

**Canberra II Group's Recommendations to Treat
Military Weapon Systems as Fixed Assets**
Canberra II Group on Non-Financial Assets
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Executive Summary

The 1993 SNA states that destructive military weapon systems designed for combat, such as warships, fighter aircraft, and tanks, should be treated as intermediate consumption by general government rather than as fixed assets. This treatment is problematic for several reasons:

- It fails to recognise that weapon systems provide a nation with economic benefits by protecting the liberty and property of its citizens.
- It fails to recognise the role of capital in the production of defence services.
- It fails to recognise that existing military equipment has value and can be sold.
- When a government sells or transfers used military equipment, the treatment requires a counter-intuitive accounting entry of negative intermediate consumption.
- The distinction between destructive equipment and non-destructive equipment that can be used for peaceful purposes is difficult to make in practice.
- The treatment of military equipment used by the military is inconsistent with the treatment of the same equipment (for example, armoured vehicles) used by internal police.
- The treatment is inconsistent with the latest international public sector financial accounting standards.
- Many countries now maintain military equipment for long periods and are concerned about scheduling and providing for its replacement.

The Canberra II Group discussed the issue at the Voorburg meeting in April 2003, where there was near unanimous endorsement of the proposal to treat military weapon systems as fixed assets. As a corollary, it is also recommended that expendable military items such as bullets or bombs should be treated as materials and supplies inventories. At the Paris meeting in October 2003, there was overwhelming support to use the criterion of on-going capability to achieve its military objective (including deterrence) over several years to distinguish between military fixed assets and expendable items that should be treated as inventories. The implications of these proposed changes for the accounts are laid out in this document; the most notable implications are that GDP will be raised by the value of consumption of fixed capital on existing military assets and that net saving will be raised by value of net fixed capital formation.

Questions for discussion:

- Does the AEG agree that weapon systems are inputs that are used repeatedly or continuously in the production of defence services?
- Do statistical offices have sufficient information on service lives to calculate consumption of fixed capital?
- Can estimates be developed for countries that are secretive about military expenditures?
- Does the AEG agree that the classification of assets should be modified to separately identify defence equipment?

Background and Main Reasons for Change

1. The provision of defence services is an important function of government, and the treatment of military spending in the national accounts has long been controversial. Paparella and Vu (2003) report that total military expenditure is very significant world-wide in both high and low income countries and accounts for about 2.5 percent of world GDP. While military expenditure includes spending on compensation of employees and other expenses, spending on military equipment can also be quite important in many countries. Military equipment is traded internationally, and for some countries imports of military equipment represent a significant share of their GDP.

2. The 1993 SNA (6.168-170) draws a distinction between two types of durable goods used by the military: those “that are used in much the same way as in any other type of production,” and “destructive military weapons designed for combat.” The former type of durable goods, including “airfields, docks, or other facilities used as bases,” can potentially be used for civilian purposes and are treated as fixed assets. The latter type of durable goods—“rockets, missiles and their warheads” and, by extension, “missile silos, warships, submarines, fighter aircraft and bombers, and tanks” are considered destructive and are not treated as fixed assets.

3. To many users of the national accounts, however, this distinction between destructive and productive assets appears normative and outside the usual purpose and scope of the national accounting system. Similar distinctions are not drawn in other areas of the accounts—for example, both equipment that generates pollution and equipment used for pollution abatement and control are treated as fixed assets in SNA93. Thus the seemingly normative SNA93 distinction between destructive weapon systems and productive military assets appears inconsistent with the concepts that generally guide the rest of the System.

4. Observers have also argued that by not counting military weapon systems as part of gross fixed capital formation, the accounts are rendered less useful. Different accounting rules are used for measuring defence and non-defence output, making the measures of these two types of activity non-comparable. Weapon systems that function as stores of value are not included in fixed capital formation, thereby making measures of saving and wealth less relevant. Measures of capital stock do not provide information on defence equipment that policymakers may need for planning and resource allocation.

