australian Jockey Club which keeps the Australian Stud Book. Prices for thoroughbreds were based on average annual prices from the metropolitan yearling sales. These data were obtained from the Bloodhorse Breeders' Association. There may be a downward bias in these prices when applied to all ages of thoroughbreds. All thoroughbreds are classed as fixed assets.

Horses (not including thoroughbreds and standards)

The horses included in these estimates comprised horses within registered horse breed associations. The following associations were contacted:

- Australian Quarter Horse Association
- Australian Appaloosa Association
- Commonwealth Clydesdale Horse Society
- Arabian Horse Society
- Australian Palamino Society

These organisations were able to provide the number of registered horses and an indication of prices for the various breeds. Determining an appropriate average price was quite difficult given the large ranges in horse prices which can occur. All horses were classified as fixed assets.

Standard breeds (Trotters)

The Australian Harness Racing Council (AHRC) provided relevant information on Standard breeds including data on the number of foals born each year and the size of the base stock of brood mares, stallions and other horses over four years old. A model was used to derive the number of horses in each age group between zero and three years based on the number of foals born in each year. The total number of standard breeds was equal to the number of horses in each age group between zero to three years plus the total base stock of 60,000 horses.

Prices were based on yearling sales information from the AHRC. Yearlings are two years of age and the yearling price is thought to be a good estimate of their average value over the ages one to three years. Standard breeds under one year of age are known as weanlings and have been priced at one-third of the yearling price. The base stock of horses was valued at half the yearling price.

All standard breeds are classified as fixed assets.

Pigs

The number of pigs in each year was obtained from the agricultural census. Data were estimated for the categories boars, breeding sows, gilts intended for breeding and other pigs.

The first three pig types are classified as fixed assets and other pigs are classified to inventories. Data from the census are as at 31 March. It was assumed that the numbers at 30 June were equal to the numbers at 31 March. However the numbers have fluctuated 30–40,000 (10%) over the seven year period.

Prices of pigs were obtained from a variety of industry sources including the Pig Improvements Company and the Queensland Pork Producers State Council. Data from *Pigstats*[12] were also used.

These sources provided estimates of bacon prices, the cull price for sows, gilt prices and boar prices. Breeding sows were valued at the midpoint of the cull price and the gilt price. The category 'other pigs' was valued at half the bacon prices. Where price data for certain years were not available the bacon price was used as an indicator.

Chickens

The number of chickens was obtained from the agricultural census which collects data on the numbers of meat chickens, egg chickens and breeding stock. Meat chickens are classed as inventories and egg chickens and breeding stock are classed as fixed assets. The number of chickens at 31 March as provided in the agricultural census is assumed to be equal to the number at 30 June of the same year.

Information on prices of the various categories of chickens was obtained from a number of industry contacts such as the Australian Egg Industry Association, the New South Wales Chicken Meat Federation and some major producers of chickens.

For meat chickens and breeding stock, price data were available directly for valuing chickens as at 30 June. For egg chickens it was necessary to average a number of different prices which applied during their 80 week lifespan.

Ostriches

The Australian Ostrich Association provided details of the number of registered birds in each year and provided prices for the latest year. Prices for other years were based on these prices and those estimated in the previous balance sheet published in 1995. All ostriches are treated as fixed assets.

Other livestock types

Other livestock types were estimated in similar fashion to the types described above, i.e., through estimation of numbers and prices. Where possible agricultural census data were used to estimate the numbers of animals. If these data were not available, industry sources were used. Price data were based either on industry sources or on information in rural newspapers. Further details on the data and methods used are available on request.

12 *The Australian Pig Industry Handbook*, Edited by H. Meo & G. Cleary, The Australian Pork Corporation 1996.

Some further considerations

A significant difficulty in estimating prices for livestock as fixed assets is that the market for such animals is small relative to the numbers of animals in the classification. In general, breeding stock are bred for own use by farmers rather than purchase/sale. Accordingly, determining a capital price which reflects all animals is difficult.

A particular difficulty in the estimation of prices of livestock in Australia is regional variation. Prices of livestock in Western Australia may be quite different from prices in Victoria. The markets for the two States are likely to be reasonably independent and there is no certainty of comparability of quality of stock between the regions.

The issue of quality is important. The assumption throughout is that the price reflects the value of an animal of average quality. From a time series perspective this may not be very useful since the average quality may change over time, i.e. a fall in price may reflect a changing market or a general fall in quality. Further, these two factors may be offsetting or compounding. No attempt has been made to quantify quality changes.

LAND

Land is defined in the SNA93 as 'the ground itself, including the soil covering; (and any) associated surface water. The associated surface water includes any inland waters over which ownership rights can be exercised and which can, therefore, be the subject of transactions between institutional units' (SNA93, para.10.121). Excluded are any buildings or other produced structures situated on it (cultivated crops, trees and livestock); sub-soil assets; non-cultivated biological resources and water resources. These should be valued elsewhere in the national balance sheets.

Scope

For land to fall within the scope of the balance sheets it must be an economic asset over which ownership rights are enforced and from which benefits to owners may be derived.

