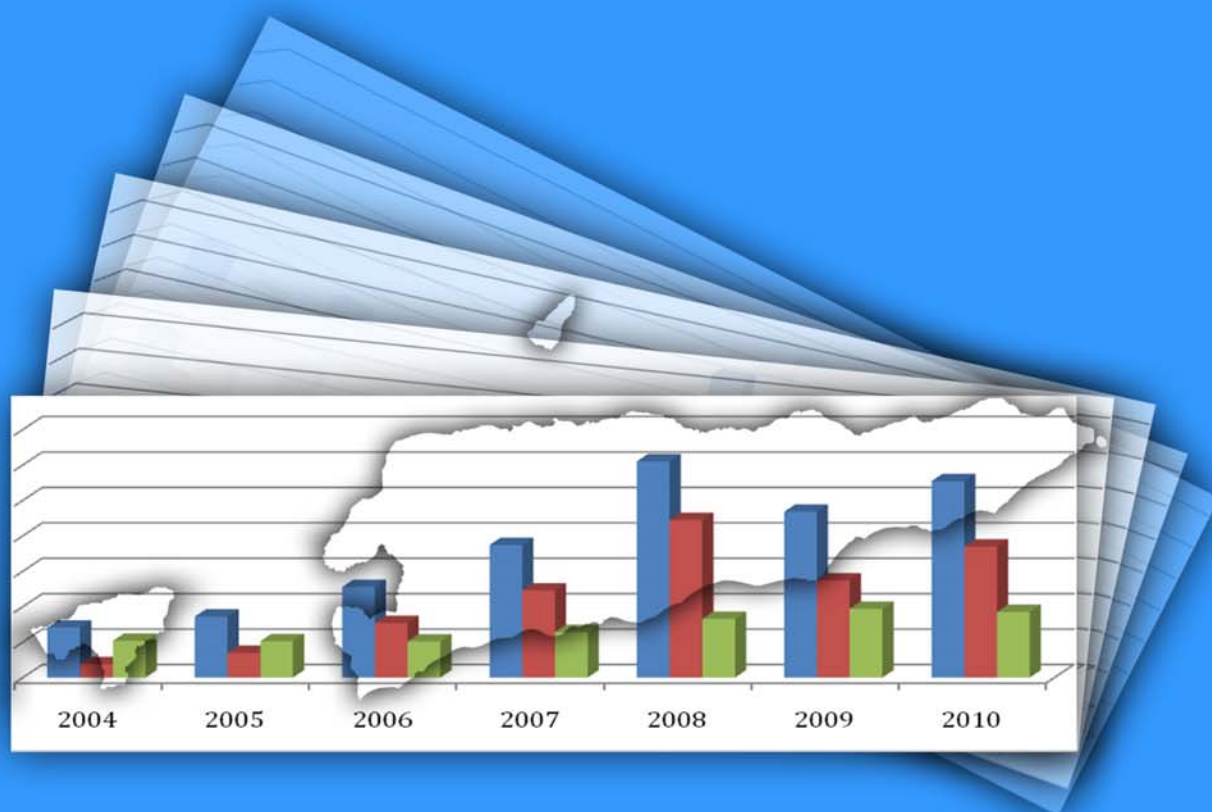


MINISTRY OF FINANCE OF TIMOR-LESTE
General Directorate for Analysis & Research
National Directorate of Statistics

TIMOR-LESTE'S NATIONAL ACCOUNTS **2004-2010**

Volume II

METHODOLOGICAL NOTES **ON CONCEPTS, SOURCES AND METHODS**





MINISTRY OF FINANCE OF TIMOR-LESTE
General Directorate for Analysis & Research
National Directorate of Statistics



TIMOR-LESTE's NATIONAL ACCOUNTS 2004-2010 (TL-NA 2004-2010)

Volume II

**METHODOLOGICAL NOTES
ON CONCEPTS, SOURCES AND METHODS**

April 2012
Dili, Timor-Leste

FOREWORD

This is a companion *Volume II* to the statistical publication Timor-Leste's National Accounts for 2004-2010 (TL-NA 2004-2010) containing *Methodological Notes on Concepts, Sources and Methods* used in compilation of the TL-NA 2004-2010 (the Notes): the second publication since independence by the National Directorate of Statistics (NDS) of national accounts statistics and the first since 2005.¹

The document begins with introductory chapters that describe the fundamental concepts, definitions, classifications, and accounting framework that underlie the Timor-Leste's national accounts (TL-NA) and the general sources and methods that are used to prepare the TL-NA 2004-2010 estimates. It includes separate *Sections* that describe the sources and methods that are used to prepare the expenditure, production and income components of the accounts – the three measures in which Gross Domestic Products (GDP) can be defined. It is then followed by the *Section* on transition from GDP to Gross National Income (GNI), from GNI to Gross National Disposable Income (GNDI), and from GNDI to Gross savings; and the section on Constant Price Estimates describing price and volume measures used in the accounts.

The *Notes* contain detail descriptions of special – for Timor-Leste's national accounts – cases, covering the conceptual approaches adopted for the treatment in TL-NA of economic activity taking place in the Timor-Sea, including the Joint Petroleum Development Area (JPDA), as well as peacekeeping operations in Timor-Leste, including the United Nations Integrated Mission in Timor-Leste (UNMIT) and the International Stabilization Force (ISF), and the extended presence of foreign nationals employed in Timor-Leste by UNMIT, development partners and other entities.

The notes are structured, where appropriate, into three parts, as follows: total economy; the petroleum sector, and all other sectors, excluding the petroleum sector, commonly known as the Oil sector and the Non-oil sector.

Acknowledgements

The national accounts 2004 - 2010 have been produced by the National Directorate of Statistics (NDS) of the General Directorate for Analysis and Research (DGAR) of the Ministry of Finance, with the support of the National Accounts Advisor under the World Bank technical assistance Project on Planning and Financial Management Capacity Building Program (PFMCBP).

¹ The first publication "National Accounts of Timor-Leste 2000-2003" was produced in 2005 with help of Dr. Yahya Jammal and Prof. John Kuiper of the Boston Institute for developing Economies of the USA.

Funded by a grant from the International Development Association and a World Bank administered multi-donor trust fund (with contributions from Australia (AusAID), European Commission (EC), Ireland (Irish Aid), New Zealand and Norway), the PFMCBP is a coordinated program of targeted capacity building in planning and financial management, that also covered macroeconomic research and analysis, and statistics, including national accounts.

The Methodological Notes on Concepts, Sources and Methods have been prepared by Tigran G. Terlemezian, National Accounts Advisor, with inputs and contributions from the staff of the NDS, the DGAR and the Informal Advisory Group (IAG) headed by Senior Management Adviser (SMA) Joao M. Saldanha². It reflects inputs from metadata on petroleum sector accounts by Margaret Fitzgibbon, IMF; editorial comments by Aidan A. O'Hare, DGAR, and Robert Edwards, Independent Consultant.



Antonio Freitas

Director-General for Analysis & Research



Elias dos Santos Ferreira

Director, National Directorate of Statistics

² An informal advisory group was established by the MOF to provide comments and expert opinions following the completion of the experimental estimates in June 2011. The panel of experts, headed by SMA, comprised representatives from the National Directorate of Macroeconomy; Margaret Fitzgibbon, International Monetary Fund (IMF) Statistics Department; Byung Jang, IMF Country Mission Chief; David Hook, the World Bank; Craig Sugden, ADB; Independent Consultant Robert Edwards, and others.

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ABBREVIATIONS AND ACRONYMS

AA	Autonomous Agencies
ABS	Australian Bureau of Statistics
ADB	Asian Development Bank
ANATL	Airport and Air Navigation Administration of Timor-Leste
APORTIL	Port Authority of Timor-Leste
ARCOM	Communication Regulatory Authority (Autoridade Reguladora das Comunicações of Timor-Leste)
SAMES	Autonomous Medical Stores
BOP	Balance of payments
BPM	Balance of Payments and IIP Manual
BPS	Badan Pusat Statistik Republik Indonesia (Statistics Indonesia)
CY	Calendar Year
CG	Central Government
CPC	Central Product Classification
BEC	Classification of Broad Economic Categories
COICOP	Classification of Individual Consumption by Purpose
COPP	Classification of Outlays of Producers by Purpose
COFOG	Classification of the Functions of Government
COPNI	Classification of the Purposes of NPISHs
CPI	Consumer price index
CFC	Consumption of Fixed Capital
CIF	Cost, insurance and freight Interstate
D&TA	Development and Technical Assistance
DGAR	Directorate General of Analysis and Research
DNE	Direcção Nacional de Estatística (National Directorate of Statistics - NDS)
DP	Development Partner
DP&TA	Development Partners and Technical Assistance
EDTL	Electricity of Timor-Leste
EDP	Electronic Data Processing
EEZ	Exclusive economic zone
FDM-TL	Foreign diplomatic missions in Timor-Leste
XPI	Export price index
F&HR	Financial and Human Resources
FISIM	Financial intermediation services indirectly measured
FY	Financial Year
FDI	Foreign direct investment
FOB	Free on board
G&S	Goods and Services
GG	General Government
GFS	Government finance statistics
GFSM	Government Finance Statistics Manual
GCS	Gross Capital Stock
GDP	Gross domestic product

GFCF	Gross fixed capital formation
GNI	Gross national income
GVA	Gross value added
HS	Harmonized Commodity Description and Coding System
MPI	Import price index
IAG	Informal Advisory Group
ICT	Information, communication and telecommunications
IC	Intermediate consumption
ICP	International Comparison Program
IIP	International investment position
ILO	International Labour Organization
IMTS	International Merchandise Trade Statistics
IMF	International Monetary Fund
IO	International Organisation
ISF	International Stabilization Force
ISIC	International Standard Industrial Classification of All Economic Activities
ISWGNA	Inter-Secretariat Working Group on National Accounts
LNG	Liquefied natural gas
LPG	Liquid petroleum gas
M	Imports
MSITS	Manual on Statistics of International Trade in Services
MS	Member States
ND	National Directorate
NCS	Net Capital Stock
NDP	Net domestic product
NDS	National Directorate of Statistics (Direcção Nacional de Estatística - DNE)
NNDI	Net national disposable income
NNI	Net national income
NOE	Non-Observed Economy
NPI	Non-profit institution
NPISH	Non-profit Institutions Serving Households
NR	Non-resident
n.e.c.	Not elsewhere classified
n.i.e.	not included elsewhere
OECD	Organisation for Economic Cooperation and Development
PF	Pension fund
PIM	Perpetual inventory method
PPI	Producer price index
P&HC	Professional and Higher Categories
PPP	Purchasing power parity
R&D	Research and development
SSRC	Salary Scale Rate Changes
SSR	Salary Scale Rates
SFA	Self Funded Agencies

SA	Staff Assessment
SITC	Standard International Trade Classification
STA	Statistics Department (IMF)
SNA	System of National Accounts
TL	Timor-Leste
TL-EEZ	Timor-Leste's exclusive economic zone
TL-HIES	Timor-Leste Household Income and Expenditure Survey
TL-NA	Timor-Leste's National Accounts
TL-SLS	Timor-Leste Survey of Living Standards
TFET	Trust Fund for East Timor (World Bank and ADB)
UNLB	UN Logistics Base at Brindisi, Italy
UN	United Nations
UNESCAP	United Nations Economic and Social for Asia and the Pacific
UNMIT	United Nations Integrated Mission in Timor-Leste
X	Exports
WRS	Wage Rate Scales
WEO	World Economic Outlook

1 CONCEPTUAL FRAMEWORK

1. The United Nations System of National Accounts (SNA) is the internationally agreed standard set of concepts, definitions, classifications and accounting rules for compiling measures of economic activity, such as gross domestic product (GDP) – the measure of the total domestic economic activity, that is the most frequently quoted indicator of economic performance (2008 SNA, 1.1).

1.1 International Standards and Classifications

2. The statistical framework used for TL-NA 2004-2010 is the *System of National Accounts, 2008 (2008 SNA)*³ produced and released under the auspices of the United Nations (UN), the European Commission (EC), the Organisation for Economic Co-operation and Development (OECD), the International Monetary Fund (IMF) and the World Bank Group (WBG). It was unanimously adopted by the fortieth session of the UN Statistical Commission as the international statistical standard for national accounts statistics.

3. Also the estimates have been compiled in accordance with the other most up-to-date international standards with respect to the definitions, accounting rules and classifications for compiling national and international accounts, including Sixth edition of the Balance of Payments and International Investment Position Manual (BPM6), IMF and other.

4. The classifications used in TL-NA 2004-2010 are harmonized with 2008-SNA, BPM6, where appropriate, for example for services, primary incomes, or current transfers, and other international classifications, including:

- ✓ Classification of Individual Consumption According to Purpose (COICOP);
- ✓ International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4;
- ✓ The Harmonized Commodity Description and Coding System (HS), 2002;
- ✓ *Standard International Trade Classification (SITC)*, Rev.3;
- ✓ Classification of Broad Economic Categories (BEC);
- ✓ Basic Classes of Goods in the SNA;
- ✓ Other.

³ Available online at: <http://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf>

1.2 Product Balances

5. *At the heart of the SNA is the production of goods and services. These may be used for consumption in the period to which the accounts relate or may be accumulated for use in a later period (2008 SNA, 1.6). The amount of a product available for use within the economy must have been supplied either by domestic production or by imports. The same amount of the product entering an economy in an accounting period must be used for intermediate consumption, final consumption, capital formation (including changes in inventories) or exports. Expressed arithmetically, this gives us a statement of a product balance as follows (2008 SNA, 14.4):*

$$\text{Domestic output} + \text{imports} = \text{intermediate consumption} + \text{final consumption} + \text{capital formation} + \text{exports}$$

1.3 The GDP Identities

6. The identity of the sum of all product balances may be rearranged, modified slightly and thus become the goods and services account, which reads (2008 SNA, 14.10):

$$\begin{array}{l|l} \text{Output} & \text{Final consumption} \\ - \text{Intermediate consumption} & + \text{Capital formation} \\ + \text{Taxes less subsidies on products} & + \text{Exports} - \text{imports.} \end{array} =$$

7. The left-hand and the right sides of the identity are both equivalent to GDP at market prices. This leads to the two most well known definitions of GDP, *the production measure of GDP* and the *expenditure measure of GDP*, where (2008 SNA, 1.6, 16.47):

- a. *The production measure of GDP in simple terms is the amount of value added generated by production. It is derived as the value of output less intermediate consumption plus any taxes less subsidies on products not already included in the value of output;*
- b. *The expenditure measure of GDP is derived as the sum of expenditure on final consumption plus gross capital formation plus exports less imports.*

8. The main measure used for compilation of **Timor-Leste's National Accounts for 2004-2010** is the **expenditure approach** (GDP-E) where the GDP is measured as the sum of expenditure components as described in paragraph 7.

9. The production approach to GDP compilation was the main approach used for compiling the National Accounts of Timor-Leste 2000-2003. The estimates of GDP from the production side for 2010 are based on the results of the first ever Timor-Leste's Business Activity Survey (BAS) that was conducted in respect of 2010 under a technical assistance project co-financed by the Ministry of Finance and the Asian Development Bank (ADB). As regards the estimates for 2004-2009, the BAS component is derived as a residual from the GDP expenditure measure as described in paragraphs 173-178.

1.4 Residence

10. The principles for economic territory and residence are harmonized across macroeconomic statistical guidelines, including the 2008 SNA and the Balance of Payments and International Investment Position Manual, Sixth Edition, known as BPM6. *"An institutional unit is said to be resident within the economic territory of a country when it maintains a centre of predominant economic interest in that territory, that is, when it engages, or intends to engage, in economic activities or transactions on a significant scale either indefinitely or over a long period of time, usually interpreted as one year."* (2008 SNA, 1.48).

11. The concept of "residence" is critically important in compiling national accounts, for a country. The concept of residence needs to be applied in Timor-Leste in regard to the Joint Petroleum Development Area (JPDA), peacekeeping operations in Timor-Leste, as well as the high level of co-operation with development partners: bilateral, multilateral and other United Nations organizations. The following paragraphs describe how the concept of residence has been applied to the circumstances prevailing in Timor-Leste.

1.4.1 Petroleum Sector

1.4.1.1 Overview

12. Timor-Leste's petroleum sector consists of:

- a) The JPDA regulated by the Timor Sea Treaty ratified in March 2003, and
- b) The near-shore activities within the boundaries of the economic territory of Timor-Leste.

The development of the JPDA – the Bayu-Undan oil and gas field - has proceeded and liquids production began in April 2004. The bidding for the licensing of near-shore oil exploration was launched in February 2006.⁴

13. The accounts of the SNA are compiled for **resident institutional units** grouped into institutional sectors and subsectors (2008 SNA, 1.48), where *the underlying rationale behind the concept of GDP for the economy as a whole is that it should measure the total gross value added from all institutional units resident in the economy.*" (2008 SNA, 6.82). The petroleum production by resident units is a part of the GDP of Timor-Leste. As such, the residency of the companies engaged in exploration and production of petroleum, either in JPDA or the near-shore, is of great importance.

14. The SNA also says that the *"Extraction of subsoil resources can only be undertaken by resident institutional units. An enterprise that will undertake extraction is deemed to*

⁴ East Asia Update - Timor-Leste Overview, The World Bank, available online at <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/EXTAPHALFYEARLYUPDATE/0,,contentMDK:20864996~menuPK:550232~pagePK:64168445~piPK:64168309~theSitePK:550226~isCURL:Y,00.html>

become resident when the requisite licences or leases are issued, if not before" (2008 SNA, 4.15.e). The petroleum extracting companies licensed by Timor-Leste's authorities and operating in the near-shore - Timor-Leste's exclusive economic zone (TL-EEZ) - are treated as residents of the economy of Timor-Leste and thus their production is attributed to the GDP of Timor-Leste.

1.4.1.2 JPDA

15. Consistent with the conceptual framework adopted by the NDS in the TL-NA 2000-2003 in which the JPDA is treated as being part of the economic territory of both Australia and Timor-Leste, the allocation of the economic activity taking place in the JPDA between Timor-Leste and Australia is based on the proportions of the distribution of the revenues (royalties and fees) between two countries. This is in line with the 2008 SNA recommendation that "*where different governments jointly and equally set the rate of a tax and jointly and equally decide on the distribution of the proceeds, with no individual government having ultimate overriding authority, then the tax revenues are attributed to each government according to its respective share of the proceeds*" (2008 SNA, 3.72)⁵. In practice, this means that 90 percent of the production in the JPDA is regarded as being undertaken by entities that are resident in Timor-Leste.