5. Many authors have also observed that the treatment recommended by the 1993 SNA leads to several practical problems or apparent inconsistencies: (a) For example, an armoured vehicle used by police for internal security is treated as a fixed asset, even though an identical vehicle purchased by the military would be treated as intermediate consumption. (b) Another problem arises when existing weapons are traded. Edwards, Comisari and Johnson (2002) observed, “Under SNA93, their sale to a non-resident presumably requires the goods export entry to be matched by a reduction in general government intermediate consumption. A payment in the form of reduced intermediate consumption does not reflect real world practice, and lacks intuitive appeal.” (c) The distinction between military equipment that can be used for civilian purposes and the equipment that cannot is difficult to make in practice and may lead to inconsistencies between countries. (d) The 1993 SNA itself (6.167) suggests that production of defensive services (Class 7522) without the input of capital is questionable. Clearly, the contribution of weapon systems to the production of defensive services is highly significant. (e) More generally, many observers argue that destructive military equipment

provides a nation with real economic benefits by protecting its citizens and their property from hostile or aggressive forces or by deterring acts of aggression.

6. When the UN Statistical Commission adopted the proposed procedure for the updating of the 1993 SNA, it recommended that issues for updating be limited to those that reflect changes in the economic environment, developments in economic research, or changes in user needs, and that take into account the feasibility or adequacy of the proposed changes (Csizmadia, 2003). We have identified two changes in the economic environment that may provide justification for updating the SNA's treatment of military equipment: a gradual change over time in the way that weapon systems are used, and a need to harmonise with new standards for public sector accounting.

7. The nature and use of military forces has changed since the two world wars that occurred during the first half of the twentieth century. Although war, sadly, has not been eliminated, during the last five decades most military conflicts have tended to be more limited in scope, and nations have largely been able to avoid the type of enormous destruction that was characteristic of the two world wars. Consequently, the military environment has generally been more stable and national military forces have been able to plan for the use and replacement of weapons over fairly predictable service lives. The recognition by military planners that they need to plan for replacement of ageing, obsolete, or worn out equipment emphasises the similarity between military equipment and other types of fixed assets.

8. The other important change in the environment is the adoption by international public sector accounting boards of new standards that classify specialist military equipment as property, plant, and equipment and thereby require these items to be depreciated over their useful lives. For example, IFAC's IPSAS 17 "Property, Plant and Equipment," paragraph 3, states "This standard applies to property, plant and equipment including: (a) Specialist destructive weapons; and (b) Infrastructure assets." Many countries would like to harmonise their government statistics under GFS, SNA, and financial statements prepared under public sector accounting standards. In a staff issues paper, the International Federation of Accountants (no date, paragraph 24) recommends: "The next step in the evolution of the national accounts should be to recognise that military equipment can provide economic benefits to the economy in the form of defence services, in more than one period. Doing this would result in the national accounts treatment converging with the treatment in general purpose financial reports."

Economic Concepts Regarding Military Activities and Assets

9. A central focus of economics is the study of how scarce resources are allocated to meet human needs and wants. A nation's government may choose to devote resources to military activities to achieve a variety of objectives. For most countries, the defence forces are intended to secure the lives, freedom, and property of its residents against aggressors. Many countries also participate in the international peace-keeping activities that are organized by the Security Council of the United Nations. Some countries find it advantageous to participate in multilateral military agreements, whether through formal treaty organizations or less formal alliances. In addition to securing their own borders, some countries engage in peacekeeping or defence actions in other countries. Finally, it is realistic to observe that some nations pursue less laudable objectives, such as aggression or conquest, through military action. In practice, however, it would not be reasonable for the national

accounts to draw normative distinctions between the various objectives pursued in military activities.

10. The resources that are applied to meet military objectives consist of personnel; nondurable goods such as food; durable goods such as aircraft, ships, tanks, computers, and spare parts; structures such as airfields, barracks, hospitals, and roads; intangible goods such as software; and services such as research and development.