Estimates for the value of land in the balance sheets include freehold and leasehold land in private hands, plus land owned by Commonwealth Government business enterprises. Excluded is land held by the Commonwealth Government and State and local governments and their business enterprises.

The value of land includes the value of the stock of major improvements that cannot be separated (physically) from the land itself. Thus, although expenditures on land improvements are treated as gross fixed capital expenditure in the SNA93, they do not lead to tangible assets that can be shown in the balance sheets separately from the land itself. Land is valued at its approximate current purchase price.

This definition approximates the site value of land in Australia, which also allows the value of invisible improvements to land such as clearing, reclamation, excavation and grading to be included in the value of the land itself, but does not include the written-down costs of ownership transfer (accounted for within 'real estate transfer expenses' in the capital account and shown as a separate asset, under 'produced assets').

Data sources

In the late 1980s the Commonwealth Grants Commission compared 'the relative capacities of the States and the Northern Territory to raise revenues from owners of and transactions with land'. Part of this work was to prepare comparable estimates of the site or land value for each State and Territory analysed by the various land use categories and by value range.

The estimates used are included within the *Final Report on Review of Land Valuation Data*[13] supplied to the Commonwealth Grants Commission in February 1991. Agreed valuations, adjusted to the New South Wales base, were presented for residential, commercial, rural and total land by State for the period 1 July 1984 to 1 July 1988. These valuations were updated to 1 July 1991 in the *Commonwealth Grants Commission Report on the General Revenue Grant Relativities 1993, Volume 3 — Appendixes* by the Australian Valuation Office (AVO) in its *Report on Land Valuation Data*.[14] The estimates of the value of land which were prepared for this AVO report have been incorporated into the tables in this publication.

From 30 June 1992 to 30 June 1995, estimates of land values were supplied to the ABS from each of the State and Territory Government's Valuers General. The estimates are on a consistent basis with those supplied to the Commonwealth Grants Commission, i.e. they represent the site value of land and are split according to land purpose.

Valuation

The valuation approach has certain shortcomings. The data are ultimately for use by State Governments for assessing the potential of raising revenue — from rates (land taxes) and transactions in land (land transfer taxes). There is a certain element of arbitrariness in the derivation of the land value in areas where there are few vacant lots. In addition, the estimates exclude the value of land belonging to State and local government business enterprises, and unalienated Crown land. The value of the excluded land is felt to be reasonably insignificant, with estimates of Crown land and State and local government enterprise land accounting for only 5% of the total land value in the States and Territories where estimates have been compiled from 1993 (see non-rateable land values in the memorandum items of the balance sheets).

A further problem is that 'invisible' improvements (such as clearing) are included in the site value estimates used to value land. These costs are treated as gross fixed capital expenditure and, to the extent that they have been captured at the time of the outlay, they will have been included in the produced asset estimates. The full extent of the double counting is not known but it is not considered to be significant.

13 Coleman, M. R. *Final Report on Review of Land Valuation Data*, the Commonwealth Grants Commission, Australian Valuation Office, 7 February 1991.

14 Coleman, M. R. Report on Land Valuation Data, in *Commonwealth Grants Commission Report on the General Revenue Grant Relativities 1993*, Volume 3 Appendixes, 1 July 1993.

SUB-SOIL ASSETS

The estimated value of sub-soil assets is shown in table 3.10.

Scope

Sub-soil assets are defined in SNA93 to consist of: 'proven resources of mineral deposits located on or below the earth's surface that are economically exploitable given current technology and relative prices. Mine shafts, wells and other extraction sites are included with structures rather than with the sub-soil asset.' (SNA93, para.13.59).

Sub-soil assets consist of known deposits of coal, oil and natural gas resources, metallic mineral resources and non-metallic mineral resources. These resources are located below or on the earth's surface, including deposits under the sea.