16. *As mentioned above, GDP covers value added produced by all resident institutional units, in their capacities as producers* (2008 SNA, 7.21). Accordingly the Timor-Leste's National Accounts for 2004-2010 cover the whole economy including the petroleum sector. However the main focus of the publication is on the non-petroleum sector of the economy, and accordingly a petroleum-sector exclusive GDP, commonly named also as non-oil GDP, has been compiled.

1.4.2 Institutional Residence

17. Foreign embassies and consulates, military bases, aid agencies, international organizations' representative offices with diplomatic immunity, etc are treated as nonresidents. This includes the *United Nations Integrated Mission in Timor-Leste (UNMIT)* and the *International Stabilization Force (ISF)* as described in Section 3.3 below.

18. The International Cooperation under the Development Partners (DP) projects was reclassified based on institutional sector and the residence of the implementing agency, as follows:

- a) DP-GOV: for projects with government ministries and agencies as implementation units;

⁵ See also the relevant paper by the Australian Bureau of Statistics (ABS) on "Statistical Treatment of Economic Activity in The Timor Sea" dated 24/01/2003 with 50-50 approach. Available online at:

<http://www.abs.gov.au/Ausstats/abs@.nsf/0/D2B3766DE85BB120CA256DF100006921?Open>

- b) DP-NPIs: for projects with nonprofit institutions (NPIs) as implementation units;
 - c) DP-NRIs: for projects where the implementing agencies were identified as nonresident institutions (NRIs).
19. The *development partners* include foreign governments - *bilateral cooperation*; and the international organizations - *multilateral cooperation*, and *UN agencies* presented separately.
20. Treatment of institutional units as nonresidents in respect to the compiling economy means that all their transactions with resident institutional units in Timor-Leste (including government) are treated as transactions between residents and nonresidents, and the transactions with the rest of the world as transactions between nonresidents with no records in the national accounts or the balance of payments.
21. Non-Government Organizations (NGOs) registered and/or operating in Timor-Leste are classified as NPISHs and treated as residents of Timor-Leste.

1.4.3 Peacekeeping Operations in Timor-Leste

22. In accordance with the [2008 SNA](#) the UNMIT and the ISF are treated as nonresidents as regards to Timor-Leste:
23. *"For purposes of the SNA, international organizations are treated as units that are resident in the rest of the world (2008 SNA, 4.175)."*
24. *"International organizations are resident in an economic territory of their own and **not** of the economy in which they are physically located. An international organization that operates military forces or acts as the interim administration in a territory remains an international organization and is nonresident in that territory, even if it undertakes general government functions there. (2008 SNA, 26.44)"*
25. However, the 2008 SNA also says that *"In cases where these organizations are significant, it may be desirable to identify them separately (2008 SNA, 26.44)"*.
26. Accordingly, for the first time, the full set of accounts on the activities of UNMIT and ISF were produced and reflected in the publication, including their impact, both direct and indirect, on GDP and the gross national income (GNI). Presenting data this way will enable users to assess the impact on the economy of Timor-Leste of the departure of UNMIT in 2012.

1.4.4 Residence of Households

27. *A household is resident in the economic territory in which household members maintain or intend to maintain a dwelling or succession of dwellings treated and used by members of the household as their principal dwelling. Being present for one year or more in a territory or intending to do so is sufficient to qualify as having a principal dwelling*

there." (2008 SNA, 26.37). All Timorese households covered by 2007 TL-SLS were considered and treated as residents of Timor-Leste. It was also conventionally adopted that 2007 TL-SLS covered only Timorese households. Thus foreign nationals, including expatriates and visitors, were treated outside the scope of 2007 TL-SLS (see the following section for details).

28. Timorese students studying overseas on a full-time basis and patients abroad for the purpose of medical treatment were treated as residents of Timor-Leste, even though the duration of study or (rarely) the medical treatments may exceed a year, with a conventional assumption for students, that they do not develop an intention to stay in the country of study after the completion of their education (2008 SNA, 26.38).

1.4.5 Treatment of the International Staff in Timor-Leste

29. *The concept of residence in the SNA is exactly the same as in BPM6*, in which *"the residence of individual persons is determined by that of the household of which they form part and not by their place of work. All members of the same household have the same residence as the household itself, even though they may cross borders to work or otherwise spend periods of time abroad.* However it is also added that if *they work and reside abroad so long that they acquire a centre of predominant economic interest abroad, they cease to be members of their original households*, where generally, *the criterion would be based on their country of residence for one year* (2008 SNA, 4.15.a; 4.154; 19.10) ⁶.

30. Following the 2008 SNA recommendation, as outlined above, the following treatments have been adopted:

- (a) civilian international staff in Timor-Leste employed by the Government of Timor-Leste, UNMIT and UN Agencies, other international organizations, bilateral and other multilateral development partners, NRIs, businesses, and others are treated as residents if they are on "long-term assignments" and have their abode in Timor-Leste for one year or more;
- (b) they are treated as nonresidents if they are foreigners on short-term assignments, including peripatetic missions, and staying in the country for less than one year.
- (c) foreign military and police personnel in Timor-Leste, together with their families are treated as nonresidents;
- (d) foreign nationals on the staff of foreign diplomatic missions in Timor-Leste who enjoy immunity and diplomatic privileges, such as diplomatic personnel and defense personnel, together with their families, (2008 SNA, 19.11) are treated as nonresidents.

⁶ The *Sixth Edition of the IMF's Balance of Payments and International Investment Position Manual*, International Monetary Fund, Statistics Department, January 2010, available online at: <http://www.imf.org/external/pubs/ft/bop/2007/bopman6.htm>.

(e) other short-term foreign visitors, such as holidaymakers are treated as nonresidents.

31. The table below describes the conventional treatments applied in this publication to international staff in terms of their employer / staff (personnel) category:

Residents		Nonresidents	
Employer / Category	Percent	Employer / Category	Percent
Government of Timor-Leste			
1. International Appointments	50%	1. International Appointments	50%
United Nations Integrated Mission in Timor-Leste (UNMIT)			
2. International Staff	100%	2. Military contingent;	100%
3. Military Observers	100%		
4. United Nations police also known as UN Civilian Police ⁷ .	100%	3. Formed Police Units (FPU) comprised of Malaysian, Bangladeshi, Portuguese (GNR ⁸), and Pakistani contingents.	100%
5. UN Volunteers (UNVs)	100%		
6. Civilian advisers	100%		
International Stabilization Force (ISF)			
		4. Military personnel of the ISF (Australia and New Zealand)	100%
Development partners' projects			
7. Government	50%	5. Government	50%
8. NGOs/NPISHs	50%	6. NGOs/NPISHs	50%
9. Nonresident institutions	50%	7. Nonresident institutions	50%
Foreign diplomatic missions in Timor-Leste (FDM-TL)			
		8. Foreign nationals on the staff of FDM-TL who enjoy immunity and diplomatic privileges, such as diplomatic personnel and defense personnel, together with their families (2008 SNA, 19.11)	100%
Businesses and households			
		9. Short-term foreign visitors: holidaymakers, family visits.	100%
10. Employment of foreigners for a period of one year or more;	100%	10. Seasonal & border workers, & other foreign employees staying in TL for less than a year.	100%

⁷ Top five contributing countries: Malaysia, Portugal - GNR & PSP (Polícia de Segurança Pública), Bangladesh, Pakistan and Philippines: <http://unmit.unmissions.org/Default.aspx?tabid=178>

⁸ Portuguese Republican National Guard (*Guarda Nacional Republicana, GNR*) - gendarmerie of Portugal. Members of the GNR are soldiers, who are subject to military law and organisation.

1.4.6 Treatment of Nonresident Institutions in Timor-Leste

32. In the GDP-E the total expenditures of UNMIT and the ISF are treated as purchases by the Government of Timor-Leste of the services of these institutions (consumption in kind of these services) and recorded under the Final Consumption Expenditure of the General Government sector, therefore increasing it. This is then offset by subsequently recording it as imports of goods and services (government services), so that the direct impact of these institutions on GDP is estimated to be zero. However their expenditures on purchase of goods and services in Timor-Leste constitute exports of goods and services by resident entities and thus increase the GDP-E. The same principles applied to the treatment of the development partners where the implementing agencies were identified as nonresident institutions.

33. In the GDP-P the total expenditures of UNMIT, the ISF and the DP-NRIs are treated as non-market output of nonresident institutions and thus are not reflected in the production account. Meanwhile the expenditures of these institutions on purchase of goods and services in Timor-Leste are covered (included) in the market output and the value added of the resident institutions producing these goods and services. Thus, this increases GDP and so has the same impact on GDP-P as it does on GDP-E.

1.4.7 Other Transactions with Nonresidents

34. The primary incomes payable to and receivable from nonresident units are taken into account in calculating the gross national income (GNI). Included here are:

- a) The wages and salaries paid by nonresident institutions to the residents of Timor-Leste (both the national staff and resident expatriates), and by resident institutions (including the government and the NRIs) to the nonresidents treated respectively as *compensation of employees* receivable from or payable to nonresidents.
- b) And the *property income receivable from abroad* and *payable to nonresidents*, including the net income from the JPDA.

35. The wages and salaries paid by nonresident institutions to nonresidents (see above) are not recorded in the accounts of the SNA.

36. The final consumption expenditure of the UNMIT, the ISF, the DP projects and the current transfers received from JPDA are treated as *current international cooperation* receivable from nonresidents and recorded as current transfers, in cash or in kind - under the gross national disposable income (GNDI).

37. The difference between the *compensation of employees* receivable by resident expatriates from abroad and the estimate for their final consumption expenditure (both in Timor-Leste and abroad) is recorded as current transfers /worker remittances / payable to nonresidents.

2 GDP EXPENDITURE APPROACH

2.1 Overview

38. The GDP calculated from the expenditure side (GDP-E) measures total “expenditure on final consumption plus gross capital formation plus exports less imports” (2008 SNA, 16.47):

$$\text{GDP-E} = \text{Final consumption expenditure (FCE)} + \text{Gross capital formation (GCF)} + \text{Exports} - \text{Imports}.$$

Where: ➤ the *FCE* includes FCE by *Households (HHs)*, the *Government (G)*; and *non-profit institutions serving households (NPISH)*:

➤ The *gross capital formation* includes expenditure on fixed and intangible assets or *gross fixed capital formation (GFCF)*, *changes in inventories* and *acquisitions less disposals of valuables (Valuables)*;

39. The table below sets out the structure and components of GDP by the expenditure approach, which is described in Table 18.3 in **2008 SNA**, levels 1 & 2 (page 402):

GDP: expenditure approach	
Final consumption expenditure	
Household final consumption expenditure	
<i>Possibly include summary detail by product or COICOP</i>	
Final consumption expenditure of NPISHs	
Government final consumption expenditure	
Individual consumption expenditure	
Collective consumption expenditure	
<i>of which Actual individual consumption expenditure</i>	
Gross capital formation	
Gross fixed capital formation, total	
<i>Possibly include summary detail according to the asset classification of capital formation</i>	
Changes in inventories	
Acquisitions less disposals of valuables	
External balance of goods and services	
Exports of goods and services	
Exports of goods	
Exports of services	
Imports of goods and services	
Imports of goods	
Imports of services	
Statistical discrepancy	
Gross domestic product	

40. Below is the expenditure measure of the petroleum sector excluded GDP of Timor-Leste based on the data for 2010 (M\$)ⁱ:

			Total Economy	Oil Sector	Non-oil Sectors	Excl. UNMIT, ISF	
						Total	Non-oil
Household FCE		+	578.2	-	578.2	578.2	578.2
FCE of NPISHs		+	30.5	-	30.5	30.5	30.5
FCE of General Government		+	964.9	-	964.9	610.5	610.5
Final consumption expenditure (FCE)	+	=	1,573.6	-	1,573.6	1,219.2	1,219.2
Gross fixed capital formation		+	578.8	175.4	403.4	578.8	403.4
Changes in inventories		+	2.0	-	2.0	2.0	2.0
Acquisitions less disposals of valuables		+	0.1	-	0.1	0.1	0.1
Gross capital formation	+	=	580.9	175.4	405.5	580.9	405.5
Exports of goods		+	3,870.5	3,842.5	28.0	3,870.5	28.0
Exports of services		+	69.5	-	69.5	69.5	69.5
Exports of goods and services	+	=	3,940.1	3,842.5	97.5	3,940.1	97.5
Imports of goods		+	904.8	587.2	317.7	904.8	317.7
Imports of services		+	1,058.7	175.4	883.2	704.3	528.8
Imports of goods and services	+	=	1,963.5	762.6	1,200.9	1,609.1	846.5
Plus Statistical Discrepancy	+		(0.6)	-	(0.6)	(0.6)	(0.6)
Gross Domestic Product (GDP)	=		4,130.5	3,255.3	875.1	4,130.5	875.1

2.2 Household Final Consumption Expenditure

2.2.1 Households

41. The household is "*the basic residential unit in which economic production, consumption, inheritance, child rearing, and shelter are organized and carried out*". It "*may or may not be synonymous with family*"⁹. For national accounting purposes, "*a household is a group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food*" (2008 SNA. 4.4 & 9.113).

2.2.2 National Accounts Concept - SNA

42. The "national accounts concept" of household final consumption expenditure has been used in compiling Timor-Leste's GDP-E for 2004-2010, meaning that household final consumption expenditure (FCE) has been estimated as the sum of the expenditure of resident households - Timorese and resident expatriates in Timor-Leste, plus the expenditure of resident households abroad (*import of services to Timor-Leste / Travel*), and **excluding** expenditure by nonresident households in the country (*export of services from Timor-Leste / Travel*). This is consistent with the 2008 SNA: "*Household final consumption expenditure consists of the expenditure, including expenditure whose value must be estimated indirectly, incurred by resident households on individual consumption goods and services, including those sold at prices that are not economically significant and including consumption goods and services acquired abroad.*" (9.94; 9.45).

43. Again, using the 2010 data as the example (\$M)ⁱⁱ:

⁹ Haviland, W.A. (2003). *Anthropology*. Wadsworth: Belmont, CA

		2010	
Household final consumption expenditure (HH-FCE)			
Timorese households / 2007 TL-SLS		+	518.3
Resident expatriates		+	38.6
Resident HH-FCE in Timor-Leste:	+	=	556.9
Personal travel overseas, excluding expats		+	8.2
Personal travel overseas by resident expats		+	13.1
Resident HH-FCE abroad:	+	=	21.3
HH-FCE - National Accounts Concept:		=	578.2

2.2.2.1 Resident Households, excluding Expatriates

44. The *Timor-Leste Survey of Living Standards 2007 (2007 TL-SLS)* was used as the benchmark source for the estimation of the Final Consumption Expenditure of Timorese households that were covered by the survey in combination with a variety of other data sources including population and demographic statistics, including 2010 and 2004 censuses of population and housing, 2009-10 Demographic Health Survey (2009-10 DHS) and others; government finance statistics presented in the draft publication on *Timor-Leste's Government Expenditure and Public Sector Accounts for 2004-2010*; and other source data.

2.2.2.2 Imported vs. Domestic

45. For the purpose of extrapolating 2007 TL-SLS results forwards to 2008-2009 and backwards to 2004-2006, the final consumption expenditure of households in the year 2007 (paragraph 58-61) were further broken down according to the origin of the final consumption goods and services – imported versus domestically produced, as follows (M\$ unless otherwise indicated):

2007 TL-SLS Household (HH) Consumption <i>by COICOP Divisions and Groups</i>	2007 FCE - \$M		of which:			
	Total	of which of local origin	Purchase and gifts			Self- Pro duced
			Total	of which:		
				Imported	Local	
A	1=2+6	2=5+6	3	4=3-5	5=3-4	6
01. Food & beverages	222.4	167.9	145.9	54.6	91.3	76.5
01.1 Food	214.8	161.7	139.7	53.3	86.4	75.1
01.1.1 Bread & cereals	75.5	38.9	51.6	36.6	15.1	23.8
01.2 Beverages	7.6	6.2	6.2	1.3	4.9	1.3
02. Alcohol & tobacco	15.8	5.2	14.3	10.1	3.7	1.5
03. Clothing & footwear	9.3	7.0	9.3	2.3	7.0	-
04. Housing & utilities	90.9	83.0	90.9	8.0	83.0	-
05. Furnishings	13.8	6.0	13.8	7.8	6.0	-
06. Health	1.3	0.8	1.3	0.5	0.8	-
07. Transport & vehicle fuels	8.2	2.2	8.2	6.0	2.2	-
08. Communication	3.0	1.9	3.0	1.1	1.9	-
09. Recreation & culture	3.2	0.6	3.2	2.6	0.6	-
10. Education	3.9	3.9	3.9	-	3.9	-

2007 TL-SLS Household (HH) Consumption <i>by COICOP Divisions and Groups</i>	2007 FCE - \$M		of which:			
	Total	of which of local origin	Purchase and gifts			Self- Pro duced
			Total	of which:		
				Imported	Local	
11. Restaurants & hotels	0.3	0.3	0.3	-	0.3	0.1
12. Miscellaneous G&S	26.4	24.4	26.4	2.0	24.4	-
TOTAL by COICOP	398.6	303.3	320.5	95.0	225.0	78.1
<i>in percent to total</i>	<i>100</i>	<i>76</i>	<i>80</i>	<i>24</i>	<i>56</i>	<i>20</i>

46. The data on final consumption expenditure of food products of domestic origin (including consumption of own produced food), comprising in 2007 about 53 percent of the total of goods and services produced domestically, are direct imputations from the framework on Agricultural Sector Accounts for 2000-2010, covering crops, livestock, fishery and forestry.

47. The 2007 data on household final consumption expenditure on other goods and services of domestic origin (except food), and imported goods were extrapolated backwards to 2004-2006 and forwards to 2008-2010 using suitable quantity indicators, as described below in paragraphs 274-278. The current price estimates have then been derived by applying relevant CPI indices.

2.2.2.3 FCE abroad by Timor-Leste's Resident Households

48. The estimates of total expenditure abroad by Timor-Leste's resident households cover spending outside Timor-Leste by Timorese households and students on full-time study overseas, resident expatriates and medical travellers, both by Timorese and resident expatriates.

49. The expenditure abroad by government employees is included in government final consumption expenditure on goods and services: overseas travel and, partially, training and workshops. Accordingly they are excluded from household FCE to avoid duplication.