11. The nature of military activity is that it typically achieves its objectives through the actual or threatened use of force. Often military activity is effective through an implicit threat of force—the existence of armed forces defending a country's borders is sufficient to deter possible aggressors. In this respect, military activity is similar to certain other governmental activities, such as police forces and the criminal justice system, which generally are able to enforce observance of laws by providing an implicit threat of apprehension and punishment. Sometimes, however, failure to peacefully negotiate international disputes may lead a country to make explicit threats to use military force or to engage in actual armed conflict. The government, and implicitly the nation, derive or consume military services from this activity in the sense that they are willing to provide resources for the activity in order to achieve its objectives, whether in peacetime or in time of war. Thus, a weapon should not be thought of as being "used" only when it is fired, for its mere presence, along with the existence of troops who are trained and ready to use it, provides on-going national security services to a country.

12. From the point of view of the decision makers—the civilian executives and military commanders who determine the objectives for and use of the nation's military forces—the resources available to achieve their objectives include not only the durable goods, structures, and software that were purchased during the accounting period, but all existing durable goods, structures, and software that remain at the disposal of the armed forces. In producing national security services during the period, the commanders use the services not only of uniformed and civilian personnel, but also of tanks, aircraft, and other weapon systems. Indeed, soldiers and military equipment can be substitutes in the production function—that is, a country may be able to reduce its need to recruit soldiers for military service while continuing to provide the same volume of defence services by increasing its net stock of military equipment. Thus, these types of durable equipment and structures are used continuously in the production of defence services regardless of whether they are specifically designed for combat or also can serve in non-combat or civilian uses. These goods, including the weapon systems, are assets in the sense that they act as stores of value and existing weapon systems are not infrequently sold or transferred from one country to another. Thus, from this point of view, both combat and non-combat equipment should be classified as fixed assets.

13. From the point of view of the military decision makers, other expendable durable goods are appropriately classified as inventories, because they are maintained in storage for future use. Examples of these types of goods are spare parts and bombs.

14. It is certainly true that during times of war, as SNA93 emphasizes, military forces are used to destroy other assets and to kill and injure enemy soldiers and civilians. From the point of view of the military decision makers, however, the objective is to protect one's own assets and to destroy the enemy's. Therefore military weapon systems can be considered to contribute to the production of defence services even during wartime.

15. In summary, the economic model of military activities takes the point of view of the military decision makers in a nation's government, who use scarce resources to achieve a variety of national objectives. Military activities may achieve these objectives during both peacetime and wartime, and the military force's structures, software, and equipment—both the non-combat equipment and the combat weapon systems—provide continuous services in meeting these objectives. The consumption of fixed capital associated with all of these assets would be included in the measure of general government output based on the sum of costs incurred in production.

Recommended Changes and Implications of the Changes

16. The Canberra II Group discussed the issue at the Voorburg meeting in April 2003, where there was near unanimous endorsement of the proposal to treat military weapon systems as fixed assets. The changes that the Canberra II Group recommends to the text of the SNA should be quite straightforward. **In general we are simply recommending that the classification of military weapon systems as fixed assets be based on the same criteria as other fixed assets—that is, produced assets that are themselves used repeatedly, or continuously, in processes of production for more than one year.** The main change would be deleting a number of paragraphs describing the current special treatment of these items: paragraphs 6.168-172, 10.65-68 and 10.138. They could be replaced by a simple paragraph that says that military fixed assets in general meet the criteria of fixed assets because they continuously provide defence services to the nation's residents, protecting their liberty and property, even if the equipment is merely serving as a deterrent to aggressors.