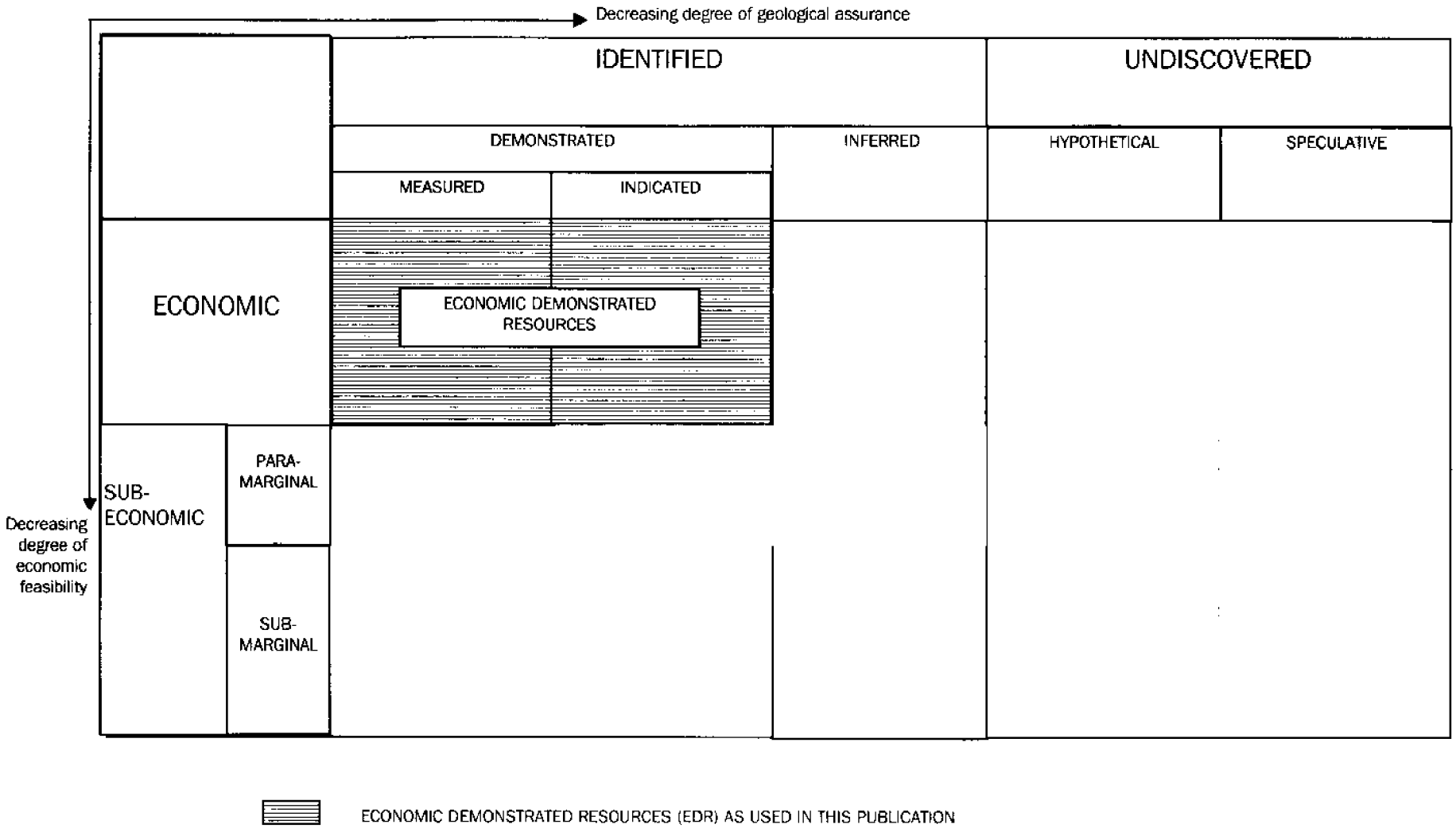
The McKelvey box, as adapted by the Bureau of Resource Sciences (BRS) and shown in figure 1, illustrates the classification of mineral reserves and resources. This box cross-classifies sub-soil assets according to two characteristics: the degree of geological assurance; and the degree of economic feasibility of the reserves. The degree of geological assurance categorises resources as identified (measured, indicated, or inferred) or undiscovered. The classification of a particular commodity may change from an undiscovered to identified (discovered) resource as a result of exploration and development, and/or technological improvements. The degree of economic feasibility splits sub-soil assets into economic and sub-economic resources according to current economic and technological conditions.

In the Australian context, economically exploitable deposits are those that the BRS define as 'economically demonstrated resources' (EDR). EDR refers to those resources with a very high degree of geological assurance and for which extraction is expected to be profitable over the life of the mine.[15]

Known sub-soil assets that are not economically exploitable are excluded from the balance sheet accounts. The boundary between economically exploitable assets and those that are currently 'sub-economic' is affected by the relationship between prices, extraction costs, and technological improvements. These variables are in turn affected by a range of factors, for example, the state of the world economy; the size and quality or grade of a particular body of ore; advances in processing lower grade ores; and better understanding of the geology and origin of deposits. Accordingly, the balance sheets record, for any given year, the value of economically exploitable resources known to exist in that year, given current technology, prices and costs.

15 'Economic Demonstrated Resources' is the term used by the BRS instead of 'reserves' since the latter term is used by various groups to describe different resource categories. Use of the term 'EDR' in this paper refers to that part of demonstrated resources (i.e. measured and indicated resources) for which extraction is expected to be profitable over the expected life of the mine, given current prices, costs and technology (i.e. extraction is economically feasible). It approximates proven plus probable resources.

Figure 1 : McKELVEY BOX AS ADAPTED BY THE BRS



Source: Bureau of Resource Sciences

Minerals which are not included are those for which no EDR information is available. Demonstrated resources of minerals such as clay and sand, which are in almost infinite supply, are not measured by mining companies as there is no necessity to do so. Therefore, it is only the major minerals which are included in the national balance sheet.