50. Foreign expenditures of resident households, including that of government employees, are then offset with the relevant entries under the imports of goods and services / travel services, equating their direct impact on GDP to zero.

2.2.3 Domestic Concept of HH-FCE

51. The publication also contains an estimate of the so called "domestic concept" of household final consumption expenditure (FCE), which includes FCE made in Timor-Leste by resident households and total expenditure in the country by nonresidents, but excludes resident household final consumption expenditure abroad. Total expenditure in Timor-Leste by nonresidents covers spending in the country by nonresident international staff, military and police personnel of the UNMIT and the ISF (see above section 3.5), and by the travellers to Timor-Leste, both for business and holidaymakers.

2.2.4 Classification of Individual Consumption

2.2.4.1 COICOP

52. Household final consumption expenditure is a large aggregate covering a wide range of goods and services. It is thus the SNA recommends breaking it down using the *Central product Classification (CPC)* for a breakdown by type of good or service or the *Classification of Individual Consumption by Purpose (COICOP)* for a breakdown by purpose or function, such as food, health and education services (2008 SNA, 9.71).

53. Household final consumption expenditures are classified according to the classification of individual consumption by purpose (COICOP) at *level 3– classes (four digits)*, and, where available and appropriate also at the imputed level 4 (six digits). However, the presentation in the publication is mostly at the most aggregated *level 1* of COICOP-*Divisions*, where the household expenditure is classified into twelve main categories, such as food and beverages, alcohol and tobacco, clothing and footwear, housing and utilities, furnishings, health, transport, communication, recreation and culture, education, restaurants and hotels, miscellaneous goods and services. Furthermore, where appropriate, expenditure is further broken-down into *level 2 - groups (food, for example)*, level 3 (*bread and cereals*), and level 4 (*imported rice*). See the table below using 2010 data (\$M):

National Concept		Total	2007 TL-SLS Coverage	Expatriates
1. Food and non-alcoholic beverages	+	275.6	271.1	4.45
2. Alcoholic beverages & tobacco	+	20.8	18.0	2.8
3. Clothing and footwear	+	13.6	13.4	0.2
4. Housing & utilities	+	148.9	131.6	17.3
4.1. Actual and Imputed rentals		109.9	93.4	16.5
4.3. Maintenance and repair by tenants		2.3	2.0	0.3
4.5. Electricity, gas, fuel & other		32.3	31.7	0.6
04.5.3. Liquid fuels		7.6	7.0	0.6
5. Furnishings & routine maintenance	+	17.2	16.7	0.5
6. Health	+	1.8	1.75	0.05
7. Transport	+	18.2	17.2	1.0
8. Communication	+	12.8	11.3	1.5
9. Recreation and culture (R&C)	+	25.0	11.9	13.1
9.6 Expenditure Abroad		21.3	8.2	13.1
10. Education	+	4.8	4.75	0.05
11. Restaurants and hotels	+	9.4	0.6	8.9
11.1. Restaurants, cafés and the like		9.4	0.5	8.9
11.2. Hotels and Accommodations		0.1	0.1	-
12. Miscellaneous goods and services	+	34.6	32.7	1.9
Resident Households FCE in TL & abroad	=	578.2	526.5	51.7

2.2.4.2 Owner-occupied Dwellings

54. *"Persons who own the dwellings in which they live are treated as owning unincorporated enterprises that produce housing services that are consumed by the household to which the owner belongs. The housing services produced are deemed to be equal in value to the rentals that would be paid on the market for accommodation of the same size, quality and type. The imputed values of the housing services are recorded as final consumption expenditures of the owners"* (2008 SNA, 9.65).

55. Expenditures on the decoration, minor repairs and maintenance are treated as final consumption expenditures, if incurred by tenants, and as intermediate consumption expenditure if incur by owners, including owner-occupiers as further detailed below (2008 SNA, 9.66-9.67):

Expenditures	That would normally be seen as the responsibility of a:	
	tenant	landlord
	should be treated as:	
Purchases of materials	Final consumption expenditure	Intermediate expenditure incurred in the production of housing services.
Fees and service charges paid to builders, carpenters, plumbers, etc		
Decoration, minor repairs and maintenance of the dwelling		
"Do-it-yourself" activities of decoration and undertaking minor repairs, often of a routine nature.	Falling outside the production boundary	Falling outside the production boundary *)
*) No cost of the labour involved in the activity is included. The only value added for the imputed rental of owner-occupied housing is operating surplus.		

56. The estimates are based on 2007 TL-SLS differentiated for urban and rural areas, and further extended forwards to 2008-10 and backwards to 2004-06 using respective growth rates for urban and rural population in individual or family owned households as volume indicators, and the CPI index on *Actual rentals paid by tenants* as a price deflator.

2.2.4.3 Monetary Policy Services

57. In accordance with 2008 SNA recommendations, the estimates on non-market output of the Central Bank of Timor-Leste (CBTL) on Monetary Policy Services were recorded as final consumption expenditure by general government the Goods and Services. The notion is that the government purchases this non-market output of the CBTL, and that the cost of the purchase is covered by the imputed record of a current transfer payable by the central bank and receivable by the general government (2008 SNA, 6.155).

2.2.5 Data Sources Used

2.2.5.1 2007 TL-SLS

58. The *Timor-Leste Survey of Living Standards 2007 (2007 TL-SLS)* was used as the benchmark source for the estimation of the Final Consumption Expenditure of Timorese

households that were covered by the survey in combination with a variety of other data sources including:

- a) population and demographic statistics, including the 2010 and 2004 censuses of population and housing, the 2009-10 Demographic Health Survey (2009-10 DHS) and others;
- b) government finance statistics presented in the draft publication on Timor-Leste's Government Expenditure and Public Sector Accounts for 2004-2010; and
- c) other source data.

59. The table below present the summary data of 2007-TLS at COICOP Structure Level 1: Divisions / two-digits, with further illustrative breakdown of some groups at structure levels: 2 / three-digits, and 3 / four digits (M\$):

2007 TL-SLS Household (HH) Consumption by COICOP Divisions and Groups	2007 FCE - Total	of which:		
		Purchase	Self- Production	Received as Gift
A	1=2+3+4	2	3	4
01. Food & beverages	222.4	135.3	76.5	10.6
01.1 Food	214.8	129.1	75.1	10.6
01.1.1 Bread & cereals	75.5	49.9	23.8	1.7
01.2 Beverages	7.6	6.1	1.3	0.1
02. Alcohol & tobacco	15.8	13.7	1.5	0.7
03. Clothing & footwear	9.3	9.3	-	-
04. Housing, utilities, & other fuels	90.9	90.9	-	-
05. Furnishings & house maintenance	13.8	13.8	-	-
06. Health	1.3	1.3	-	-
07. Transport & vehicle fuels	8.2	8.2	-	-
08. Communication	3.0	3.0	-	-
09. Recreation & culture	3.2	3.2	-	-
10. Education	3.9	3.9	-	-
11. Restaurants & hotels	0.3	0.2	-	-
12. Miscellaneous G&S	26.4	26.4	-	-
TOTAL by COICOP, excl. durables	398.5	309.2	78.0	11.3
<i>of which durables</i>	10.8	10.8		
Total, excl. durables and valuables	387.7	298.4	78.0	11.3

60. External trade statistics, on imports in particular, have then been used to extrapolate the 2007 data on private consumption of imported goods backwards to 2004-2006 and forwards to 2008-2010, or for direct estimates – where and as appropriate.

61. Similarly the following sources were used for extrapolating the 2007 data on private consumption of locally produced goods backwards and forwards, or for direct estimates – where and as appropriate:

- a) Timor-Leste's Economic Accounts for Agriculture, covering crops, livestock, fishery and forestry, that were compiled within the framework of this project using the source data on agricultural production derived from the Ministry of Agriculture and Fishery, the Food and Agricultural Organization (FAO) and the 2007 TL-SLS;
- b) administrative records, such as data on vehicle registration by the Ministry of Infrastructure, and the number of passengers arriving at and departing from Dili airport (source: Immigration Department, Timor-Leste National Police), and others;¹⁰
- c) business statistics on production and consumption of electricity, telecommunication services, and others.

2.2.5.2 Resident Expatriates

62. This component covers final consumption expenditure in Timor-Leste by resident expatriates including *International Staff, Military observers, Civilian police and United Nations Volunteers (UNVs)* of the UNMIT, and the expatriates on long-term assignments (one year and more) under projects with the development partners.

63. FCE of resident expatriates in Timor-Leste are data-model based estimates, which employ a variety of sources including UNMIT human and financial resources data derived from the Budget and Financial Performance reports of UNMIT, and relevant reports by the MOF's Aid Effectiveness Directorate on Development Partners' spending.¹¹

2.2.5.3 FCE Abroad

64. FCE of resident households abroad is derived from the data model on travel abroad that employs a number of sources including 2007 TL-SLS, the data on the number of passengers arriving at, and departing from, Dili airport, the Hotels Survey, inputs from other related data-models, and other sources.

2.2.5.4 Nonresident Expatriates

65. As mentioned in paragraph 51 this component is relevant to the *domestic concept* and covers final consumption expenditure in Timor-Leste of nonresident households, including *military contingent* (2004-05) and formed police units of the UNMIT, military staff and advisors of the ISF, and expatriates on short-term assignments (less than a year) employed under projects with the development partners. These estimates are derived from the same data model as used for estimation of the FCE of resident expatriates, described in paragraphs 62-63. The additional data sources used include

¹⁰ *Quarterly Statistical Indicators and 2010 and 2009 Timor-Leste in Figures* published by the National Directorate of Statistics and available online at: <http://dne.mof.gov.tl/>.

¹¹ Published and available online of the website of the Ministry at: <http://www.mof.gov.tl/aid-effectiveness/development-partners-spending/?lang=en>.

the annual reports of the relevant ministries of defense that are published and available online on their respective websites.

2.3 Government Final Consumption Expenditure

2.3.1 The Government Sector

66. The consolidated – all inclusive - government final consumption expenditure (FCE) is calculated as the sum of the FCE of the General Government of Timor-Leste (GG), plus recurrent expenditure under the projects with Development Partners (DP) implemented by the government ministries and agencies (DP-GOV), plus purchase of services of DP projects implemented by nonresident institutions (DP-NR), plus purchase of services of UNMIT and ISF (see the table below with 2010 data as the example, \$M):

			2010
<i>Central Government</i>		+	361.4
<i>Autonomous Agencies (AA)</i>		+	19.9
General Government FC expenditure	+	=	381.3
<i>DP-GOV</i>		+	52.8
<i>DP-NRIS</i>		+	176.4
DP (on-budget, excluding NRIs)	+	=	229.2
Purchase of services of UNMIT	+		209.7
Purchase of services of ISF	+		144.7
Consolidated Government FCE	=		964.9
<i>of which excluding UNMIT and ISF</i>			610.5
<i>excluding UNMIT, ISF and DP-NRIS</i>			434.1

67. The expenditure of the General Government (GG) includes also the expenditure of Autonomous Agencies (AAs) that are not classified as *public trading corporations* or *quasi-corporations* as referred in 2008 SNA, and instead treated in the same way as governmental departments and sectorized under the GG. This is relevant for AAs where the unit charges prices for its outputs that are not considered to be economically significant.

68. As mentioned above, UNMIT and the ISF are treated as nonresidents and their expenditures are treated as a purchase (consumption in kind) by the Government of Timor-Leste of the services of these institutions. Consequently, these expenditures are then offset by the subsequent record of the same expenditure as imports of goods and services. The same applies to the DP projects implemented by nonresident institutions (DP-NRIS).

69. In accordance with SNA recommendations, the government final consumption expenditure is estimated as the sum of recurrent expenditure (compensation of employees and expenditure on goods and services) less receipts from sales of goods and services, plus imputed charges for the consumption of fixed capital (non-market output), as illustrated in the table below using the 2010 data as the example (\$M):

			CG *)	Of which GG
Compensation of employees	+		114.6	93.2
<i>Purchases of G&S</i>		+	459.2	251.3
<i>Less Sales of G&S</i>		-	26.4	26.4
Net goods & services(G&S)	+	=	432.8	224.9
Consumption of fixed capital	+		63.2	63.2
TOTAL	=		610.5	381.3
*) Consolidated Government, excluding UNMIT & ISF				

2.3.2 Compensation of Employees

70. *Compensation of employees is defined as the total remuneration, in cash or in kind, payable by an enterprise to an employee in return for work done by the latter during the accounting period (2008 SNA, 7.5). Compensation of employees of Timor-Leste's general government represents expenditure on salaries and wages, which is made up as a sum of salaries, overtime remuneration and allowances, including expenditures by the central government, autonomous agencies and DP-GOV; and excluding wages and salaries paid by the DP-NR and UNMIT (paragraph 71).*

2.3.2.1 Compensation of Employees by Nonresidents

71. Expenditures on compensation of employees by development partners' projects implemented by nonresident institutions (DP-NR) and by the UNMIT are included in the government goods and services provided by these intuitions to the government of Timor-Leste (paragraph 82-83).

2.3.3 Goods and Services

72. *Net goods and services are derived as the sum of government expenditure on goods and services minus user fees and charges treated as receipts from sales of goods and services (rice sales receipts, business registration fees, water fees, national university fees, vehicle registration fees, vehicle inspection fees, drivers license fees, other transport fees, id and passport fees, visa fees, hospital and medical fees, radio and television fees, bid document receipts, and auctions receipts).*

73. In accordance with the 2008 SNA recommendations (6.155) the estimates on non-market output of the Central Bank of Timor-Leste (CBTL) on Monetary Policy Services were produced and included in the Final Consumption Expenditure by the General Government under the Goods and Services. The notion is that the government purchases this non-market output of the CBTL, and that the cost of the purchase is covered by the imputed record of a current transfer payable by the central bank and receivable by the general government.

74. Also, as mentioned in section 3.6, the expenditures of UNMIT, the ISF and the Development Partners - where the implementing agencies were identified as nonresident institutions (DP-NRIS), are treated as purchases by the Government of

Timor-Leste of the services of these institutions (consumption in kind of these services) and accordingly imputed under government expenditure on *goods and services*.

However, these expenditures are then offset by subsequently recording them under the imports of goods and services (government services), equating the direct impact of these expenditures on GDP to zero.

2.3.4 Consumption of Fixed Capital

75. *Consumption of fixed capital is the decline, during the course of the accounting period, in the current value of the stock of fixed assets owned and used by a producer as a result of physical deterioration, normal obsolescence or normal accidental damage. (2008 SNA, 6.240).*

76. The “method of building up estimates of the capital stock and changes in the capital stock over time is known as the perpetual inventory method, or PIM (2008 SNA, 6.251)”. A data model was constructed and used to estimate the consumption of fixed capital (CFC) for the general government (GG). For the first time, the estimates of the CFC, as well as the gross and net capital stock of fixed assets of the GG sector, were produced. These estimates are broken down by the type of assets as shown in the table below using 2010 data for the central government (\$M)ⁱⁱⁱ:

				Gross Stock	CFC accumulated:		Net Stock
					Before 2009	In 2010	
A				1	2	3	4=1-2-3
Buildings		+	440.0	169.1	7.0	263.8	
Other structures		+	1190.4	409.4	31.6	749.5	
Buildings and structures	+	=	1630.4	578.5	38.6	1013.3	
Transport equipment		+	106.4	10.6	11.3	84.5	
ICT equipment		+	11.7	1.4	2.0	8.3	
Other machinery & equipment		+	166.4	7.8	9.6	149.0	
Machinery and equipment	+	=	284.5	19.8	22.8	241.8	
Fixed Assets	=		1914.9	598.3	61.5	1255.1	

77. The service life indicators used in the Models are the ones recommended by some researchers as the “best international practice”¹² as follows (subject to future updates):

Asset	Service Live, years
<i>Buildings</i>	60
<i>Other Construction</i>	35
<i>External Transport</i>	8

Asset	Service Live, years
<i>Machinery</i>	15
<i>Computers</i>	5
<i>Other Assets</i>	10

¹² “Perpetual Inventory Service lives: Discard patterns and Depreciation methods” by Gerhard Meinen, Piet Verbiest and Peter-Paul de Wolf, July 1998, Statistics Netherlands.

78. The historical data on the value of the government controlled fixed assets are derived from the Asset Management Directorate of the MOF – report on the *Physical and Intangible Assets of the State of Timor-Leste as at 30th, June 2005*¹³ adjusted, where appropriate, for reconciliation and balancing purposes.

2.3.5 Development Partners

79. Development Partners' Spending in Timor-Leste passing through the consolidated budget were classified into the project's implementing agency. As such, the projects funded by development partners (DP) were broken-down into three main categories as follows: DP-GOV – projects implemented by government units; DP-NPIs - projects implemented by NGOs; and DP-NRIs - projects implemented by nonresident institutions.

80. The expenditures under the DP-GOV projects are treated in the same way as general government expenditure, and thus reflected under the relevant components of *salary and wages (compensation of employees)* and *goods and services*.

81. The expenditures under the projects implemented by NPIs - DP-NPIs - are recorded as final consumption expenditure and Gross Fixed Capital Formation (as relevant) of *Non-profit institutions serving households (NPISHs)*. Accordingly a notional transfer of funds is recorded from Government of Timor-Leste to NPISHs.

82. The expenditures under the projects implemented by nonresident institutions - DP-NRIs are treated as purchase by the general government of the services of these institutions (consumption in kind of these services) and accordingly are imputed under government expenditure as purchase of *goods and services*.

2.3.6 UNMIT and ISF

83. The same treatment applies to the UNMIT and ISF. However, these expenditures are then offset by subsequently recording them under the imports of goods and services (government services), equating the direct impact of these expenditures on GDP to zero.

2.3.7 Data Sources Used

84. The source data on general government revenues and expenditures are all derived from budget and spending documents, including Treasury reports on budget execution, the budget books, and the annual financial reports, which are published and freely available on the Ministry of Finance (MOF) website at <http://www.mof.gov.tl/budget-spending/budget-treasury-documents/?lang=en>.

85. Similarly, the data on Development Partners for 2008-2010 are derived from the development partners' spending reports - published and freely available online on the

¹³ The Physical and Intangible Assets of the State of Timor-Leste as at 30th, June 2005, MOF: http://www.mof.gov.tl/en/sf/DAM/assetmgmt/Asset_Report_as_at_30_June_2005.pdf

MOF website at <http://www.mof.gov.tl/aid-effectiveness/development-partners-spending/?lang=en>.