17. In making this recommendation, we also need to emphasise that weapon systems are different in many respects from other types of fixed assets. Although other assets may have some attributes that are harmful or destructive, such as causing pollution, military weapons are uniquely designed to cause destruction to an opponent during war. During wartime weapons, nevertheless, are used to produce defence services. During wartime it may be difficult or impossible to predict the service life of a weapon system. We also must keep in mind that weapon systems would be classified as fixed assets because of their role in economic activities related to provision of defence. It is often noted that gross domestic product is designed as a measure of production, and may include expenditures that might not be appropriate to include in a measure of economic well-being.

18. A distinction needs to be drawn between items that meet the criterion of repeated or continuous use in production, which we recommend should be treated as fixed assets, and items that are essentially designed for use on a single occasion, which we recommend should be treated as materials and supplies inventories. Items such as bullets, bombs, grenades, and torpedoes are designed for a single use, and although durable, cannot generally be thought of as items that are used continuously in production. These items are analogous to coal, which the SNA uses as an example of a good that is durable but not used continuously in production. These items serve as materials and supplies for military forces, not as the equipment that they use on an on-going basis. However, some single-use items, such as ballistic missiles, may provide an on-going service of deterrence against aggressors and therefore meet the general criteria for classification as fixed assets. At the Paris meeting of the Canberra II Group in October 2003, there was overwhelming support to use the criterion of on-going capability to achieve its military objective (including deterrence) over several

years to distinguish between military fixed assets and expendable items that should be treated as inventories. More generally, it is recommended that the borderline between fixed assets and inventories be drawn in a manner consistent with the conventions adopted by public sector accountants, in order to harmonize the national accounts with public sector financial accounts.

19. If weapon systems, which we are recommending should be classified as fixed assets, are destroyed in combat, their destruction should be recorded in the “other changes in volume of assets account,” the same treatment as the SNA already recommends for other fixed assets that are destroyed in war. If the single-use items, which we are recommending should be classified as inventories, are expended, whether in combat or in training exercises, their use should be classified as intermediate consumption by general government, with an offsetting reduction in inventories.

20. We first examine the implications of the proposed treatment for the weapon systems that we recommend should be classified as fixed assets, before turning to the single-use items that we recommend should be treated as inventories. Under SNA93, weapon systems are treated as intermediate consumption by general government. Because non-market general government final consumption expenditure is calculated as the sum of the costs incurred in production, final consumption expenditure (for defence services) is raised by the amount of expenditure on weapons systems, as illustrated in the following example. (We have omitted the financial corporations, households, and non-profit institutions serving households sectors in this example because they are unlikely to be involved in any of these transactions.)

Table 1. SNA93 Treatment of Transactions in Weapon Systems

Uses				Resources					
Rest of the world	Total economy	General government	Non-financial corporations	Transactions and balancing items		Non-financial corporations	General government	Total economy	Rest of the world
1				P.6	<i>External account</i> Exports of goods and services				
				P.7	Imports of goods and services				3
				P.1	<i>Production account</i> Output	9	11	20	
	11	11		P.2	Intermediate consumption				
	11	11		P.3	<i>Use of disposable income account</i> Final consumption expenditure				

21. In this example as shown in Table 1, general government purchases weapon systems equipment valued at 11 currency units (some are produced by non-financial corporations, others are imported). Under SNA93 this purchase is recorded as intermediate consumption, but because non-market government output is calculated as the sum of the costs incurred in production (intermediate consumption, compensation of employees, consumption of fixed capital, and other taxes, less subsidies, on production), the purchase of these items raises

gross output (defence services) by an equal amount. Because defence services are classified as collective consumption, general government final consumption expenditure and actual final consumption expenditure are raised by the same amount.