Data sources

Estimates of mineral resources in Australia are published annually by the BRS in *Australia's Identified Mineral Resources*.[16]

Production costs were provided by a private consulting firm and these costs are shown for 1985 to 1995 in table 3.10 for each of the minerals which have (or have had) an economic value.[17] The production costs data were derived using a number of models and regression techniques incorporating both known and estimated variables. For example, treatment costs for base metal mines are estimated from known contract charges plus penalties and by-product credits. Some of the more specific variables included are: tonnes of ore milled; ore type; ore grade at mill; metal recovery rate; mining method (i.e. open cut/underground mine); and treatment process.

Production costs include both financial and operating costs. Financial costs include labour costs, other on-site costs, mining and milling (treatment) costs, transport charges, capital costs and depreciation. Operating costs include: mining, milling, exploration within the mine lease, on-site administration and, where applicable, amortisation of on-going mine development, such as overburden stripping.

Where several mineral ores co-exist and are mined together, extraction costs should not be counted more than once in determining the net value of total mineral resources. In principle, joint products have joint marginal costs which cannot be estimated from accounting data. However, costs have been calculated using pro-rata average costs for each major co-product by allocating total costs in proportion to each co-product's contribution to the net revenue of the mine. It is also possible to credit by-product values against the cost of producing primary or co-products by pro-rata, for example, sulphur from gas. For commodities which are major exports, the estimated weighted transport component is included as part of the variable costs to allow calculation of a 'free on board' (f.o.b.) price at the closest Australian port.

Rates of return on capital were estimated to be 8% for the metal mining industry and 12% for the oil and gas industry (on average). These were calculated on advice from the consultancy firm.

16 Bureau of Resource Sciences. *Australia's Identified Mineral Resources*, Bureau of Resource Sciences. Canberra, 1996.

17 The production costs differ from those in *National Balance Sheets for Australia — Issues and Experimental Estimates, 1989 to 1992* (5241.0) due to better estimation techniques and more experience in this work.

ABS approach to valuation

SNA93 indicates that prices, based on market transactions, are the preferred method for valuing assets. However, it recognises that, in the case of sub-soil assets, there may be insufficient transactions to provide a basis for a price. Accordingly, it indicates that: 'The value of the reserves is usually determined by the present value of the expected net returns resulting from the commercial exploitation of those assets, although such valuations are subject to uncertainty and revision' (SNA93, para 13.60).

Because there are insufficient transactions in sub-soil assets in Australia to determine a reasonable price, the ABS has used the net present value (NPV) approach which, given the data constraints, is considered to provide more reliable estimates than alternative approaches. Capitalisation of royalties paid by resource companies might appear to serve as a useful check on the estimates from the NPV approach (as the royalty could be said to equate to the economic rent). However, not all mineral commodities attract royalties in Australia. Moreover, a number of production and value of production royalty thresholds apply, so capitalising royalties would understate the value of the resource.

As noted, the NPV approach involves calculating the expected future net income flow generated by the asset, and then discounting at an interest rate for the life of the asset. This initially involves estimating the value of gross output (price multiplied by production) during a 12 month period and deducting costs (including a 'normal' return on capital)[18] to derive net income, which is taken to be the equivalent of economic rent. The future income flow was calculated for each year based on the expected mine life of each commodity (which is calculated using current EDR and a five–year lagged moving average of the production rate). This income stream was then discounted over the expected mine life to obtain a value in today's dollars. The estimates are obtained by applying the following formula.

$$PV_0 = \Sigma^{T}_{t=1} \left(\frac{N_t * q_t}{(1 + r)^t} \right)$$

Where PV_0 represents the present value of the resource, Nt is the net price per unit (the average price per unit of the resource less costs of extraction including a return to capital), q_t is the quantity of the resource produced over period t, r is the real discount rate and T the expected mine life.

A five–year lagged moving average was used for prices to reduce the volatility in the results. While it is usual to use prices as at balance date, because of the long-term nature of extraction of sub-soil assets the ABS has taken the view that short-term price fluctuations are unlikely to affect the behaviour of mining companies to any significant extent.

18 A normal return to capital needs to be subtracted from the value of gross output to separate out the value of the resource from the value of the capital used to extract the resource.

In the derivation of real (inflation adjusted) discount rates, the ABS has assumed that a company's decision to commit resources (towards exploration and extraction) is significantly influenced by costs of borrowing. Consequently, the discount rate chosen was aimed at reflecting the cost of capital, or the cost of borrowing, to the mining industry. Moreover, because the future stream of income is expressed in current dollar terms, a real, as opposed to a nominal, rate of discount is appropriate.

Two different moving average discount rates were derived. The first approach was to use an industry specific deflator. This was calculated from a weighted average of producer price indices (PPI) relating to the change in the price of mining industry inputs.[19] The percentage point rate of change in this index was subtracted from a five-year lagged moving average of the Reserve Bank of Australia's indicator rate for large business loans to adjust the nominal to real discount rates. It is a moot point whether labour and capital cost inputs should be included in the adjustment. At the moment the ABS is undecided but in any event there are no data available at present. The second approach estimates real discount rates by subtracting the percentage point rate of change in a more general indicator of price change, the consumer price index (CPI), from the nominal discount rates.