86. UNMIT and the ISF human and financial resources data are derived respectively from UNMIT's Budget and Financial Performance reports, and from the annual reports of relevant foreign ministries of defense.

2.3.7.1 Calendar Year versus Fiscal year

87. Since January 1st 2008, Timor-Leste's budget cycle has been synchronized with the calendar year. Accordingly, the budget and spending documents since then have been on a calendar year basis. In preceding years they were on a fiscal year basis with the last two covering a period from July 1 2006 to June 30 2007, and the transition period from 1 July 2007 to 31 December 2007. The calendar year estimates from 2007 and back are made up as a simple arithmetic mean of the two fiscal year data.

2.3.7.2 Cash Disbursements during the Year

88. The estimates of general government expenditure, both on final consumption and the *gross fixed capital formation* represent *cash disbursements during the year (January 1 – December 31)* derived as the sum of the *execution rates against original budget appropriations* for the reference year, as presented in the Treasury reports on budget execution, plus the payments against the previous year's budget that were made in the reference year, and minus the payments against the reference year's budget that were made after December 31.

2.4 Final Consumption Expenditure incurred by NPISHs

89. As distinguished in the SNA the *non-profit institutions serving households (NPISHs)* sector is one of five mutually exclusive resident institutional sectors distinguished in the SNA that together make up the total economy. It represents the *“legal entities that are principally engaged in the production of non-market services for households or the community at large and whose main resources are voluntary contributions.”* (2008 SNA, 2.17).

90. The NPISHs include non-profit service providers (hospitals, schools and other education institutions, social service providers), arts and culture organizations (museums, ensembles, etc); sports clubs, advocacy groups, foundations, community-based groups, political parties, social clubs, unions, business and professional associations, religious congregations. However there are requirements for inclusion as NPISHs as follows (2008 SNA, 23.17):

- a. they exist as identifiable institutions;
- b. they are institutionally separate from government / not supported by obligatory taxes;
- c. they do not distribute profits;

- d. they are self-governing units that are not subject to control from other units; and
- e. membership of the unit is neither obligatory nor automatic but involves some degree of voluntary participation.

91. In this publication the *NPISHs* represent the *development partners' funded* projects where the resident NGOs were identified as their implementing agency (see paragraph 18). Subsequently, the recurrent expenditures under such projects (DP-NPIs) are recorded as final consumption expenditure of *non-profit institutions serving households (NPISHs)*. Meanwhile a notional transfer of funds is recorded from the Government of Timor-Leste to NPISHs to offset the relevant current transfers recorded as government receivables.

92. As mentioned above, the data on *Development Partners* are derived from the relevant reports published by the MOF's Aid Effectiveness Directorate.

2.5 Gross Fixed Capital Formation

93. *Gross fixed capital formation (GFCF) is measured by the total value of a producer's acquisitions, less disposals, of fixed assets during the accounting period plus certain specified expenditure on services that adds to the value of non-produced assets*, where the fixed assets *consist of goods and services that are used in production for more than one year*. Excluded are (1) consumer durables and (b) small tools, which are treated as final consumption expenditure on a conceptual and pragmatic basis respectively. (2008 SNA 10.32-35).

94. The *Gross fixed capital formation* is derived as the sum of the GFCF of the *Private Sector - private corporations* and *Households* (owner occupied dwellings and *GFCF in livestock*), *NPISHs*, *public corporations* (non-financial and financial), and the *General Government*, including *Development Partners*, as presented in the table below with the examples of figures for 2010 (\$M):

				Total Econ.	Sectors:	
					Oil	Non-Oil
Private Corporations		+		269.7	175.4	94.2
Owner occupied dwellings			+	22.5		22.5
Productive livestock ¹⁴			+	0.3		0.3
Households		+	=	22.8		22.8
NPISHs	+			3.5		3.5
Private Sector	+	=		296.0	175.4	120.5
Public Corporations	+			1.5		1.5
General Government		+		210.8		210.8

¹⁴ Animal resources yielding repeat products include breeding stocks, dairy cattle, draft animals, sheep or other animals used for wool production and animals used for transportation, racing or entertainment (2008 SNA, 10.92).

				Total Econ.	Sectors:	
					Oil	Non-Oil
DP on Budget		+		70.6		70.6
Consolidated Government	+	=		281.4		281.4
Public Sector	+			282.8		282.8
GFCF by Sectors and Subsectors	=			578.8	175.4	403.4

2.5.1 Private Sector

2.5.1.1 Private Corporations

95. The 2010 estimates on GFCF of *Private Corporations* are based the *2010 Business Activity Survey (2010 BAS)* data on the *output of construction industry* and the *own account capital work*, and the statistics on imports of capital goods, such as the vehicles and transport equipment. The 2010 estimates have then been extrapolated backwards to 2004-2009 using the relevant volume indicators and price deflators, including volume indicators of imports of cement for *buildings and structures*, and the imports of capital goods for the *machinery and equipment* and *other fixed assets*.

2.5.1.2 Households

96. GFCF in owner occupied dwellings represents the own account construction by households, where the background estimates for 2007 of M\$2.6 are derived from 2007 TL-SLS (*Expenses on renovation of destroyed house*¹⁵). The estimates have then been further adjusted to reflect the costs of production, where the imputed surplus - estimated labour costs - corresponds explicitly to gross mixed income (2008 SNA, 7.30): an estimate of another M\$2.6 (1:1 ratio) is added for unpaid expenses on *intermediate consumption* (IC) goods, and of M\$5.2 for labour inputs provided for free (2:1 VA to IC ratio).

97. The estimates for 2007 are then extrapolated forwards to 2008-2010 and backwards to 2004-2006 using, as a volume indicator, the growth rate in the number of *Private / Individual or family owned* households in *urban* areas derived from 2010 and 2004 censuses of population.

98. GFCF in livestock represents changes in the population of livestock that are treated as fixed assets, namely adult dairy animals, animals raised for their wool or breeding or as draft animals (used for work) that are more than one year old (i.e. when they become economically active)¹⁶. The estimates are derived from *Timor-Leste's Livestock Sector Accounts for 2000-2010*, where the benchmark livestock positions are the data on the number of livestock for 2010 and 2004 derived from the respective censuses of population – for 2010 and 2004.

¹⁵ 2007 TL-SLS, Section 2: Housing, Part C: Ownership and Expenditures

¹⁶ A system of economic accounts for food and agriculture (SEAFA), FAO, paragraph 5.32.

2.5.1.3 NPISHs

99. The GFCF of NPISHs represents expenditure on *minor capital* and *capital and development* under the development *partners' (DPs) funded* projects where the resident NPIs were identified as the implementing agency (DP-NPIs). The data on *DPs' spending* were derived from the relevant reports published by the Aid Effectiveness Directorate of the MOF.

2.5.2 Public sector

2.5.2.1 Public Non-Financial Corporations

100. *Unincorporated enterprises owned by government units that are engaged in market production and that are operated in a similar way to publicly owned corporations are quasi-corporations* and are recognized in the SNA as quasi-corporations and sub-sectored as *public corporations* (2008 SNA, 4.43). Accordingly in the presentations of State Budget Reports the "*public sector [of] Timor-Leste is made up of categories: General Government, Public non-financial corporations, and Public Financial Corporations. The General Budget of the State covers the financing of activities on a Whole of Government basis which includes General Government and Public Non Financial Corporations.*"¹⁷, namely *Autonomous Agencies (AAs)*.

101. However, in this publication not all of the government *establishments engaged in the same kind of production under common management* or self-funded AAs are treated as quasi-corporations and sub-sectored under the *public non-financial corporations*, but only those which meet the following three criteria (2008 SNA, 4.121):

- a. *the unit charges prices for its outputs that are economically significant;*
- b. *the unit is operated and managed in a similar way to a corporation; and*
- c. *the unit has a complete set of accounts that enable its operating surpluses, savings, assets and liabilities to be separately identified and measured."*

102. The self-funded agencies left, that is those ones that were not classified as quasi-corporations, were grouped as **Autonomous Agencies** and treated in the same way as governmental departments and sub-sectored under the *General Government*, outside the *Central Government*.

2.5.2.2 Public Financial Corporations

103. *Public Financial Corporations* are represented by the *Central Bank of Timor-Leste (CBTL)*. The source data are derived from the relevant *financial statements* contained in the fiscal year *Annual Reports* that are available online on the CBTL's website under *publications* at: <http://www.bancocentral.tl/en/publications.asp>. The fiscal year data have then been converted into calendar year estimates as a simple arithmetic mean of two fiscal years' data: the previous and following years.

¹⁷ General Budget of the State and State Plan for 2009 - Revised, Annex 13 Reader Guide, MOF: http://www.mof.gov.tl/wp-content/uploads/2010/07/BP1_18_February_2009_No_Link_en.pdf

2.5.2.3 General Government

104. The GFCF of the *General Government* (GG) is derived as the sum of the expenditure of *general government*, including *development partners* (DPs) on *Minor Capital* and *Capital and Development* as presented in the table below using the example of figures for 2010 (\$M):

		Cons. Gov.	GG	CG	AAs	DPs
<i>Minor capital</i>	+	53.1	32.0	21.6	10.4	21.1
<i>Capital and development</i>	+	228.2	178.7	159.7	19.0	49.5
General Government GFCF	=	281.4	210.8	181.3	29.5	70.6

105. The data on expenditure on *Minor capital* and *Capital and development* are derived as follows: for the GG, from the Budget Execution reports; and for the DPs, from the relevant reports published by the Aid Effectiveness Directorate of the MOF. Adjustments were then made to move from fiscal year data to calendar year estimates (where necessary) and from *execution rates against original budget appropriations* to *Cash disbursements during the year (January 1 – December 31)* - as explained in Section 4.3.6.

106. *Public Nonfinancial Corporations* represent the retention (self-funded) *Autonomous Agencies* that are classified accordingly, and those left are classified as *Autonomous Agencies* and treated in the same way as governmental departments and sector under the General Government (hereinafter AAs).

2.5.3 GFCF by Type of Assets

107. Gross fixed capital formation are also classified by type of asset using 2008 SNA classification of fixed assets (Table 10. 2), as presented below using 2010 data as an example (M\$):

Code		Total Econ.	Sectors:	
			Oil	Non-Oil
AN11	<i>Gross fixed capital formation by type of asset</i>	578.8	175.4	403.4
AN111	<i>Dwellings</i>	42.1		42.1
AN112	<i>Other buildings and structures</i>	237.1		237.1
AN1121	<i>Buildings other than dwellings</i>	50.0		50.0
AN1122	<i>Other structures</i>	187.1		187.1
AN113	<i>Machinery and equipment</i>	117.0		117.0
AN1131	<i>Transport equipment</i>	45.5		45.5
AN1132	<i>ICT equipment</i>	24.9		24.9
AN1139	<i>Other machinery and equipment</i>	46.5		46.5
AN115	<i>Cultivated biological resources</i>	0.2		0.2
AN1151	<i>Animals yielding repeat products</i>	0.2		0.2
AN117	<i>Intellectual property products</i>	175.4	175.4	-

Code		Total Econ.	Sectors:	
			Oil	Non-Oil
AN1172	Mineral exploration and evaluation	175.4	175.4	-
n.i.e.	Other fixed assets	7.0		7.0

108. The following conventional correspondences were adopted to breakdown government expenditure on *minor capital* and *capital and development* by type of fixed assets (2008 SNA, Table 10.2: The capital account - the classification of fixed assets):

Government Expenditure Item		Type of Asset
Minor capital	⇒	Machinery and equipment, and Other Fixed Assets
Purchase of Vehicles	⇒	Transport equipment
EDP Equipment	⇒	ICT equipment
Security Equipment	⇒	Other machinery and equipment
Communication Equipment	⇒	Other machinery and equipment
Other miscellaneous equipment	⇒	Other machinery and equipment
Furniture & Fittings	⇒	Other fixed assets
Office equipment	⇒	Other machinery and equipment
Generators	⇒	Other machinery and equipment
Water Equipment	⇒	Other machinery and equipment
Other n.i.e.	⇒	Other fixed assets
Capital and development	⇒	Dwellings, and Other buildings and structures
Acquisition of buildings	⇒	Buildings other than dwellings
Infrastructure Assets	⇒	Other structures
Injection of Capital	⇒	No entries in GFCF
Major Capital Equipment	⇒	Other machinery and equipment

109. For the *Private sector*, a more complex approach was used on each industry, employing data on GFCF collected from the 2010 BAS, data on the composition of the imports of capital goods, including machinery and equipment and the major elements, data on vehicle registration by type and sectors, and other available sources.

2.5.3.1 Mineral Exploration and Evaluation

110. *Mineral exploration and evaluation consists of the value of expenditures on exploration for petroleum and natural gas and for non-petroleum deposits and subsequent evaluation of the discoveries made. Whether successful or not, they are needed to acquire new reserves and so are all classified as gross fixed capital formation (2008 SNA, 6.231, 10.106).*

2.6 Changes in Inventories

111. Due to the lack of source data the *changes in inventories* component covers only the *livestock sector*, where the livestock that are treated as inventories include (SEAFA, 5.32):

- a) work-in-progress: all the young stock of animals that are being reared for their future use, either as fixed assets or for slaughter, and
- b) inventories in finished products (ready for slaughter), excluding animals that are treated as fixed assets, and recording under the GFCF (the change in the numbers).

112. The estimates are derived from *Timor-Leste's Livestock Sector Accounts for 2000-2010*, where the benchmark livestock positions are the data on the number of livestock for 2010 and 2004 derived from the respective censuses of population – for 2010 and 2004.

2.7 *Acquisitions less Disposals of Valuables*

113. The *Acquisitions less disposals of valuables* only covers the *Households* sector. The data for 2007 are derived from the Timor-Leste Survey of Living Standards (2007 TL-SLS), reflecting households' expenditure on *Jewellery*. The 2007 estimates have then been extrapolated forwards to 2008-2010 and backwards to 2004-2006 using the growth rate of population as a volume indicator adjusted upwards to reflect increasing incomes, including wages and salaries in the public sector.

2.8 *Exports of Goods and Services*

114. *Exports of goods and services consist of sales, barter, or gifts or grants, of goods and services from residents to nonresidents, while imports consist of purchases, barter, or receipts of gifts or grants, of goods and services by residents from nonresidents. The treatment of exports and imports in the SNA is generally identical with that in the balance of payments accounts* (1993 SNA, 14.88), highlighting the links and the necessity of agreement between, the GDP from expenditure approach and the balance of payments statements.

2.8.1 *Exports of Goods*

115. Exports of goods, as with imports, are recorded in the SNA at border values: free-on-board (FOB, that is, at the exporter's customs frontier).

116. The exports covered in this publication include *Exports of goods in trade statistics*, adjusted for valuation plus *Goods procured in ports by carriers* included in the estimates of non-oil GDP, plus exports of crude oil and gas counted in its petroleum inclusive GDP as presented in the table below using 2010 data as the example (M\$):

			2010
<i>Exports of goods in trade statistics</i> -adjusted		+	27.7
<i>Goods procured in ports by carriers</i>		+	0.3
Exports of goods – on-oil GDP	+	=	28.0
Crude oil and gas	+	+	3842.5
Exports of goods - total	=		3870.5

2.8.1.1 Exports of Crude Oil and Gas

117. The volume and value estimates for petroleum output equals exports are described in paragraphs 171-172.

2.8.1.2 Exports of Goods in Trade Statistics

118. The *exports of goods in trade statistics* is derived from Customs, and includes values and volumes. The major component of exports from Timor-Leste is coffee, comprising 94-97 percent of total exports, excluding re-exports. The values of coffee exports for 2006-10 were adjusted to reflect trends in world prices of coffee, based on coffee exports volumes derived from Customs Statistics, and the world price index on coffee from the World Economic Outlook published by the International Monetary Fund (IMF). The latter - the World Price Index for 2010 - was then adjusted downward to reflect the negative impact of the heavy wet season in 2010 on the quality of the dried coffee:

No		Note	2005	2006	2007	2008	2009	2010
1.	Adjusted estimate							
1.1	Value, \$M	1.1=1.2*1.3	7.6	10.3	12.0	19.9	13.7	27.1
1.2	Volume, 000' ton	Customs	7.2	8.9	8.9	12.79	9.9	19.2
1.3	Unit price, \$/kg	See below	1.06	1.16	1.35	1.56	1.37	1.41
2.	Trade Statistics							
2.1	Value, \$M	Customs	7.6	8.7	8.3	12.6	8.3	16.0
2.2	Volume, 000' ton	Customs	7.2	8.9	8.9	12.7	9.9	25.7
2.3	Unit price, \$/kg	2.3=2.1/2.2	1.06	0.97	0.94	0.99	0.83	0.62
3.	3. WEO Price Index	2005=100	100	112	129	150	132	143
4.	4. Losses in drying	Assumption	1.4%	1.4%	1.4%	1.4%	1.4%	7.1%

119. The adjusted price of coffee for 2006 and onward is estimated as follows: (Coffee price in 2005 x WEO Index for the year "N" / 100) x (1 - Rate of losses in drying process for the year "N") = Adjusted Price for the year "N", or, with example of numbers for 2010: (1.06 x 143.4 / 100) x (100 - 7.1) = 1.41

2.8.1.3 Goods Procured in Ports by Carriers

120. Exports *goods procured in ports by carriers* cover fuels (bunkering), provisions, stores, ballast, and dunnage and other goods procured by nonresident transport operators in ports from resident providers (BPM6, 10.17.d). Data for 2006-2010 are estimates from the Balance of Payments compiled by the Central Bank of Timor-Leste (CBTL) - June 28, 2011 release, and 2004 and 2005 data are estimates based on 2006 data extended backwards.

2.8.2 Exports of Services

121. Exports of services cover services rendered by residents of Timor-Leste to nonresidents. They are broken down into four major groups in agreement with the standard components of services outlined in the SNA and BPM6 (2008 SNA, 26.56), and

further detailed - where and as available and appropriate - in accordance with the balance of payments *Standard Components (BPM6, Appendix 9)*. as follows (with examples of numbers for 2010, \$M):

			2010
<i>Other transport / other services</i>		+	0.8
c. Transport;	+	=	0.8
<i>Business travel</i>		+	15.0
<i>Personal travel: tourism and other</i>		+	10.6
d. Travel;	+	=	25.6
i. Telecommunications, computer & information services	+		5.9
l. Government goods and services n.i.e.	+		37.2
Total Export of Services	=		69.5

2.8.2.1 Transport

122. *Other services of other transport* represents air transport navigation fees and landing charges, and terminal fees, parking charges, and receipts for ground maintenance collected from nonresident carriers. The data are imputed from the *balance of payments* compiled by the CBTL - June 28, 2011 release, so that data for 2010 are preliminary. 2004 and 2005 data are estimates based on 2006 data extended backwards.