Table 2. Recommended Treatment of Transactions in Weapon Systems

Uses				Resources					
Rest of the world	Total economy	General government	Non-financial corporations	Transactions and balancing items		Non-financial corporations	General government	Total economy	Rest of the world
1				P.6	<i>External account</i> Exports of goods and services				
				P.7	Imports of goods and services				3
				P.1	<i>Production account</i> Output	9	8	17	
				P.2	Intermediate consumption				
	8	8		K.1	Consumption of fixed capital				
	8	8		P.3	<i>Use of disposable income account</i> Final consumption expenditure				
	11	11		P.51	<i>Capital account</i> Gross fixed capital formation				
	-8	-8		K.1	Consumption of fixed capital				

22. Under the Canberra II Group's recommended treatment, general government's purchase of weapon systems is treated as gross fixed capital formation (see Table 2). The accounts will also record consumption of fixed capital which is charged on the existing stock of military assets, based on GFCF that occurred in earlier periods. In this example, we assume the value of consumption of fixed capital is 8. The contribution of weapon systems to general government gross output and final consumption expenditure comes from consumption of fixed capital rather than from the purchases of military weapon systems.

23. The major implications of the recommended treatment on the major balancing items are that general government value added and GDP would be higher by an amount equal to the consumption of fixed capital on weapon systems (8 in this example). General government net saving would be higher (lower) by the difference between gross fixed capital formation and consumption of fixed capital ($11 - 8 = 3$ in this example).

24. There will be an impact on several accounts (the secondary distribution of income account and the capital account for general government and the total economy, and the corresponding accounts for the rest of the world) that has not been illustrated in the tables. The 1993 SNA currently recommends that grants in cash or kind relating to transfers of weapon systems should not be treated as investment grants (i.e. capital transfers), but rather

as current transfers (10.138). This recommendation would need to change if the weapon systems were treated as fixed assets. Saving and the current account balance would be affected, but net lending/net borrowing would not be.

25. Turning to the case of single-use items (bullets, bombs, etc.), although SNA93 does not specifically exclude these items from inventories, apparently few, if any countries, currently include these items in inventories. Instead, they are treated as intermediate consumption when purchased. The current treatment, which is shown in Table 3, is therefore similar to the treatment previously shown in Table 1; we assume the value of general government purchases of these items is 3.

Table 3. SNA93 Treatment of Transactions in Single-Use Munitions

Uses				Resources					
Rest of the world	Total economy	General government	Non-financial corporations	Transactions and balancing items		Non-financial corporations	General government	Total economy	Rest of the world
0				P.6	<i>External account</i> Exports of goods and services				
				P.7	Imports of goods and services				1
				P.1	<i>Production account</i> Output	2	3	5	
	3	3		P.2	Intermediate consumption				
	3	3		P.3	<i>Use of disposable income account</i> Final consumption expenditure				

26. The recommended treatment, on the other hand, proposes that these items be shown as inventories until they are expended or discarded. Assume the value of items expended for training purposes is 1; then the changes in inventories are +2. The accounting entries are shown in Table 4. Note that the proposed change in treatment does not affect general government value added or GDP. General government final consumption expenditure, however, is lower and net saving is higher than under the current treatment.

27. The timing of government consumption expenditure and net saving could be significantly altered by treating single-use munitions as inventories. For example, a military conflict could lead to substantial use of these munitions. This case is illustrated in Table 5, where again we assume the value of purchases is 3, but the value of munitions expended is 25.

28. Because many users of national accounts data may wish to separately identify defence gross fixed capital formation from other types of gross fixed capital formation, it is recommended that the classification of assets be modified to add a defence equipment category.

Table 4. Recommended Treatment of Transactions in Single-Use Munitions

Uses				Resources					
Rest of the world	Total economy	General government	Non-financial corporations	Transactions and balancing items		Non-financial corporations	General government	Total economy	Rest of the world
0				P.6	<i>External account</i> Exports of goods and services				
				P.7	Imports of goods and services				1
				P.1	<i>Production account</i> Output	2	1	3	
	1	1		P.2	Intermediate consumption				
	1	1		P.3	<i>Use of disposable income account</i> Final consumption expenditure				
	2	2		P.52	<i>Capital account</i> Changes in inventories				

Issues of Implementation, Feasibility

29. This change in treatment would affect other international standards. For example, transfers of military equipment from one country to another would need to be reclassified as capital transfers rather than current transfers, a change that would affect the Balance of Payments Manual. The Government Finance Statistics manual would also clearly need to be changed to reflect this set of recommendations.