The estimates of the value of sub-soil assets using the latter approach are higher as the discount rates used are lower than those used in the former approach. That is, the rate of increase in the CPI was higher than the rate of change for the PPI for the mining industry inputs, thereby resulting in a lower real discount rate for the CPI approach. The ABS considers that producer price indices, which reflect price changes to the major inputs of the mining industry (which were identified from 1992–93 input-output tables showing commodity use by industry) are a better measure of price change for the mining industry than the more general CPI. Both the discount rates options are presented in order to encourage user feedback on what is the most appropriate discount rate to use.

The approach outlined above differs from that used in the initial balance sheet estimates published by the ABS in 1995. In the initial balance sheets, year end prices were used rather than a five-year lagged moving average, while production rates and mine lives were an average over the period 1989–92, rather than the five-year moving average (which is possible as a result of the longer time series, 1985–95, used in the latest experimental estimates). Further, discount rates, although derived using the same method, are different in that last time the discount rate reflected interest rates prevailing at the time of publication, rather than a five-year lagged moving average of interest rates which relate to the year in which the sub-soil assets are being valued.

19 ABS, unpublished data.

It is felt these changes, together with improved techniques for estimating the extraction costs of the various sub-soil assets, have lead to more reliable sub-soil values in this publication.

Comments on the estimates

Data on returns to capital that were provided by the consulting firm to the ABS, were derived using mining companies estimates of capital stock and the operating profit on average returns. These capital stock estimates are based on the historical cost stock valuation approach, which differs from the replacement cost approach used by the ABS in *Australian National Accounts: Capital Stock* (5221.0). As the historical cost values are lower than the replacement cost values, returns on the capital stock may be higher than they would be if they were derived using the ABS replacement cost approach.

Where the derivation of economic rent implied a negative value, the ABS has not calculated negative NPV for the resource. Instead where this occurred the values were shown as zero.[20]

Drawbacks in the valuation approach

The major drawback of the NPV approach for sub-soil assets is that the estimates are subject to uncertainty and revision regarding:

- the future price of the commodity;
- the technological developments which will occur during the life of the mine, which may extend the life of the mine significantly;
- the true size of the deposit may be different from the original estimates;
- the quality of the deposits yet to be found; and
- the 'true' discount rate.

Moreover, while the use of five-year lagged moving averages for production and prices will reduce volatility in the results, it is also a departure from standard accounting practice.

Given the way that the experimental estimates of sub-soil assets are derived, only a very small proportion of the total resource is accounted for at any one time; and valuation can give a misleading impression of the size of the resource base. Monetary estimates are subject to considerable volatility and accordingly can give a deceptively optimistic or pessimistic picture. Hence, the estimates must be viewed with some caution.

The volatility of the monetary estimates means that they should be looked at in conjunction with the physical stocks of the resources. When doing so it must be borne in mind that the physical estimates are

20 Resource rich countries such as Canada and Sweden have also encountered this problem. This is an issue being explored further in international forums.

also subject to some uncertainty regarding the total resources which will ultimately become available for production.

STANDING TIMBER

Scope

Standing timber assets cover both plantation and native forests. SNA93 does not specifically identify the types of standing timber to be included in national balance sheets other than that the forests must be owned by an institutional unit and must bring economic benefits to their owners. All publicly owned forests outside conservation reserves and all private forests in Australia are potentially available for timber production, either now or at some time in the future, although a number of constraints reduce the area of forest available for production.

For publicly owned forests, these constraints include the accessibility of the resource (forest topography), the economic feasibility of extracting timber (distance to mill, density and area), and the setting aside of specified areas of production forest under management codes of practice. The availability of privately owned forests for timber production is also influenced by accessibility and financial considerations and by the intentions of the landowner.

Assets over which property rights can be exercised may be bought and sold. All private forests and many public forests (e.g. State forests) can be traded. Property rights may be assigned to individuals in the form of timber leases, pastoral leases and timber quotas. However, not all public forests can have property rights exercised over them. Some forests are set aside for conservation purposes only (for example national parks and wilderness areas). They are public assets and are not available for sale because of legislation.

Australia's standing timber resource consists of forests of different condition, with some forests more suitable to logging than others. Standing timber areas which are likely to have commercial timber value and established property rights are:

- forest plantations;
- multiple use public forests where timber harvesting is permitted;
- Crown land where timber harvesting is carried out, but without specific management or reservation for timber production; and
- tracts of private native forest land.

The forests in the first two categories may be assumed to have commercial value. Ideally, the last two categories would need to exclude forests which have no commercial timber value under present economic, marketing and technological conditions. Classifying forests into those available for production and those unavailable for production is difficult although the constraints mentioned above provide an indication of what is potentially available for production and what is not.

Data sources

Native forests

Data were obtained from two main sources, the Forest and Timber Inquiry[21] and the Australian Bureau of Agriculture and Resource Economics (ABARE). State Forests of New South Wales and Forestry Tasmania also provided some updated estimates of area and stumpage fees for those States.

At present, no data sources are available to provide annual estimates of the total area of native forest available for timber production. However, the Forest and Timber Inquiry found that as at 30 June 1990, 22.1 million hectares of native forest were available for timber production.[22] More detailed estimates of native forest areas are based on data provided by Wells[23] to the Forest and Timber Inquiry in 1992.