2.8.2.2 Travel

123. *Travel* is a *transactor-based item* relating to the *acquirer or provider*, rather than the *product itself*. Accordingly it covers *all goods or services acquired by nonresidents during visits* whether for own use or to give away, including *goods, local transport, accommodation, meals and other services* (2008 SNA, 26.57). A traveler is considered to be an individual who stays for less than one year in the country and thus does not become a resident. It includes both *business* and *personal* travel.

124. *Business travel* covers data-model based estimates for the provision of services by Timorese residents to nonresidents; including expatriates on short-term assignments (less than a year) employed under projects with the development partners. Meanwhile the expenditures on goods and services in Timor-Leste by the *military* and uniformed police personnel of the UNMIT and the ISF stationed in government enclaves and having diplomatic immunity¹⁸ are excluded from the *business travel* and *included in the government goods and services n.i.e.* (BPM6, 10.86, 10.178). The data model used for the *business travel component* is the same as used to estimate final consumption expenditure of resident expatriates, which is described in paragraphs 62-64.

¹⁸ Under the Status of Force Agreements (SOFA) for overseas military and police operating in Timor Leste, members of the International Stabilisation Force receive diplomatic immunity under the Vienna Convention of 1961.

125. *Personal travel* covers goods and services acquired in the country by persons visiting Timor-Leste for purposes other than business, such as vacations, participation in recreational and cultural activities, visits with friends and relatives, pilgrimage, and others (BPM6, 10.94). It represents data-model based estimates, which employ a variety of sources including data on the number of passengers arriving at, and departing from, Dili International Airport, the Hotels Survey and others.¹⁹

126. As suggested by the BPM6 (10.87, 10.95) a separate supplementary breakdown of travel to product group is available for the estimates of final consumption expenditure in Timor-Leste as follows - with the example of numbers for 2010 (\$M):

		Travel Total	Of which:	
			Business	Personal
(a) goods,	+	1.7	0.7	1.0
(b) local transport services,	+	1.4	0.7	0.7
(c) accommodation services,	+	14.0	9.7	4.3
(d) food-serving services, and	+	6.9	3.5	3.4
(e) other services.	+	1.6	0.4	1.2
Travel – total	=	25.6	15.0	10.6

2.8.2.3 Telecommunications

127. This component covers the receipts by Timorese enterprises from nonresidents for the provision of *telecommunications, computer & information services*. The data are imputed from the *balance of payments* compiled by the CBTL - June 28, 2011 release, so that data for 2010 are preliminary. 2004 and 2005 data are estimates based on 2006 data –extended backwards using the trend in the production volumes of these enterprises.

2.8.2.4 Government Goods and Services

128. The component of government goods and services n.i.e., same as ravel, is a transactor-based item relating to the acquirer or provider, rather than the product itself. They *cover a range of items that cannot be allocated to more specific headings* (2008 SNA, 26.57). Exports of *government goods and services n.i.e.* cover purchase of goods and services (G&S) in Timor-Leste nonresident institutions, including by UNMIT, ISF and other projects with the Development Partners implemented by nonresident agencies (DP-NR). Due to the lack of actual data, an educated guess has been made with regard to the percentage of the total spending by these institutions on goods and services made locally, as follows (with example of data for 2010, \$M unless otherwise indicated):

¹⁹ Please see *Quarterly Statistical Indicators* and *2010 and 2009 Timor-Leste in Figures* published by the National Directorate of Statistics and available online at: <http://dne.mof.gov.tl/>.

	Purchases from residents – in percent to total	Expenditure on G&S - total	Exports of Government G&S <i>n.i.e.</i>
	Assumption	Actual	Estimate
<i>Purchase of G&S in TL by UNMIT</i>	25%	62.4	15.6
<i>Purchase of G&S in TL by DP -NRs</i>	10%	166.0	16.6
<i>Purchase of G&S in TL by ISF</i>	2.5%	144.7	3.6
Total	10%	373.2	35.8

2.9 Imports of Goods and Services

129. Imports of goods and services represent the value of all goods and other market services received from the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.²⁰ The treatment of imports in the System of National Accounts, as of exports, is generally identical with that in the balance of payments accounts (1993 SNA, 14.88), highlighting the links, and the necessity of agreement between GDP-E and the balance of payments statements.

2.9.1 Imports of Goods

130. Imports of goods in Timor-Leste's national accounts cover (a) *imports of goods in trade statistics*, adjusted for the coverage and valuation, and the classification as described below; plus (b) *goods for resale acquired by travelers* while on visits abroad (BPM6, 10.19), plus acquisition of goods from nonresidents within the country.

2.9.1.1 Imports of Goods in Trade Statistics

131. The main data source for the *external trade statistics* on imports produced and published by the National Directorate of Statistics (NDS) is the *Customs statistics* that are based on the ASYCUDA system (Automated System for Customs Data) – since October 2003. The *System* provides coverage of trade conducted via Dili International Airport, the seaports and through parcels.

132. The reconciliation of the goods and services accounts and the balance of payments show that not all imports are covered by Customs Statistics, including *approximately four percent of entries not lodged electronically via the system*²¹. An additional point is the tendency of legal entities engaged in foreign economic activities to understate the quantities and the prices of imported goods. Also, information on the volume of goods imported by individuals for commercial purposes is often incomplete.

²⁰ Imports of goods and services (% of GDP), World Bank national accounts data, World Development Indicators, <http://data.worldbank.org/indicator/NE.IMP.GNFS.ZS>

²¹ External Trade Statistics - Annual report 2010, Source of Data, NDS: <http://dne.mof.gov.tl/>

Consequently adjustments are made for unrecorded, under-reported and under-valued imports to account for coverage and valuation (BPM6, 10.14).

133. Imports of goods, as with exports, are recorded in the national accounts and the balance of payments at border values. Total imports of goods are valued free-on-board (f.o.b., that is, at the exporter's customs frontier). However, the "*Statistical Value*" of imports recorded and reported by Customs and the *external trade statistics* on imports by the NDS are valued at the country's customs frontier, that is, c.i.f. value. C.i.f. value (that is *cost, insurance and freight*) includes the cost, e.g. the f.o.b. value plus insurance and freight charges incurred between the exporter's frontier and the border of Timor-Leste (2008 SNA, 3.85). Consequently the c.i.f. data on imports are adjusted for coverage to exclude international insurance and freight charges and to arrive at f.o.b. values.

134. The above adjustments for coverage, valuation, and classification are then described below with using 2010 figures (\$M, unless otherwise indicated):

			2010
1. Merchandise imports in trade statistics, c.i.f.	+		246.3
1.1 Rate of adjustment for coverage and valuation			40%
1.2 Unrecorded & underreported imports	-	1.2=1*1.1	98.5
2. Merchandise imports, Adjusted, c.i.f.	=		344.8
2.1 Rate of adjustment for classification			10%
2.1 Adjustment for classification	-	2.2=2*2.1	34.5
3. Merchandise imports, adjusted, f.o.b.	=		310.4

135. The data on merchandise imports are derived from the external trade statistics compiled by the NDS. They exclude "*goods which do not permanently add to the material resources of a country are identified as "Non Merchandise" trade. Some common examples would be temporary imports, returnable containers, goods in transit and goods consigned to foreign embassies*²² and the representative offices and the missions of international organizations in Timor-Leste, including UNMIT and ISF.

136. The rate of adjustment of the coverage and the valuation of 40 percent is the result of a balancing exercise between the GDP from expenditure and GDP from production approaches, as well as other reconciliations, and the level is in conformity with that used in balance of payments.

137. The rate of adjustment for the classification of 10 percent is an input from the balance of payments compiled by the Central Bank and is the sum of the rates of adjustments of 7.5 percent for the freight and 2.5 percent for the freight insurance.

²² External Trade Statistics 2010, Non Merchandise Trade, NDS: <http://dne.mof.gov.tl/>

2.9.1.2 Imports of Goods by Travelers

138. This component is the estimate for the imports of *Goods for resale acquired by travelers while on visits abroad, sometimes called shuttle trade* (BPM6, 10.19). The estimate is derived by applying a fixed ratio of 10 percent to the total final consumption expenditure abroad of resident households, where the ratio is an assumption – the same for all years.

2.9.1.3 Goods Acquired from Nonresidents in Timor-Leste

139. This component represents the acquisition of *goods from nonresidents in Timor-Leste*, including any transfer in Timor-Leste of goods from nonresident to resident institutions. It is estimated by applying a fixed ratio of 10 percent (assumption) to the total non-merchandise imports, derived from external trade statistics (paragraphs 131-137).

2.9.2 Imports of Services

140. Imports of services covers services acquired by residents of Timor-Leste from nonresidents. They are classified in accordance with the classification of services in the *2008 SNA* (26.56), further detailed - where and as available and appropriate - in accordance with the balance of payments *Standard Components* (BPM6, Appendix 9), as follows (with examples of numbers for 2010, \$M):

		2010	Non-Oil
c. Transport	+	30.5	30.5
d. Travel	+	42.5	42.5
e. Construction	+	321.9	146.5
f. Insurance and pension services	+	10.8	10.8
g. Financial services	+	1.8	1.8
h. Charges for the use of intellectual property n.i.e.	+	0.3	0.3
i. Telecommunications, computer & information services	+	5.8	5.8
j. Other business services	+	82.9	82.9
l. Government goods and services n.i.e.	+	562.1	562.1
Imports of services	=	1058.7	883.2

2.9.2.1 Transport

141. Transport services include *passenger* and *freight* services, as follows with the example of numbers for 2010 (\$M):

		2010
Passenger services	+	4.7
Freight services	+	25.9
c. Transport	=	30.5

142. The data on *passenger services* are imputations from the *balance of payments*²³ representing purchases by residents of Timor-Leste of the services of nonresident transport operators, including the relevant expenditure by the government, the central bank and the Foreign Direct Investment (FDI) companies for the official travel.

143. Freight is estimated as a percentage of the c.i.f. value of imports for freight. The rate of adjustment is an input for balance of payments. However, this approach simply reallocates, between goods and services, the distributive services element in the c.i.f. valuation of imports. Therefore, any error in estimation (for example because of the rate for freight) does not affect the total of goods and services (BPTEX, 303²⁴).

2.9.2.2 Travel Abroad

144. As specified in paragraph 123-126 the *travel* is a *transactor-based item* related to *the acquirer or provider, rather than the product itself* (2008 SNA, 26.57). Consequently the travel component of imports covers goods and services for own use or to give away acquired from other economies by residents of Timor-Leste during visits to these other economies, and is further classified into business and personal travel (BPM6, 10.86-87).

145. The *business travel* covers goods and services acquired for personal use by persons whose primary purpose of travel is for business, including government employees on official travel; resident expatriates on official business; employees traveling on behalf of their employer, except for diplomatic staff, etc., employed in government enclaves, whose expenditure in their territory of physical location is regarded as *government goods and services n.i.e.* (BPM6, 10.91, 10.178). The business travel component comprises of:

- *government employees on official travel* representing offsetting entries for the general government final consumption expenditure on *overseas travel and training and workshops overseas*;
- *other business travel* representing expenditure of formal business sector on business travel abroad derived from the data model on travel (paragraph 64).

146. The *personal travel* component covers all goods and services acquired for personal use by the travelers during their visits in host countries, including *expenditure* on travel abroad by resident households and resident expatriates. The estimates represent data-model based estimates, which employ a variety of sources including the number of passengers departing from Dili International Airport, Hotels Survey and other sources.²⁵

²³ Balance of Payments, CBTL, June 2011 release with preliminary data for 2010

²⁴ Balance of Payments Textbook 1996, IMF, www.imf.org/external/np/sta/bop/boptex.pdf

²⁵ Please see *Quarterly Statistical Indicators* and *2010 and 2009 Timor-Leste in Figures* published by the National Directorate of Statistics and available online at: <http://dne.mof.gov.tl/>.

147. See the table below with 2010 data as the example, \$M:

			2010
Gov employees - official travel		+	14.4
Other Business travel		+	6.8
<i>Business travel</i>	<i>+</i>	<i>=</i>	<i>21.2</i>
UNMIT - resident expatriates		+	6.5
DP&TA		+	6.6
Other Personal travel		+	8.2
<i>Personal travel</i>	<i>+</i>	<i>=</i>	<i>21.3</i>
d. Travel - total	<i>=</i>		42.5

2.9.2.3 Construction

148. *Construction, same as travel and government goods and services n.i.e, is a transactor-based item related to the acquirer or provider, rather than the product itself. It covers both the total value of the product delivered by the contractor and any goods and services sourced locally by the contractor that are not recorded in imports and exports of goods (2008 SNA, 26.57).*

149. Construction services consist of the construction work for residents of Timor-Leste by nonresident construction enterprises. They represent the imports component of the expenditure on construction and installation derived from the estimates by applicable sectors on gross fixed capital formation on *dwellings and buildings and other structures* as described in detail in the *Section 4.5 Gross Fixed Capital Formation* (paragraphs 93-109). The relevant coefficients on the imports component are then applied as illustrated below with the examples of numbers for 2010 (\$M unless otherwise indicated):

		Total expenditure	Imports component	
			Coefficient	Value
General Government	+	159.0	67%	106.0
DP&TA from NRs	+	47.9	80%	38.7
NGOs	+	3.5	50%	1.8
Construction in Timor-Leste	=	210.4	70%	146.5

2.9.2.4 Insurance

150. *Insurance services* cover insurance premiums paid by resident importers in Timor-Leste to nonresidents for imports of goods, including direct and indirect payments - as a part of the c.i.f. value of imports. The rate of adjustment is an input for balance of payments by the CBTL. However, as mentioned in the above paragraph 143, this approach is simply a reallocation between goods and services and therefore, any error in the estimation rate applied does not affect the total of goods and services (BPTEX, 303²⁶).

²⁶ Balance of Payments Textbook 1996, IMF, www.imf.org/external/np/sta/bop/boptex.pdf

2.9.2.5 Financial Services

151. The data on *financial services* are imputations from the balance of payments²⁷ and represent financial intermediary and auxiliary services provided by banks, except insurance and pension fund services (paragraph 150). They include deposit taking and lending, letters of credit, credit card services, commissions and charges related to financial leasing, factoring, underwriting, and clearing of payments (BPM6, 10.118).

2.9.2.6 Telecommunications, Computer and Information Services

152. This component represents payments by Timorese enterprises to nonresidents for the provision of *telecommunications, computer & information services*. The data are imputed from the *balance of payments* compiled by the CBTL - June 28, 2011 release, so that data for 2010 are preliminary. 2004 and 2005 data are estimates based on 2006 data –extended backwards using the trend in the production volumes of these enterprises.

2.9.2.7 Other Business Services

153. *Other business services* include *research and development, professional and management consulting services, and technical, trade-related, and other business services* (BPM6, Appendix 9)²⁸. The estimates represent the imports component of the gross fixed capital formation on *machinery and equipment* as described in detail in Section 4.5. The relevant coefficients on the imports component are then applied. See the table below on the composition *Other business services* by sectors with 2010 data as the example (\$M):

		2010
Public Sector	+	47.3
NPISHs	+	22.9
Private Sector	+	12.7
Other business services;	=	82.9

2.9.2.8 Government Goods and Services

154. As specified in paragraph 128 the *government goods and services n.i.e.* is a *transactor-based item* covering a range of items that cannot be allocated to more specific headings (2008 SNA, 26.57). Consequently the Imports of *government goods and services n.i.e.* cover (BPM6, 10.173):

- (a) Final consumption expenditure in Timor-Leste by peacekeeping operations, such as the UNMIT and ISF: nonresidents. See paragraphs 22-26, 32-33, 83 and 86 for more details and the reference information on data sources used.
- (b) Final consumption expenditure in Timor-Leste under the projects with the development partners implemented by nonresident institutions. See paragraphs 79-82, 85).

²⁷ Balance of Payments, CBTL, June 2011 release with preliminary data for 2010

²⁸ See MSITS Annex II, Extended Balance of Payments Services (EBOPS) Classification.

- (c) The imports component of the final consumption expenditure under the projects with the development partners implemented by the government (paragraphs 79-83).

155. The goods and services supplied by enclaves, such as military bases (ISF), and international organizations (UNMIT), as well as the projects with the development partners implemented by nonresident institutions (DP-NR) all are classified as imports of *government goods and services n.i.e.* thus offsetting the relevant entries for these nonresident institutions under the final consumption expenditure of the government.

156. The import of *government goods and services n.i.e.* for the general government represents the imports component of the government final consumption expenditure not included in other categories of services, such as *operational expenses* and the expenditure on *professional services*. A coefficient on imports of 50 percent is then applied.

157. See the table below with 2010 data as the example, \$M unless otherwise indicated:

		Total expenditure	Imports component	
			Coefficient	Value
UNMIT	+	209.7	100%	209.7
ISF		144.7	100%	144.7
Development Partners -NR	+	176.4	100%	176.4
TL-GOV	+	62.5	50%	31.2
Government goods and services n.i.e.	=	593.3	95%	562.1

3 GDP PRODUCTION APPROACH

3.1 Overview

158. *GDP is also a production measure obtained by summing the gross value added of all resident institutional units, in their capacities as producers, and adding the values of any taxes, less subsidies, on production or imports not already included in the values of the outputs, and value added, of resident producers (2008 SNA, 7.21), where the value added (VA) is defined as the value of output less intermediate consumption (IC). The table below summarizes the GDP compilation at market prices using 2010 data as the example (\$M):*

			Total economy	of which by sectors	
				Oil	Non oil
Output		+	5956.2	3,842.5	2,113.6
Intermediate consumption (IC)		-	1821.9	587.2	1,234.7
Gross value added (GVA)	+	=	4,134.3	3,255.3	878.9
Taxes on production	+		31.9		31.9
Subsidies on production	+		35.7		35.7
GDP at market prices	=		4,130.5	3,255.3	875.1

3.1.1 Output

159. *Output consists of the goods produced and services rendered during an accounting period, including products added to inventories of finished goods, and work in progress. "In practice the SNA does not record all outputs, however, because domestic and personal services produced and consumed by members of the same household are omitted. Subject to this one major exception, GDP is intended to be a comprehensive measure of the total GVA produced by all resident institutional units. GDP is confined to outputs produced by economic activities that are capable of being provided by one unit to another. Not all activities that require the expenditure of time and effort by persons are productive in an economic sense, for example, activities such as eating, drinking or sleeping cannot be produced by one person for the benefit of another" (2008 SNA, 1.39).*

160. *The output includes "market output, output for own final use and non-market output. Market output consists of output intended for sale at economically significant prices. Non-market output is output undertaken by general government and NPISHs that takes place in the absence of economically significant prices. Output for own final use consists of products retained by the producer for his own use as final consumption or capital formation." (2008 SNA, 6.95, 6.99, 6.114).*

3.1.2 Intermediate Consumption

161. *"Intermediate consumption consists of the value of the goods and services consumed as inputs by a process of production, excluding fixed assets whose consumption is recorded as consumption of fixed capital" (2008 SNA, 6.213).*

3.1.3 Value Added

162. Value added is one of the main balancing items in the SNA and is a basic concept upon which GDP is based. Gross value added is defined as the value of output less the value of intermediate consumption and is a measure of the contribution to GDP made by an individual producer, industry or sector. With further deduction of consumption of fixed capital we arrive at net value added (2008 SNA, 1.17, 2.86, 6.74).