30. Regarding feasibility, clearly the change in international public sector financial accounting standards should expedite the adoption of the recommended treatment by countries that are adopting these standards. One country, the United States, has already adopted the treatment of weapon systems recommended in this proposal, which indicates that the recommended approach can be implemented.

31. However, some important obstacles to implementation must also be acknowledged. One is the level of secrecy that surrounds military expenditures in many countries. While all countries operate their military budgets with some degree of secrecy, this issue may be especially problematic for countries with a high level of secrecy. For such countries, it may be necessary to use some rule of thumb to estimate defence equipment gross fixed capital formation. For example, perhaps the GFCF might be estimated as a fixed share of the total defence budget, based on the GFCF shares reported by similar countries that do have information on purchases of defence equipment.

Table 5. Recommended Treatment of Transactions in Single-Use Munitions, Case of a Military Conflict

Uses				Resources					
Rest of the world	Total economy	General government	Non-financial corporations	Transactions and balancing items		Non-financial corporations	General government	Total economy	Rest of the world
0				P.6	<i>External account</i> Exports of goods and services				
				P.7	Imports of goods and services				1
				P.1	<i>Production account</i> Output	2	25	27	
	25	25		P.2	Intermediate consumption				
	25	25		P.3	<i>Use of disposable income account</i> Final consumption expenditure				
	-22	-22		P.52	<i>Capital account</i> Changes in inventories				

32. There may be more serious obstacles to implementation for the change in inventories, because many countries do not yet have source data available on inventories of munitions. Again, recent changes in accounting standards are leading many countries to develop these data, but this recommended change may take some time to accomplish.

Arguments in Favour and Against the Proposed Treatment

Arguments in Favour

33. On conceptual grounds, the proponents of this proposal favour it on the grounds that weapon systems are used continuously in the provision of defence services. If this proposition is accepted, then under the proposed the assets and change in assets of a nation would be more accurately measured. The treatment of military weapons in the accounts would align with the use of these types of equipment by military planners and decision makers, who treat these items as assets that are used in the provision of defence services. The timing of government consumption of munitions would align with their actual use. The national accounts would be more in harmony with the financial statements prepared under public sector accounting guidelines.

34. On practical grounds, the proposed treatment eliminates the necessity of separating destructive weapons from other equipment that does not serve a destructive purpose. This separation can be difficult to maintain, especially under new public sector accounting standards that do not require such a separation. In general, the proposed treatment should improve the harmony and transparency of the accounts for countries that adopt the public accounting standards.

Arguments Against

35. On conceptual grounds, the opponents of the proposal argue that weapon systems should be classified based on their designed use as instruments for destruction. SNA93 gives emphasis to the destructive consequences of the use of weapons in wartime rather than to the function of deterrence during peacetime. If the proposition that weapons are used continuously in production of defence services is not accepted, then the accounts should continue to treat purchases of weapons as current consumption expenditure.

36. On practical grounds, several countries report that the proposal would be difficult to implement, based on the general lack of detailed publicly available information about defence expenditures for these countries. These same countries also report that the current SNA93 treatment of non-destructive assets is difficult to implement. Even countries that have detailed information on major weapon systems may lack information about munitions and parts that would be accounted as inventories under this proposal.

Conclusion

37. The Canberra II Group recommends that the classification of military weapon systems as fixed assets be based on the same criteria as other fixed assets—that is, produced assets that are themselves used repeatedly, or continuously, in processes of production for more than one year. Military weapon systems in general meet the criteria of fixed assets because they continuously provide defence services to the nation’s residents, protecting their liberty and property, even if the equipment is merely serving as a deterrent to aggressors.

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