Data for the Forest and Timber Inquiry were obtained for eight forest regions of Australia as defined by the Australian Forestry Council. It was assumed that each region was a homogeneous forest area so that the percentage of each region falling within each State indicated the amount of forest from that region growing in that State.

The Wells' report divided areas into old-growth forest, mature forest or regrowth forest. Forests were also divided into even and uneven aged stands of trees. Forests containing uneven aged stands cannot be grouped by age class, so instead were valued according to the diameter of the trees. Information was gathered on the area of forest in each age class (of 10-year groupings) up to maturity.

The report also provided estimates of yields of sawlog and pulpwood plus other wood in terms of cubic metres per hectare gross roundwood equivalent. Yields were provided for the different forest groups for mature and old growth forest.[24]

Data obtained from ABARE included total native forest area (by State) as published in *Quarterly Forest Product Statistics*[25] until 1993, after which date the area had to be estimated using average growth rates in total forest area over the previous years. Native forest area available for production in these years was derived by applying fixed ratios of standing timber available for production in 1990 (from the Forest and

21 Resource Assessment Commission, *1990 Forest and Timber Inquiry Final Report*, Volumes 1, 2A and 2B, March 1992, Resource Assessment Commission, Canberra.

22 Of this total, 7.4 million hectares were native State forest, 6.9 million hectares were on Crown land and 7.9 million hectares were privately owned native forest.

23 Wells, K. 'The Effect of Forest Age on Future Log Yields', *Forest and Timber Inquiry*, Resource Assessment Commission, Canberra, 1992.

24 As no later data have become available on yields since the Wells' report was released, the same yields have been assumed up to 30 June 1995.

25 ABARE, *Quarterly Forest Product Statistics*, March 1993, Commonwealth Government Printer, Canberra.

Timber Inquiry) and applying these ratios to the total native forest area estimates from ABARE.

Stumpage fees for logs from public forests, per cubic metre for hardwood and softwood offtakes, were obtained from ABARE's *Commodity Statistical Bulletin*[26] (refer to table 3.15 of this publication) by State. Stumpage fees have not been published by ABARE since 1992. As a result, they have had to be estimated using a price index for hardwood and softwood logs,[27] except for New South Wales and Tasmania where State Forests of New South Wales and Forestry Tasmania, respectively, provided such information.

Coniferous forest plantations

Yearly planting data were required for trees up to 30 years of age (35 years in South Australia) at which age it is assumed the trees are harvested. ABARE has published yearly planting data from 1975. Prior to 1975, annual planting data was not available so annual plantings had to be estimated (up to 30 years of age, or 35 in South Australia). Plantings were estimated based on annual increases in total coniferous plantation area in each year up to 1975 (e.g. 1966 to 1974 for plantations reaching a mature age of 30 years at 30 June 1995). Annual plantings were then summed over the 30 years and compared with the total plantation area available at balance sheet date, with any differences being apportioned to planting estimates in the earlier years (i.e. 30 or 35 years previous).[28]

Broadleaved forest plantations

Annual plantings and reconciliation of total area at balance sheet date with the sum of the annual plantings, were derived using the same approach described for coniferous plantations.

The yields for broadleaved plantations were based on hardwood sawlog and pulplog yields from Wells' report on *The Effect of Forest Age on Future Log Yields*. As with native forests, these yields were multiplied by stumpage fees from ABARE for each age class.

Forest valuation

As with sub-soil assets, market transactions for forests are not common. Accordingly, the ABS has adopted as an alternative the NPV of the future stream of royalty income on the assumption that royalties approximate rent. This approach was used, as opposed to the approach used for calculating the rent on sub-soil assets, as there are insufficient data available for forests to permit the use of that approach.

ABS approach to valuation

Estimates for standing timber from native forests and broadleaved plantations were valued differently from coniferous plantations. Coniferous plantations have readily available proxies to market prices,

26 ABARE, *Commodity Statistical Bulletin 1993*, Commonwealth Government Printer, Canberra, 1993.

27 ABS, unpublished data.

28 Wilson, D. *Compendium of Australian forest product statistics 1935–36 to 1966–67*. AGPS, Canberra, 1969.

i.e. insurance values, so these were used in preference to the net present value approach, which was used for the other forest types.

The estimates provided in this publication of the value of Australia's timber resources are based on the estimated net area of forest available for production in each State and Territory. Due to data limitations, native forests were converted from gross to net area at the State level rather than at the more detailed 'forest group' level. Table 3.16 presents the total area of Australia's native forests which is available for timber production (either now or at some point in the future), by State and by tenure, between 30 June 1989 and 30 June 1995. Table 3.17 shows the native forest area unavailable for production as well as the total native forest area for the same period.

In addition to the loggable native forest, it is estimated that, as at 30 June 1995, there were just over 1.1 million hectares of plantation forest also available for logging (either now or in the future). Table 3.18 presents the total area of broadleaved forests from 30 June 1989 to 30 June 1995, while table 3.19 shows the total area of coniferous plantation forests over the same period.