3.1.4 Taxes less Subsidies on Production

163. *"Taxes less subsidies on production consist of taxes payable or subsidies receivable on goods or services produced as outputs and other taxes or subsidies on production, such as those payable on the labour, machinery, buildings or other assets used in production".(2008 SNA, 7.5).*

3.1.5 Consumption of Fixed Capital

164. *"Consumption of fixed capital is the decline, during the course of the accounting period, in the current value of the stock of fixed assets owned and used by a producer as a result of physical deterioration, normal obsolescence or normal accidental damage."* The term depreciation is often used in place of consumption of fixed capital, but it is avoided in the SNA, because in commercial accounting the term depreciation is often used in the context of writing off historic costs whereas in the SNA consumption of fixed capital is dependent on the current value of the asset. (2008 SNA, 6.240).

165. *"Consumption of fixed capital is one of the most important elements in the SNA. In most cases, when a distinction is drawn between "gross" and "net" recording, "gross" means without deducting consumption of fixed capital while recording "net" means after deducting consumption of fixed capital. In particular, all the major balancing items in the accounts from value added through to saving may be recorded gross or net, that is, before or after deducting consumption of fixed capital" (2008 SNA, 6.72).*

166. *"Consumption of fixed capital is one of the most difficult items in the accounts to define conceptually and to estimate in practice. Further, consumption of fixed capital does not represent the aggregate value of a set of transactions. It is an imputed value whose economic significance is different from entries in the accounts based mainly on market transactions. For these reasons, the major balancing items in national accounts have always tended to be recorded both gross and net of consumption of fixed capital. This tradition is continued in the SNA where provision is made for balancing items from value added through to saving to be recorded both ways. In general, the gross figure is the easier to estimate and so may be more reliable, but the net figure is usually the one that is conceptually more appropriate and relevant for analytical purposes" (2008 SNA, 6.73).*

3.1.6 Sectoring and Source Data

167. As mentioned earlier, the GDP production measure for 2010 incorporates the estimates for the petroleum sector, results of the 2010 Business Activity Survey (BAS)

and other formal business sector activities not captured by the BAS comprising non-financial and financial corporations' sector; general government; NPISHs; and households sector as presented in the table below using 2010 data as the example (\$M)^{iv}:

Description			Output	IC	GVA
<i>Oil Sector</i>		+	3,842.5	587.2	3,255.3
<i>2010 Business Activity Survey (BAS) *)</i>		+	589.8	260.5	329.3
<i>Other formal business sector activities **)</i>	+	=	60.0	29.3	30.7
1. Non-financial and financial corporations			4,492.4	877.0	3,615.4
<i>Of which non-oil sector</i>	+		649.8	289.8	360.0
2. General government	+		991.3	813.6	177.8
3. NPISHs		+	30.5	21.1	9.4
<i>Agriculture, fishery and forestry ***)</i>		+	229.1	52.3	176.8
<i>Owner occupied dwelling services</i>		+	95.4	6.5	89.0
<i>Other informal economic activities</i>	+	=	117.4	51.5	65.9
4. Household sector	=		441.9	110.2	331.7
TOTAL for all industries			5,956.2	1,821.9	4,134.3
<i>Of which non-oil sector</i>	-		2,113.9	1,234.9	878.9
*) Includes commercial agriculture, fishery and forestry					
**) That are regarded as unlikely to have been included in the BAS					
***) Excluding commercial agriculture, fishery and forestry covered by the BAS					

168. The combined sector of *Non-financial and financial corporations* represents petroleum sector, *formal business sector* of the economy captured by *2010 Business Activity Survey*, plus estimates for *other construction and installation* and *other real estate activities* that were treated as being in the *formal business sector* (FBS), but were unlikely to have been included in the BAS results as further described in the following paragraphs.

3.1.7 Classification of Production Activities

169. The value added is then broken at the high-level SNA/ISIC²⁹ aggregation of 10 categories denoted in the 2008 SNA as A*10 (Table 18.1) and as presented below using 2010 data as the example (\$M):

ISIC Rv4 sections	Description		Output	IC	VA
A	Agriculture, forestry & fishing	+	241.4	53.9	187.5
B,C,D&E	Manufacturing, mining and quarrying and other industry *)	+	3,935.2	643.1	3,292.1
06	<i>Extraction of crude oil and gas</i>		3,842.5	587.2	3,255.3

²⁹ International Standard Industrial Classification of All Economic Activities, Rev.4

ISIC Rv4 sections	Description		Output	IC	VA
C.	<i>Manufacturing</i>	+	55.1	28.1	27.0
F	Construction		147.7	83.6	64.1
G,H&I	Wholesale and retail trade, transportation and storage, accom. and food service activities	+	327.8	117.0	210.8
J	Information & communication	+	86.4	41.7	44.8
K	Financial & insurance activities	+	34.2	19.2	15.0
L	Real estate activities	+	112.1	10.9	101.2
M&N	Professional, scientific, technical, administration & support services	+	24.1	3.6	20.5
O,P&Q	Public administration, education, health and social works	+	1,002.2	814.4	187.8
R,S,T&U	Other services	+	45.0	34.5	10.4
Total economy – all industries		=	5,956.2	1,821.9	4,134.3
<i>Of which non-oil sector</i>			2,113.6	1,234.7	878.9
*) Electricity, gas, water supply, sewerage, waste management & remediation					

170. The industries are further broken down, where available and appropriate, into intermediate-level aggregation of categories, denoted as A*38 (2008 SNA, 18.57, ISIC, Rev 4, 199-212), as described in the respective paragraphs below.

3.2 Oil Sector

3.2.1 Extraction of Crude Petroleum and Natural Gas

171. Extraction of Crude Petroleum & Natural Gas covers relevant extraction activities in Timor Sea as described the above in paragraphs 12-16. The output includes *crude petroleum* and *natural gas* derived as the sum of liquefied *petroleum gases* (LPG) and liquefied natural gas (LNG), as follows (M\$):

ISIC	Description		2010
061	<i>Extraction of crude petroleum</i>	+	1,388.9
062	<i>Extraction of natural gas</i>	+	2,453.6
06	Extraction of crude petroleum & natural gas	=	3,842.5

172. The intermediate consumption is derived as operating costs minus 15 percent allocated to compensation of employees (assumption). The value added is then derived from the output by deducting the intermediate consumption. Taxes less subsidies on products are included in the output, therefore latter on they are not added to the value added of all industries to arrive to from the value added to GDP-P.³⁰

³⁰ The estimates and the metadata for petroleum sector are by Margaret Fitzgibbon, IMF, STA

3.3 Business Activity Survey

173. 2010 Business Activity Survey is the first-ever official survey of the business sector of Timor-Leste. It was conducted by the MOF's National Directorate of Statistics (NDS) under the framework of a joint technical assistance project with the Asian Development Bank (ADB) on Statistical and Macroeconomic Capacity Building.

174. The survey results and associated metadata are contained in the publication "Business Activity Survey of Timor-Leste, 2010", which was released on January 31, 2012 and available online on the website of the NDS at <http://www.dne.mof.gov.tl/>.

3.3.1 Private Sector

175. The estimates for the total private formal business sector (2010 BAS coverage excluding public corporations) for years prior 2010 are derived from the GDP expenditure measure at constant prices, minus GDP-P estimates for other sectors (other formal business sector activities (paragraphs 185-187), public corporations, general government, NPISHs and households).

176. The 2010 BAS data by industries are then extrapolated backwards to 2004-2009 at ISIC sections level using suitable quantity indicators as follows:

2010 BAS Industry:	Quantity indicators / sources:
Commercial agriculture	Coffee exports in tons (paragraphs 118-119)
Construction	GDP-E: GFCF in <i>Dwellings and Other buildings and structures at constant 2010 prices</i> : non-oil sectors excluding own account construction by households (paragraphs 93-95, 99-109);
Electricity, gas & water	Electricity production in 10 ³ KWh
Accommodation and food services (ISIC): - Accommodation; - Food and beverages	GDP-E: FCE domestic concept: <i>Restaurants and hotels</i> broken down into (COICOP): - Hotels and accommodations and - Restaurants, cafés and the like
Information and communication	Total revenues from all telecom services; source: ARCOM - Communication Regulatory Authority
Administration & support	GDP-E: FCE of General Government (Par. 66-92)
All other industries (mining and quarrying; wholesale and retail trade; transportation and storage; finance and insurance; real estate; professional, scientific and technical activities; and other industries)	The quantity indicator is derived as a residual from the total for the 2010 BAS coverage (paragraph 175), minus above mentioned BAS industries that were estimated independently.

177. The Business Activity Survey incorporates also the data on public corporations, both non-financial (PNFC) and financial (PFC). The metadata are available from paragraphs 178-184.

3.3.2 Public Non-Financial Corporations

178. The source data on public-nonfinancial corporations are derived from State Budget Execution Reports published by the Treasury and available online on the website of the MOF at <http://www.mof.gov.tl/category/documents-and-forms/treasury-documents/budget-execution-reports/?lang=en>.

179. The output of public non-financial corporations is derived as the sum of their market output, non-market output and output for own use, where market output includes *fees and charges collected* plus *subsidies on products*. The gross value added is then estimated by subtracting their expenditure on goods and services - intermediate consumption - as presented in the table below using 2010 data as the example (M\$):

			2010
Market output		+	5.2
Output for own final use		+	-
Other non-market output		+	-
Output	+	=	5.2
Intermediate consumption	+		1.9
Gross value added	=		3.2
Consumption of fixed capital	-		2.0
Net value added	=		1.3

3.3.3 Central Bank

180. *The central bank is the national financial institution that exercises control over key aspects of the financial system* (2008 SNA, 4.104). The Central Bank of Timor-Leste (CBTL) was formally established on 13 September 2011 under law no 5/2011 in accordance with Article 143 of the Constitution. Previously, central banking functions in Timor-Leste were carried out by predecessor organizations, the Banking & Payments Authority of East Timor (2001 to 2011) and the Central Payments Office (2000-2001), both of which were created by the United Nations Transitional Administration of East Timor (UNTAET) which administered the country from October 1999 to May 2002.³¹

181. The output of CBTL is derived as a sum of outputs from three broad groups of services namely financial intermediation, monetary policy services and supervisory services overseeing financial corporations, where the financial intermediation represents market output, and the monetary policy services and the supervisory services are classified as nonmarket output (2008 SNA, A328).

182. *As long as it can be identified as a separate institutional unit, the central bank is always included in the financial institutions sector and never in general government* (2008 SNA, 6.155). However, in accordance with 2008 SNA, and as described in

³¹ More information can be found on the website of the CBTL at <http://www.bancocentral.tl/en/>.

paragraph 57, the *monetary policy services* produced by the central bank are included in the *final consumption expenditure* by the *general government* under the *goods and services* (paragraph 191). The notion is that the government purchases this non-market output of the CBTL, and that the cost of the purchase is covered by the imputed record of a current transfer payable by the central bank and receivable by the general government.

183. The 2008 SNA calculates the output of FISIM on loans (y_L) and deposits (y_D) only, using a reference rate (rr). Assuming that these loans and deposits attract interest rates of r_L and r_D respectively, the output of FISIM should be calculated according to the formula $(r_L - rr) y_L + (rr - r_D) y_D$ (2008 SNA, A3.24). However, taking into account the relatively insignificant amounts involved and lack of source data the output of intermediation services of the CBTL was calculated as the difference between property income receivable and interest payable.

184. The source data on central bank activities are described in paragraph 103.

3.4 Other Formal Business Sector Activities

185. This component includes estimates for construction and installation and real estate activities that are treated as being in the *formal business sector* (FBS), but unlikely in the BAS results. The table below present the composition of the component using 2010 data as the example (M\$):

Description		Output	IC	GVA
<i>Other construction activities</i>		43.6	25.0	18.5
<i>Other real estate activities</i>		16.5	4.3	12.2
<i>Other formal business sector activities **)</i>	=	60.0	29.3	30.7

3.4.1 Other Construction outside BAS

186. This component represents an estimate for construction and installation activities that were treated as being in the *formal business sector* (FBS), but unlikely to be included in the Business Activity Survey (BAS) results given the sample frame that was used for the survey. *Construction may be carried out or managed by a nonresident enterprise, without the creation of a local legal entity, for example, major projects (such as bridges, dams, power stations) that take a year or more to complete and that are managed through a local site office (2008 SNA, 4.48).* The estimates are made using a coefficient of 50 percent to the level of construction activities as reported in the BAS. The latter was estimated as a result of a balancing exercise between the relevant items of GFCF, the imported component and the BAS results.

3.4.2 Other Real Estate Activities

187. *Other real estate activities* outside BAS cover actual rents paid by expatriates to businesses that could be regarded as being in the *formal business sector* (FBS), but were unlikely to have been included in the Business Activity Survey (BAS) results given the

sample frame that was used for the survey. The output represents final consumption expenditure by resident expatriates on owner occupied dwelling services and the data are derived from GDP-E (paragraphs 54-56).

3.5 General Government and NPISHs

3.5.1 Non-Market Output

188. Non-market output by *general government* and *non-profit institutions serving households* (NPISHs) involves the provision of goods and services for free, or at prices that are not economically significant. A price is said to be not economically significant when it has little or no influence on how much the producer is prepared to supply and is expected to have only a marginal influence on the quantities demanded. It *consists of goods and individual or collective services produced by NPISHs or government that are supplied free, or at prices that are not economically significant, to other institutional units or the community as a whole. Although this output is shown as being acquired by government and NPISHs in the use of income account, it should not be confused with production for own use. The expenditure is made by government and by NPISHs but the use of individual goods and services is by households, and the use of collective services by households or other resident institutional units. Thus non-market output should never be confused with output for own use where the producer unit not only has imputed expenditure on the output but also actually uses the output.* (2008 SNA, 6.9 & 6.128)

3.5.2 General Government

189. The *General Government* sector of Timor-Leste consists of *Central Government* and those *Autonomous Agencies* that are not treated as public trading corporations, plus projects with *development partners* implemented by government agencies as explained in the Annex 1 with an example of a two unit economy. The table below presents the production measure for the *General Government* sector namely *Public Administration* using 2010 data as the example (\$M):

			Cons. Gov.	Of which			
				GG	of which		DP- GOV
					CG	AAs	
Total goods and services net		+	787.2	755.8	738.7	17.1	31.4
Compensation of employees		+	114.6	93.2	92.0	1.2	21.4
Consumption of fixed capital		+	63.2	63.2	61.5	1.7	-
Non-market output – gross output	+	=	964.9	912.1	892.2	19.9	52.8
Intermediate consumption	-		787.2	755.8	738.7	17.1	31.4
Gross Value Added	=		177.7	156.3	153.5	2.8	21.4
Minus consumption of fixed capital	-		63.2	63.2	61.5	1.7	0.0
Net Value Added	=		114.5	93.1	92.0	1.1	21.4

3.5.2.1 Compensation of Employees

190. The *compensation of employees* is described in paragraph 70.

3.5.2.2 Government Goods and Services

191. The government expenditure on goods and services represents net goods and services and as explained in paragraphs 61-63 includes:

- ✓ government expenditure on goods and services excluding UNMIT, ISF and the development partners projects implemented by non-resident institutions;
- ✓ *monetary policy services* by the central bank (see paragraphs 57 and 103).
- ✓ receipts from sales of goods and services (paragraphs 72-74);
- ✓ expenditures by the UNMIT, the ISF, and the projects with development partners implemented by nonresident institutions (DP-NR). The latter represent purchases of goods and services from nonresidents (consumption in kind of governments goods and services), and thus are all recoded as intermediate consumption, so that no value added is created.

192. The table below presents the government expenditure on goods and services - by subsectors - using 2010 data as the example (\$M):

			Cons. Gov.	Of which			
				GG	of which		DP- GOV
					CG	AAs	
<i>Purchase of goods and services *)</i>		+	282.7	251.3	224.2	27.1	31.4
<i>Less sales of Goods & services</i>		-	26.4	26.4	16.4	10.0	
Net goods and services *)	+	=	256.4	224.9	207.9	17.1	31.4
<i>UNMIT</i>		+	209.7	209.7	209.7	-	-
<i>ISF</i>		+	144.7	144.7	144.7	-	-
<i>DP-NR</i>		+	176.4	176.4	176.4	-	-
Purchase of government goods and services for non-residents n.i.e.	+	=	530.8	530.8	530.8	-	-
Total goods and services net	=		787.2	755.8	738.7	17.1	31.4
*) Excluding UNMIT, ISF and DP-NR							

3.5.2.3 Consumption of Fixed Capital

193. The consumption of fixed capital is described in paragraphs 75-78.

3.5.2.4 Data Sources

194. The data sources for government sector are described in detail in paragraphs 72-76, as well as in other paragraphs under Section 2.3, Government FCE.

3.5.3 NPISHs

195. The output of NPISHs is nonmarket, provided without charge to households. It is estimated as the sum of costs of production as presented below using 2010 data as the example (M\$):

		2010
Goods & services	+	21.1
Compensation of employees	+	7.3
Consumption of fixed capital	+	2.1
Gross output	=	30.5
Intermediate consumption		21.1
Gross value added		9.4
Consumption of fixed capital		2.1
Net value added		7.3

196. In this publication the NPISHs represent the development partners' funded projects where the resident NGOs were identified as the implementing agency (see paragraphs 18 and 81). The data are derived from the *development partners' spending reports* published by the MOF's Aid Effectiveness Directorate and are available online at the MOF website at <http://www.mof.gov.tl/aid-effectiveness/development-partners-spending/?lang=en>.

3.6 Agriculture, Forestry and Fishing

197. Agriculture covers the production of goods and services meant for sale, payment of wages and salaries in kind, own account final use, addition to stock and for barter (SEAAF³², 5.18) as presented in the table below using 2010 data as the example (\$M):

ISIC Rv4	Description		Output at		Value added
			purchaser's prices	farm-gate prices	
01	Crop and animal production	+	302.0	223.7	173.0
	<i>Crops</i>		247.4	175.8	142.4
	Food crops		171.4	137.1	115.7
	Non-food crops		76.0	38.6	26.7
	Animal production		54.6	47.9	30.6
02	Forestry	+	14.7	4.5	3.8
03	Fishery	+	17.8	13.3	10.7
A	Agriculture, Forestry & Fishing	=	334.5	241.4	187.5
	<i>Of which by formal businesses (BAS)</i>			12.4	10.6
	<i>Of which household based (outside BAS)</i>			229.1	176.8

198. The purchaser's price for agricultural products includes the costs of bringing the goods to market and is the price used for own consumption, while the market price is the price that somebody would pay for the products where they are produced, frequently called the farm-gate price (2008 SNA, 3.124, 24.48), and excludes the transportation cost.

³² A system of economic accounts for food and agriculture (SEAF), FAO, 1996

3.6.1 Subsistence Agriculture

199. Agriculture in Timor-Leste is largely subsistence agriculture comprising a significant part of household consumption and by extension of the total agricultural production and GDP.

3.6.2 Crops

3.6.2.1 Food crops

200. The food crops include crops that are considered edible and that contain nutrients, covering cereals, vegetables and melons, roots and tubers, fruits and other food crops. Excluded from food crops are beverage crops, tobacco, and drug and pharmaceutical crops. The table presents the coverage of food crops using 2010 data as the example (\$M):

Description		Output at		Value added
		purchaser's prices	farm-gate prices	
Cereals	+	62.8	50.2	40.8
<i>Rice</i>		26.2	21.0	17.2
<i>Maize</i>		36.6	29.2	23.6
Fruits		23.7	19.0	16.8
Potato and Tubers		17.7	14.1	12.7
Vegetables	+	63.0	50.4	42.5
Other Food Crops	+	4.3	3.5	2.9
Farm Food Crops	=	171.4	137.1	115.7

3.6.2.2 Non-food crops

201. The major component of Non-food crops is coffee. The other crops within the group include tobacco, and drug and pharmaceutical crops, such as betel fruits, nuts and leaves, and areca nut, as presented in the table below using 2010 data as the example (\$M):

Description		Output at		Value added
		purchaser's prices	farm-gate prices	
Betel and Areca	+	5.85	4.68	3.98
Tobacco	+	0.70	0.56	0.47
Coffee	+	69.43	33.40	22.26
Non-Food Crops	=	75.97	38.64	26.72

3.6.2.3 Data Sources

202. The data on production of rice, maize and other major foods crops, as available, are derived from the Ministry of Agriculture and Fishery (MAF).

203. The estimates of coffee production are based on exports statistics of coffee for market production as described in paragraphs 118-119, and the 2007 TL-SLS for own-account production and local consumption.

204. The data on other food crops of smaller scale are based on relevant data on consumption of locally produced agricultural products derived from the 2007 Timor-Leste Survey of Living Standards 2007 (2007 TL-SLS). A set of coefficients has then been used to move from consumption to production. Volumes were computed using 2007TL-SLS unit prices. The 2007 estimates have then been extended backwards to 2004-2006 and forwards to 2008-2010 using, as volume indicators, the growth rates of similar crops, where and as available from the MAF, or the relevant growth rates of enumerated population. The CPI indices have then been used for backward current price estimates.

3.6.3 Animal production

205. Animal production covers production of live animals and animal products, such as milk, eggs and wool clips, as presented in the table below using 2010 data (\$M):

		Output	Value Added
Live animals	+	43.7	27.9
Other animal products	+	4.2	2.7
Total animal production	=	47.9	30.6

206. The estimates are derived from *TL's Livestock Sector Accounts for 2000-2010* that are described in paragraph below, and in paragraphs 210-213 for other animal products.

3.6.3.1 Live animals

207. The production of live animals depends on changes in the numbers of animals in economic use, and is derived as a sum of the number of animals slaughtered, or sold for slaughter, or stolen, plus the annual change in the number of live animals, plus exports and minus imports of live animals (SEAAF, 5.30-5.37), as presented in the table below using 2010 data as the example (\$M unless otherwise indicated):

Live animals		Slaughtered, sold, stolen	Changes in number	Exports	Imports	Output	
		+	+	+	-	=	
1.	Buffalo	+	7.0	0.0	0.1	-	7.1
2.	Cattle	+	10.1	2.2	0.1	-	12.4
3.	Horse	+	2.4	(0.2)	-	-	2.2
4.	Pig	+	9.3	(0.0)	-	-	9.3
5.	Goat	+	2.1	0.2	-	-	2.3
6.	Sheep	+	0.4	0.0	-	-	0.4
7.	Chicken	+	9.8	0.0	-	-	9.8
8.	Ducks	+	0.1	0.0	-	-	0.1
9.	Other animals	+	0.1	0.0	-	-	0.1
Total		=	41.2	2.2	0.2	-	43.7
VA to output ratio		*					64%
Value added, M\$		=					27,9

208. The benchmark data on number of animals held by households by type are collected in the 2010 and 2004 population and housing censuses and characterized as follows (thousand heads):

	2004	2010
1. Buffalo	95.9	96.5
2. Cattle	133.6	161.7
3. Horse	63.2	57.8
4. Pig	331.9	330.4
5. Goat	127.0	152.4
6. Sheep	39.0	41.9
7. Chicken	659.1	702.5

209. The above data have then been extended evenly to 2005-2009 using the formula below:

$$NA_n = NA_{(n-1)} * (NA_{2010}/NA_{2004})^{(1/6)}$$

Where “NA” stands for number of animals, and “n” is for year 2005 and onward.

210. The data on the number of (8) ducks and (9) other animals are derived from 2007 TL-SLS, along with the data on the number of *Bali Cow* and *Cow*.

3.6.3.2 Other Animal Products

211. The other animal products include milk and eggs.

212. The data on milk production are data-model based estimates where the output is estimated from the number *stock in milk of buffalos and cows* multiplied by the average yield of milk in liters per head, where the number of *animals in milk* are derived using the respective proportions of breeding stock to their total population. The production volumes are then multiplied by the unit price for *fresh milk* derived from the 2007 TL-SLS and extended backwards and forwards using the CPI indices for *powder milk*.

213. The data-model on eggs derives production from the relevant structural ratios and the population of chicken (for chicken eggs).

3.6.3.3 Technical Coefficients

214. The relevant structural ratios and technical coefficients are mostly based on Indonesian sources, including (VA) to output ratio used (63.9 percent)³³, average yield of milk in litres per head of dairy cattle in milk; productive females in the population for native chicken (for eggs), and other³⁴.

³³ The Contribution of Agricultural Sub-Sector to Indonesian Economy After Economic Crisis by Lukytawati Anggraeni, Tony Irawan, Ahmad Heri Firdaus and Amzul Rifin, available online at: <http://ekonomi.fem.ipb.ac.id/doc/3.pdf>

³⁴ Source (a) INI ANSREDEF (1995); Direktorat Bina Program Direktorat Jenderal Peternakan (1991), Buku Statistik Peternakan [Statistical Book on Livestock], p. 105.

3.6.4 Forestry

215. For forestry, the estimates are data-model based, where the benchmark data are derived from household surveys, including the 2007 TL-SLS data; 2001 TL-LSMS and 2011 TL-HIES (preliminary tentative estimates). Included in forestry are production of timber wood, fuel wood, sandal wood, honey, bamboo, candle nut (kemiri) and other.

3.6.5 Fishery

216. Same as for forestry, the estimates for fishery are data-model based using the benchmark data derived from household surveys, including the 2007 TL-SLS data; 2001 TL-LSMS and 2011 TL-HIES (preliminary tentative estimates).

3.7 Owner Occupied Dwelling Services

217. The output of owner occupied dwelling services is derived from the GDP-E estimates on household final consumption expenditure on *actual and imputed rentals* (paragraph 53 - table, COICOP code 4.1). The *intermediate consumption* includes household expenditure on housing *maintenance and repair*. Accordingly, the value added is derived: for imputed rentals as the difference, and for tenants as the sum of IC (housing maintenance and repair expenditure by tenants) and value added (actual rents paid) as presented in the table below using 2010 data as the example (M\$):

Description		Output	IC	GVA
04.1 Actual rents	+	31.1	2.0	29.1
04.2 Imputed rentals	+	64.3	4.4	59.9
Owner occupied dwelling services	=	95.4	6.7	89.0

218. The background data on actual and imputed rents for resident households, excluding expatriates, are derived from the 2007 TL_SLS, separately for the rural and urban populations. They are then extended forwards to 2008-2010 and backwards to 2004-2006 using the respective weights and growth rates where and as appropriate, for the urban and rural populations derived from the 2010 and 2004 population censuses.

3.8 Other Informal activities

219. *Other informal activities* cover all informal and other economic activities by households and unincorporated businesses that were not covered by the BAS, or reflected under other sectors, such as public administration, NPISHs, agriculture, forestry and fishery, and owner occupied dwelling services, or elsewhere as described above. The table below presents the composition of *Other informal economic activities* using 2010 data as the example (M\$):

Other informal economic activities		Output	IC	GVA
Informal mining and quarrying	+	2.5	1.3	1.3
Piecemeal manufacturing	+	4.8	2.4	2.4
Own account construction by HHs	+	17.0	8.5	8.5

Other informal economic activities		Output	IC	GVA
Street vendors and agricultural markets	+	35.5	3.6	30.0
Owner-operator transport operations	+	59.6	35.8	23.8
Total	=	117.4	51.5	65.9
*) The estimates of value added are based on quantity estimates, where available, and estimated prices				

220. The estimates on other and informal activities as presented in the table above, and explained in the following paragraphs, are then added to the corresponding formal business sector activities to arrive at totals for the relevant ISIC industries as they are presented in the table on classification of industries in Timor-Leste (paragraph 169).

3.8.1 Informal Mining and Quarrying

221. The estimate of value added for 2010 for *informal mining and quarrying* is calculated as 700 persons engaged in this activity, based on the 2010 Labour Force Survey (LFS)³⁵ with an estimate of \$150 per month (\$1800 per year) value added per person, giving a total estimate of M\$1.3. The intermediate consumption is assumed as equal to the value added (\$1.3 million), giving an estimate of total output of \$2.5 million.

3.8.2 Piecemeal Manufacturing

222. The estimate of 2010 value added for *piecemeal and other informal manufacturing* is estimated as 4,000 persons engaged in this activity (from 2010 population census) with an estimate of \$50 per month (\$600 per year) value added per person, giving a total estimate of \$2.4 million. The intermediate consumption is assumed as being equal to the value added, suggesting the value of output of M\$4.8.

3.8.3 Own Account Construction by Households

223. The base estimate for own account construction by households for 2007 is derived from GDP-E estimates on GFCF (paragraphs 96-98), calculated as follows: 2007 TL-SLS data on *expenses on renovation of destroyed house* of M\$2.6, plus an estimate of another M\$2.6 (1:1 ratio) for unpaid expenses on *intermediate consumption* (IC) goods, and of M\$5.2 for provided labour inputs (2:1 VA to IC ratio). The output was then estimated at M\$10.4 (2.6+2.6+5.2) and the value added at M\$5.2 through deduction of intermediation consumption of M\$5.2 (paid and expenses by households on IC goods). The approach adopted is consistent with 2008 SNA (paragraph 6.127) stating that “*in the case of the construction of dwellings by households or communal construction for the benefit of the community ... undertaken by groups of households ... most of the inputs, including labour inputs, are likely to be provided free*” and that “*unpaid labour may account for a large part of the inputs.*”

³⁵ Timor-Leste Labour Force Survey 2010, Report, available online on the website of the NDS at <http://www.dne.mof.gov.tl/publications/index.htm> and on the website of the ILO at http://www.ilo.org/jakarta/whatwedo/publications/WCMS_152168/lang--en/index.htm.

224. The estimates for 2007 are then extrapolated forwards to 2008-2010 and backwards to 2004-2006 using, as a volume indicator, the growth rate in the number of *Private / Individual or family owned* households in *urban* areas, derived from the 2010 and 2004 censuses of population. The current price estimates are then derived from constant price estimates using the annual average CPI indices on *Materials for the maintenance and repair of the dwelling* for intermediate consumption, and Overall TL CPI for value added.

3.8.4 Street Vendors and Agricultural Markets

225. This component covers street vendors and agricultural markets and the estimates are presented in the table below using 2010 data as the example, in M\$:

		Output	IC	GVA
Street vendors	+	8.0	0.8	7.2
Agricultural markets	+	25.5	2.8	22.8
Total informal and semiformal retail trade	=	33.5	3.6	30.0

3.8.4.1 Street Vendors

226. The 2010 value added for the component of *street vendors* is estimated as 12,000 persons engaged in this activity (from 2010 population census) and an estimate of \$50 per month (\$600 per year) value added per person giving a total estimate of \$7.2 million of value added. The output is then assumed at the rate of 10 percent for intermediate consumption.

3.8.4.2 Agricultural Markets

227. The output at market prices of trading activities on agricultural markets is estimated at about 7 percent of agricultural output at purchaser prices on *farm food crops*, livestock, forestry and fishery. The intermediate consumption is then assumed at the rate of 10 percent of the output.

3.8.5 Owner-Operator Transport Operations

228. Owner-operator transport operations were effectively out of the scope of the 2010 Business Activity Survey. The estimates for activities for taxis and trucks are presented in the table below using 2010 data as the example (M\$):

		Output	IC	GVA
Owner-operator taxis		36.4	21.8	14.6
Owner-operator trucks		23.2	13.9	9.3
Total owner-operator transport operations	=	59.6	35.8	23.8

229. The data on the output and value added of owner taxis, microlets and trucks are data-model based estimates that use the data of the Ministry of Infrastructure on state registration of vehicles by type (micro-lets, taxis, and light and heavy cargo vehicles); number of

employees engaged (2010 LFS); and the estimates for per-day net revenues for taxis (assumption), the average value added per employee for truck drivers.

3.9 *Taxes less Subsidies on Products*

230. The data on taxes and subsidies are derived from budget execution reports available online on the website of the MOF at <http://www.mof.gov.tl/budget-spending/budget-execution/?lang=en>. The table below illustrates the compilation of *taxes less subsidies on products* for Timor-Leste using the numbers for 2010 as the example (\$M):

			2010
Service tax	+		3.5
<i>Sales Tax</i>		+	6.1
<i>Excise Tax</i>		+	16.9
<i>Import Duties</i>		+	5.5
<i>Export Duties</i>		+	-
Commodity Taxes:	+	=	28.4
Taxes on products	+	+	31.9
Rice Subsidy		+	21.0
Electricity Subsidy		+	14.7
Subsidies on products	-	=	35.7
Taxes less subsidies on products	=		-3.8

4 GDP INCOME APPROACH

231. Following the production and expenditure measures of gross domestic product (GDP-P and GDP-E), the income measure of GDP, also known as GDP Income approach (GDP-I), is the third way in which GDP can be calculated. It is *derived as compensation of employees, plus gross operating surplus, plus gross mixed income, plus taxes less subsidies on both production and imports* (2008 SNA, 16.48.c), as presented in the table below using 2010 data as the example)³⁶:

		Total economy	Of which by sectors	
			Oil	Non Oil
Compensation of employees	+	264.1	41.1	223.0
Gross operating surplus	+	3,627.4	3,214.2	413.2
Gross mixed income	+	242.8	-	242.8
Taxes less subsidies on production & imports	+	(3.8)	-	(3.8)
GDP - income approach (non-oil)	=	4,130.5	3,255.3	875.1

4.1 Compensation of Employees and Gross Operating Surplus

232. The *Compensation of Employees (CoE)* and the *Gross Operating Surplus (GOS)* constitute the components of value added for some sectors of the economy including *non-financial and financial corporations, general government, non-profit institutions serving households sector (NPISHs)*, and *households* in their capacity as owner-occupiers of dwellings where *all the value added arising from the imputed leasing of the dwellings is treated as operating surplus* (2008 SNA, 24.55) as presented in the table below using 2010 data as the example (\$M)³⁶:

		CoE	GOS
Non-financial and financial corporations	+	142.3	3473.1
General government	+	114.6	63.2
NPISHs	+	7.3	2.1
Households	+	-	89.0
Total	=	264.1	3,627.4
Of which: <i>Oil sector</i>		41.1	3,214.2
<i>Non-oil economy</i>		223.0	413.2

4.1.1 Non-financial and Financial corporations

233. The combined sector of non-financial and financial corporations includes non-financial corporations in the oil sector, the formal *business sector (FBS)* covered by the *Business Activity Survey (BAS)* and *other businesses* that were treated as being in the FBS,

³⁶ The data presented are from the Volume I related tables marked April 2012 that reflect corrections to the GDP income side components that have been made since the first release marked March 2012. The income based estimate of GDP is unchanged; likewise the other related aggregates are unchanged.

but were unlikely to have been included in the BAS results given the sample frame that was used for the survey and other aspects as described in paragraphs 173-177. The BAS data include public non-financial and financial corporations, as presented in the table below using 2010 data as the example (M\$):

			CoE	GOS
<i>Oil Sector</i>	+		41.1	3,214.2
Non-oil formal business sector, BAS coverage		+	94.1	235.3
Of which public corporations			1.0	6.9
Other formal business activities		+	7.1	23.6
Non-financial and financial corporations, excluding oil	+	=	101.1	258.9
Non-financial and financial corporations	=		142.3	3473.1

234. The 2010 estimates for *Compensation of employees* and *Gross Operating Surplus* for the private *formal business sector*, excluding oil sector and other businesses, are derived from the *Report on Business Activity Survey* (paragraphs 173-177). The data are then further extended backwards to 2004-2009 using value added data at constant 2010 prices derived from GDP-P and the 2010 ratio of compensation of employees to value added from the BAS. The data for public non-financial and financial corporations are incorporated from the respective generation of income accounts (paragraphs 178-184). The estimates and data sources for *other businesses* are described in paragraphs 185-187.