Native forests

In line with the recommendations of SNA93, the ABS has valued native forests using the NPV method. The data on native forest types, age, yields and prices were used to estimate values for 17 distinct forest groups by State and Territory for each type of land tenure (i.e. State, Crown, and private forest). These estimates have been summarised in table 3.12.

To arrive at a value for each forest type, by tenure, the number of hectares for each age class of tree type (or size class) was multiplied by the yield per hectare (or thousand trees). The product is multiplied by the stumpage fee per cubic metre.[29] These values were discounted according to the current age profile of the forest (i.e. the number of years the forests were discounted depended on the length of time to maturity), to arrive at a net present value. Mature forests were not discounted.

The weighted average cost of capital is the most common discount rate used by business in Australia. The ABS estimated the weighted average cost of capital by deriving a five-year lagged moving average of the Reserve Bank's average indicator rate for large business loans. This was taken to represent the nominal discount rate. To derive a real rate of discount, the ABS has constructed an index reflecting changes in prices of forest industry inputs. The index is a weighted average of producer price indices which represented price changes to the major inputs into

29 As the yields are for age classes of 10 years, or size classes of approximately 8 years, the mid-point of the age class is taken to represent the number of years until the trees are of harvestable age. Where yields for either mature or old-growth forests were not shown in Wells' report, the yields were assumed to be the same as the oldest regrowth forests.

the forest industry (based on 1992–93 input-output tables). The percentage point change in this index was deducted from the nominal rate to provide the real rate of discount.

The approach assumes that stumpage fees from private forests would be the same as those for public forests (no private forest log prices are available).

Broadleaved plantations

In order to estimate the NPV of broadleaved plantations, annual planting data were required in order to estimate the number of years until the plantations reached maturity. The time taken for broadleaved plantation trees to reach maturity varied by State between 10 years and 35 years. Annual plantings were grouped into age classes of 10 years (to match the yield data) and the mid-point of the 10 year period was taken to represent the number of years until the trees in that age class reached harvestable age. Mature broadleaved plantations were not discounted.

The volume of wood in broadleaved plantations was calculated by multiplying the total hectares (by tree age class for each State and tenure), by the yield per cubic metre for mature trees. This was multiplied by average stumpage fees, in each State and tenure, to obtain an estimate of gross revenue. Gross revenue for each age class was then discounted, using the real rate indicated above, according to the number of years until maturity to arrive at the net present value.

Coniferous plantations

The estimated value of coniferous plantations (public and private) is shown in table 3.13.

Coniferous forests were valued using an insurance schedule provided by the insurance industry. The schedule shows the value of each hectare of plantation from 1 to 30 (or 35 for South Australia) years of age as determined by the Australian Forest Growers Association. Estimated values of coniferous plantation forest by State are derived by multiplying the number of hectares of a particular age by the insured value for that age of tree. These values are then summed to get the total value of the State's plantations at balance sheet date. The estimated value of coniferous plantations (public and private) is shown in table 3.14.

To estimate tree age profiles for coniferous plantations, only planting data were required as it was assumed that forests are harvested at 30 years of age (except in South Australia where harvestings were assumed mature at 35 years of age).

Out of scope timber values

Standing timber other than that recommended for inclusion in national balance sheets by SNA93, may also have a economic value. Issues concerning these forest areas are outlined below.

Conservation forests with timber value

Conservation forests with timber values include national parks, wilderness areas, water catchment areas and those inscribed on the World Heritage List e.g., the Lord Howe Island Group.

Although these forests contain commercially viable timber, logging is prohibited. As long as this situation continues the ABS will not include this potential timber value in its balance sheet estimates.

Non-timber value

Forests display characteristics of both inventories and fixed assets. The former is related to the timber value of the forests, and the latter to the non-timber value. The timber value of forests is extracted through quantitative use which leads to a reduction in forest inventories and is a source of produced goods flowing into the economy. The value of this production is captured by the existing national accounts, and the value of forest inventories is within the scope of the national balance sheets. The non-timber value of forests, where the forests act as a fixed asset (carbon sinks, the prevention of erosion) represents qualitative use and can be viewed as providing a continuing service to the economy. Valuing these services is not within the scope of any work undertaken at the ABS.

Quality aspects are very difficult to measure. Some qualitative aspects of forests, for instance, the recreational value of forests, may be included (indirectly) in the national accounts as private final consumption expenditure (such as tourism expenditure, for example). On the other hand, use of forests (even for recreational or aesthetic purposes) can contribute to ecological damage. Unless explicit expenditures are made to rectify the damage, the impact on the environment is unrecorded, at least in the short run. In the longer run, misuse of forests may have an impact on economic activity. Not only are the size and number of trees for harvest likely to be smaller, but also other aspects of human activity will also be affected, which will eventually be reflected in economic behaviour.

It seems clear then that forests have a value which is beyond their direct use as an input to the production process. However, non-economic values of forests such as their role in the maintenance of bio-diversity or as carbon sinks lie beyond present methods of relating physical phenomena with economic measures.[30]

Accordingly, it is recommended that interpretation of data on standing timber be undertaken with caution and that data on the physical aspects of the forests be included with any such interpretation.

Some further considerations

As it is assumed plantation forests are harvested up to 35 years of age, plantings data are required for the 35 years prior to balance sheet date. For the years prior to 1975 (in all States except New South Wales where State Forests of New South Wales was able to supply data for all years), plantation data were obtained from the Commonwealth Government Forestry and Timber Bureau Annual Reports and the Food and Agriculture Organisation's *World Symposium on Man-made Forests* which was held in 1967. Data were available only for the 'total area of

30 Walsh, R.G., Johnson, D.M. & McKean, J.R. 'Issues in non-market valuation and policy application: A policy perspective', Western Journal of Agricultural Economics, vol 14, 1989.

plantations' for these years. It was, therefore, assumed that new plantings were the difference between total plantation areas between years.

The dataset for the valuation of native forests is not complete in all respects, particularly for private and Crown forests. However, the data considered essential for estimating wood yields (i.e. areas of mature forests) were available. In addition, where yields were not provided for Crown and private forests in some forest groups, they were assumed to be the same as the yields obtained from State forests.

Another problem is the fact that native forest area available for logging has not been published since the Forest and Timber Inquiry which used a reference year of 1990. Total native forest area has only been published by ABARE up to 30 June 1993, and therefore required estimation for the years ending 30 June 1994 and 1995 (with the exception of New South Wales and Tasmania).

Further, there is a problem of what constitutes an 'economic asset', in the context of standing timber. The Forest and Timber Inquiry defined a forest as having over 30% canopy cover. The National Forest Inventory[31] will define two types of forest, that which is sparse, with 20% to 50% canopy cover, and that which is dense, i.e., 50% canopy cover and above. Until such time as the National Forest Inventory data become available, however, the former definition has to be used.

It is also recognised that the approach ignores any income that may be derived from periodic thinning. However, the approach taken was felt to be more accurate than estimating thinnings as there was no suitable way in which the two sets of data could be integrated, given the data shortcomings.

Apart from problems of scope and coverage, valuation difficulties also exist. Future net cash flows from forests will vary depending on the type of operation, such as:

- plantation;
- selective logging; or
- woodchip operations.

The cash flows will also vary depending on the use of the forestry timber, such as:

- roundwood;
- sawwood;
- panels or pulp; and

31 The 'National Forest Inventory' is expected to be published in 1997 by the Australian Bureau of Agricultural and Resource Economics.

- whether the operation is public or private.[32]

In addition, given that the estimates in this publication of the value of Australia's forests are based only on the marketable value of timber from the available forests, the balance sheet estimates understate the total value of the resource. Balance sheets do not include non-economic non-timber values such as bio-diversity, though economic values associated with the forests from tourism and recreational use should be included in the balance sheets, provided property rights may be exercised over the forest areas concerned. However, due to insufficient data sources, reliable estimates of tourism and recreational values (associated with forest use) are currently not possible. Finally, it is anticipated that when the National Forest Inventory data are available, there will be an improvement in the quality of the estimates of the values of the standing timber in Australia's native forests.

USES OF THE BALANCE SHEET

The monetary estimates of natural resources contained in the balance sheet are underpinned by a dataset of physical estimates detailing levels of particular natural resources. Due to the experimental nature of the monetary estimates, it is considered that monetary estimates on natural resources should be considered in conjunction with the physical estimates, especially for subsoil assets which are shown in table 3.10 in chapter 3.

The estimates are of interest for monitoring the availability and exploitation of these resources and for assisting in the formulation of environmental policies. Data on the level and composition of tangible and financial assets and liabilities also are of interest as indicators of the economic resources and claims on a nation and each sector and for assessing the external debtor or creditor position of a country.

Sectoral balance sheets provide information necessary for analysing a number of topics. Examples include: determining household spending behaviour and liquidity; the computation of widely used ratios, such as assets to liabilities, net worth to total liabilities, non-financial to financial assets, debt to income etc. In a period of concern about the level of saving in Australia, national and sector balance sheets provide additional information on the relationship between consumption and saving behaviour.

CONCLUSION

The ABS will continue to develop estimates of the value of Australia's assets for inclusion in national balance sheets as the recommendations of SNA93 are implemented and as additional data become available they will also be included in the balance sheet estimates. Estimation techniques will be honed as research in Australia and abroad explores issues relating to the valuation of natural resources in greater depth. Similarly, improvements in the valuation of produced and financial assets

32 Byron, R. & Douglas, J. *Log Pricing in Australia: Policies, Practices and Consequences*. BFE Press, Canberra, 1981.

and liabilities will be included in the balance sheets as they become available. In addition, under SNA93 the definition of an asset has been extended. Accordingly, estimates of the value of various non-financial produced assets — intangible fixed assets (including mineral exploration) and computer software — will be developed and included in the flow accounts of the system, as well as the balance sheet, when SNA93 is introduced.

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ISSN 1327-3337

Recommended retail price: $23.00