4.1.2 General Government and NPISHs

235. The component of *gross operating surplus of general government* and *NPISHs* represents the difference between gross value added and compensation of employees which, by convention, is equal to consumption of fixed capital: *for general government and NPISHs ... gross operating surplus is equal to the consumption of fixed capital and net operating surplus is zero ...* (2008 SNA, 20.71).

236. The estimates of *compensation of employees* and *consumption of fixed capital* are derived from the GDP-E estimates of final consumption expenditures of *general government* and *NPISHs* as described in paragraphs 66-88 and 89-92 respectively. The estimates of value added of these sectors – *public administration* and *NPISHs* - are available from GDP-P (paragraphs 188-196).

4.1.3 Operating Surplus from Ownership of Dwellings

237. The remaining component that generates operating surplus is ownership of dwellings. *By convention, all the value added arising from leasing dwellings is treated as operating surplus, not mixed income. The same principles apply as in the case of imputed rental of owner-occupied dwellings and rental services activities that come from renting out a house. (2008 SNA, 24.55-56). The only value added for the imputed rental of owner-occupied housing is operating surplus (2008 SNA, 9.67).*

238. The actual and imputed rentals by households are data model based estimates that use a variety of data sources - differentiated for urban and rural households - as described in detail in paragraphs 54-56 for imputed rentals.

4.2 Gross Mixed Income

Gross mixed income applies to households as producers and by definition is equal to the gross value added generated by the household sector related businesses, including household based agriculture, fishery and forestry - largely subsistence (section 5.5), and informal and other economic activities that were not (?) covered by the Business Activity Survey (section 5.7).

5 From GDP to GNI and GNDI

239. The chapters below are summary notes on the derivation of Gross national income (GNI) from GDP; from GNI to Gross national disposable income (GNDI); and from GNDI to Gross Savings.

5.1 Gross National Income

240. Gross national income (GNI) is equal to GDP less primary incomes payable to non-resident units plus primary incomes receivable from non-resident units. In contrast to GDP, GNI is not a concept of value added, but a concept of income (2008 SNA, 2.143).

241. The SNA and the BPM6 distinguish the following types of primary income:

2008 SNA, 7.17 and Table 7.8	BPM6, 11.8, Table 11.1
Compensation of employees; Taxes on production and imports Subsidies	Compensation of employees; Investment income Other primary income
Property Income	Rent, including royalties
Investment income	Taxes on production and imports
Rent, including royalties	Subsidies

242. In other words, GNI is equal to GDP less taxes (less subsidies) on production and imports, compensation of employees and property income payable to the rest of the world plus the corresponding items receivable from the rest of the world (2008 SNA, 2.143), as presented in the table below using 2010 data as the example (M\$):

		2010
GDP-I	+	4,130.5
Compensation of employees, net	+	102.4
<i>Receivable from the ROW</i>		157.7
<i>Payable to the ROW</i>		55.4
Taxes on production & imports		
Property income, net	+	(1,065.5)
<i>Receivable from the ROW</i>		43.2
<i>Payable to the ROW</i>	+	1,108.7
Gross National Income (GNI)	=	3,167.4

5.1.1 Compensation of Employees

243. Compensation of employees presents remuneration in return for the labor input to the production process contributed by an individual in an employer-employee relationship with the enterprise (BPM6, 11.10). In the GNI, compensation of employees is recorded when receivable from, or payable to, the rest of the world (ROW) - nonresidents, as presented in the table below using 2010 data as the example (M\$):

		2010
<i>Receivable from the ROW</i>		157.7
UNMIT	+	130.1
DP&TA NR Institutions	+	27.6
<i>Payable to the ROW</i>		55.4
JPDA	-	41.1
DP&TA TL-GOV	-	10.6
NPISHs	-	3.6
Compensation of employees	=	102.4

244. Compensation of employees receivable from the rest of the world covers wages, salaries and the like paid by the UNMIT and the development partners for projects implemented by nonresident institutions, to the residents of Timor-Leste, including national staff and resident expatriates.

245. Compensation of employees payable to the ROW covers remuneration paid by the oil extracting companies in Timor-Sea (Timorese share in the JPDA – paragraphs 15-16), the development partners projects implemented by the governments and the NPISHs to the residents of the ROW - nonresidents in respect to Timor-Leste. Wages and salaries paid by the development partners projects implemented in Timor-Leste by nonresident institutions represent transactions between nonresidents on both sides and therefore are excluded. Compensation of employees paid to nonresidents by businesses in Timor-Leste, including foreign companies engaged in oil exploration in TL-EEZ, are not captured due to the lack of source information.

5.1.2 Property Income

246. Property income is the sum of investment income and rent (2008 SNA, 107).

5.1.2.1 Investment Income

247. The investment income in respect to GNI represents income receivable by resident owners of a financial asset in return for providing funds to a nonresident, and payable by residents to nonresident owners of a financial asset providing the funds. It covers dividends, reinvested earnings, interest, investment income attributable to policyholders in insurance, standardized guarantees, and pension funds. The table below presents the breakdown of investment income for Timor-Leste using 2010 data the example (M\$):

		2010
Receivable from ROW		
Interest	+	2.1
Investment income disbursements	+	41.1
Payable to ROW		
Distributed income of corporations	-	1,103.9
Reinvested earnings on FDI	-	4.8

		2010
Investment income disbursements	-	0.0
Investment income	=	(1,065.5)
<i>receivable from ROW</i>		43.2
<i>payable to ROW</i>		1,108.7

248. The largest item of the investment income payable to rest of the world is distributed income of corporations / dividends estimated as a residual item from gross operating surplus, minus taxes on production and imports, minus interest income, and minus current taxes. The item represents the Timor-Leste's share of operating surplus paid out by the JPDA to the ROW, including dividends paid back to parent companies.

249. The other entries are imputations from the balance of payments.³⁷

5.1.2.2 Rent

250. The term "*rent*" is reserved in 2008 SNA (7.110) for rent on natural resources. Accordingly the *rent* component of primary incomes covers Timor-Leste's share, as a recipient, in *regular payments made by the companies operating in the JPDA* for leases of natural resources such as petroleum assets, and the notional offsetting entries representing attribution to Timor-Leste of those payments, as presented below using 2010 data as an example (M\$):

		Accrual	Cash ³³
Royalties receivable from the ROW	+	1,247.5	1190.0
First Tranche Petroleum (FTP) Royalties		153.4	159.0
Profit <i>oil</i>		1,094.1	1,031.0
Royalties payable to the ROW	-	1,247.5	
Rent / royalties total	=	0	1190.0

251. Receivables are the estimate, on an accruals basis, for the royalties that are payable by the JPDA to Timor-Leste, including First Tranche Petroleum (FTP) / Royalties and Profit oil revenue items, as specified in state budgets³⁸. On the outflow side is a notional entry for Timor-Leste's attribution of its share of the royalties paid out by the JPDA. Subsequently, having the same percentage of 90 percent of Timor-Leste share for receivables and payables, the net equals zero.

³⁷ Balance of Payments of Timor-Leste is compiled by Central Bank of Timor-Leste (CBTL) and available online on its website at: <http://www.bancocentral.tl/en/>

³⁸ 2012 Budget Book 1, Table 5.6: *Estimated Petroleum Revenues 2011-2016 (\$millions)*, available online on the MOF website at: <http://www.mof.gov.tl/category/documents-and-forms/budget-documents/budget-current/?lang=en>

5.2 Gross National Disposable Income

252. “Gross national disposable income measures the income available to the total economy for final consumption and gross saving” and is equal to GNI less current transfers (other than taxes, less subsidies, on production and imports) payable to non-resident units, plus the corresponding transfers receivable by resident units from the rest of the world.” (2008 SNA, 2.145).

5.2.1 Current Transfers

253. The 2008 SNA (8.27) and the BPM6 (12.20) specify the following types of current transfers that take place between residents and non-residents (2008 SNA, 8.27):

2008 SNA, 8.27	BPM6, 12.20
e. Remittances between resident and non-resident households.	Personal transfers
b. Current taxes on income or wealth;	Other current transfers
a. Social contributions or benefits;	(a) current taxes on income, wealth, etc.,
c. Non-life insurance premiums & claims;	(b) social contributions,
d. Current international cooperation;	(c) social benefits,
	(d) net nonlife insurance premiums,
	(e) nonlife insurance claims,
	(f) current international cooperation,
	(g) miscellaneous current transfers.

254. The table below presents the estimates of *gross national disposable income using 2010 data as an example (M\$)*:

			2010
Gross National Income (GNI)	+		3,167.4
b. Current taxes on income or wealth, net		+	24.8
<i>Receivable from the ROW</i>			887.7
<i>Payable to the ROW</i>			862.9
c. Non-life insurance premiums & claims, net			-10.8
<i>Payable to the ROW</i>			10.8
d. Current international cooperation, net		+	612.0
<i>Receivable from the ROW</i>			612.0
e. Remittances, net		+	(104.1)
<i>Payable to the ROW</i>			104.1
Current transfers, net	+	=	532.7
<i>Receivable from the ROW</i>			1,499.7
<i>Payable to the ROW</i>			977.8
Gross National Disposable Income (GNDI)	=		3,689.2

5.2.1.1 Current Taxes

255. Current taxes on income, wealth, etc. consist mainly of taxes levied on the incomes of households and corporations. They may also be payable by non-residents or possibly by government units or NPISHs. Current taxes on income, wealth, etc. were described as “direct taxes” in the past, but the terms “direct” and “indirect” are no longer used in the SNA (2008 SNA, 8.52).

256. In this presentation the component covers Timor-Leste's share, as a recipient, in *current taxes* payable by the companies operating in JPDA, and the attribution to Timor-Leste of those payments, plus pipeline payments receivable from the ROW, as detailed below using 2010 data as the example (M\$):

			Receivable		Payable Accrual	Net Accrual
			Accrual	Cash ³³		
<i>Income Tax</i>		+	416.1	458.0	416.1	-
<i>Additional Profit Tax</i>		+	385.7	374.0	385.7	-
<i>Value Added Tax</i>		+	9.8	35.0	9.8	-
<i>Withholding Tax</i>		+	12.2	18.0	12.2	-
<i>Other Payments</i>		+	39.2	19.0	39.2	-
<i>Wage tax</i>		+	16.2	16.0	-	16.2
Total from JPDA	+	=	879.1	920.0	862.9	16.2
Pipeline Payments	+		8.6	7.0	-	8.6
Current taxes total	=		887.7	928.0	862.9	24.8

5.2.1.2 Non-life Insurance

257. Data on non-life insurance are entries from the balance of payments.

5.2.1.3 Current International Cooperation

258. Current international cooperation consists of current transfers in cash or in kind between the governments of different countries or between governments and international organizations (BPM6, 12.47), covering:

- a) Technical assistance supplied in kind, including peacekeeping operations: expenditure of the UNMIT, the ISF and the development partners' projects implemented by nonresident institutions;
- b) Technical assistance projects with the development partners implemented by resident institutions, such as government (DP-GOV) and NPISHs (DP-NPIs).

259. Current international cooperation includes final consumption expenditure (wages and salaries and goods and services) and excludes expenditure on capital and development, and minor capital) that are capital transfers.

260. The table presents the composition of current international cooperation using 2010 data as the example (M\$):

				Receivable	Payable	Net
DP-GOV			+	52.81	-	52.81
DP-NRIs			+	176.41	-	176.41
<i>DP&TA (on-budget)</i>		+	=	229.2	-	229.22
<i>DP-NPIs</i>		+		28.4	-	28.39
Development partners total	+	=		257.6	-	257.6
UNMIT	+			209.7	-	209.73
ISF	+			144.7		144.67
Current international cooperation	=			612.0	-	612.0

5.2.1.4 Remittances

261. Remittances cover all current transfers in cash or in kind made or received by resident households to or from nonresident households, and are referred in *2008 SNA* as *remittances between resident and non-resident households* and in *BPM6* as *personal transfers* (2008 SNA, 8.27; BPM6, A5.7).

262. The following table presents the estimates for remittances by resident expatriates employed in Timor-Leste by UNMIT and under the development partners projects - broken down by employer, using 2010 data as the example (M\$):

Remittances by resident expatriates				Receivable	Payable	Net
DP-GOV			+	-	4.0	4.0
DP-NRIs			+	-	11.4	11.4
<i>DP&TA (on-budget)</i>		+	=	-	15.4	15.4
<i>DP-NPIs</i>		+		-	1.9	1.9
Development partners total	+	=		-	17.3	17.3
UNMIT	+			-	86.8	86.8
ISF	+			-	-	-
Current international cooperation	=			-	104.1	104.1

5.3 Gross Saving

263. Gross saving is gross national disposable income less final consumption expenditure³⁹, as presented below using 2010 data as an example (M\$):

		2010
GNDI	+	3,689.2
Final consumption expenditure	+	1,573.6
Saving, gross	=	2,115.6

³⁹ OECD glossary of statistical terms, Cross Saving: <http://stats.oecd.org/glossary/detail.asp?ID=1182> and <http://esa.un.org/unsd/sna1993/introduction.asp>

6 CONSTANT PRICE ESTIMATES

6.1 Base Year

264. The Base period is the period of time for which data used as the base of an index number, or other ratio, have been collected. This period is frequently one of a year but it may be as short as one day or as long as the average of a group of years⁴⁰. The year 2010 was chosen as the base year for Timor-Leste's national Accounts 2004-2010. Among the reasons in favor of choosing year 2010 were the recent high levels of government expenditure and their subsequent contribution to the GDP and its high growth; the 2010 Business Activity Survey (BAS) providing for the first time independent, comprehensive and reliable data for the formal business sector; as well as the desirability of presenting the estimates in contemporary prices.

6.2 Volume Measure Methods

265. This section describes the methods used in deriving GDP estimates at constant prices by expressing values in terms of a base period, which include the following three main approaches:

1. Price deflation: the constant price estimate is derived by dividing the current price estimate (*nominal value*) by an appropriate price index.
2. Quantity revaluation: the constant price estimate is obtained by multiplying the current period quantity by the base period price.
3. Volume extrapolation: the constant price estimate is derived by extrapolating the current values in the base period by a suitable quantity indicator. Suitable for the cases where there is no appropriate deflator to apply to a current value (2008 SNA, 15.115).

266. In constructing Timor-Leste's System of National Accounts for 2004-2010 all three methods have been used, depending on the data availability and their quality, and very often in combination.

6.2.1 Price Deflation

267. In general, the price deflation method is preferable and more practicable when independent, reliable and comprehensive data are available at current values (2008 SNA, 15.103). Accordingly It was used as the major method for producing estimates of GDP and its components at constant prices in all the cases where reliable data were available at current prices. In constant price estimates of GDP-E, the price deflation method was used for *final consumption expenditure of general government, development partners, and UNMIT; gross fixed capital formation of general government and development partners' projects; and exports and imports of goods*. In constant price estimates of GDP-P, the price deflation method was used for constant price estimates for

⁴⁰ OECD glossary of statistical terms, Base Period, <http://stats.oecd.org/glossary/search.asp>

public non-financial and financial corporations and other components where and as appropriate.

6.2.2 Quantity Revaluation

268. The quantity revaluation method was the major method used for producing constant price estimates for agriculture, fishery and forestry, and in other cases where there was *no aggregation problem across the group of products and adjustments for quality differences are more easily and more satisfactorily made to the volume measures directly* (2008 SNA, 15.105).

6.2.3 Volume Extrapolation

269. The volume extrapolation method was the main method that was used in cases where only single year, independent and reliable data were available. The method was extensively used in the GDP-E framework for households final consumption expenditure for extrapolating 2007 TL-SLS results forwards to 2008-2010 and backwards to 2004-2006; and in GDP-P estimates for extrapolating an extensive part of the 2010 Business Activity Survey results backwards to 2004-2009 in the cases where suitable quantity indicators were available.

6.3 Price Indices

270. Price deflators are defined as *factors that, when applied to a related time series of values allows a valid comparison of the true underlying change free from the influence of price movements*⁴¹. The following price indices were used as price deflators:

6.3.1 Consumer Price Index

271. The consumer price index (CPI) was widely used in deriving constant price estimates of GDP-E components where the component related to flows of goods and services on the domestic market, including *household final consumption expenditure*, including consumption of own produced food, and the *goods and services* component of *general government final consumption expenditure*.

6.3.2 World Economic Outlook

272. The second widely used group of price indices were obtained from the IMF's World Economic Outlook (WEO indices), covering world prices on commodities (for example crude oil, rice or coffee), groups of goods and series (for example *Commodity Industrial Inputs Price Index*, or *export price of manufactures*), and GDP implicit deflators. The WEO indices have been widely used in GDP-E for deflation of exports and imports of goods, and services where appropriate, as well as the imports component in *final consumption expenditure on goods and services* of general government, *development partners* and *UNMIT*.

⁴¹ Statistics New Zealand, Glossary of Common Terms, available online at:

<http://www.stats.govt.nz/domino/external/omni/omni.nsf/wwwglsry?openview&count=500>

6.3.3 Other Price Indices

273. There were some other indices used in compilation, where appropriate, for example prices of Timor-Telecom on their services that are available online on the website of the company⁴² and others.

6.4 GDP Expenditure Measure

274. *The measure of GDP easiest to express in volume terms is that of expenditure. As long as appropriate price indices exist, the estimates of household consumption, capital formation, exports and imports can be deflated without much conceptual difficulty (2008 SNA, 18.25).* This reality was one of the key reasons for choosing the expenditure measure as the main measure for Timor-Leste's National Accounts for 2004-2010. Among others reasons is the higher level of availability of independent source data for the GDP-E components relative to the other measures, including the new sources being established and their expected sustainability. In line with the SNA recommendations, the work in producing expenditure volume aggregates *is done at as great a degree of detail as possible using the product detail available for each aggregate (2008 SNA, 18.25).* The paragraphs below explain the approach taken in more detail., *Household Final Consumption Expenditure*

6.4.1 Household Final Consumption Expenditure

275. *As recommended in SNA the household final consumption expenditure has been deflated at as detailed a degree as possible (2008 SNA, 15.140) – at COICOP Structure Level 3: Classes (four-digits).* For that purpose the CPI for Timor-Leste was reproduced at the format of COICOP at the detail level of six digits that however at four digits level fully matches the framework for household final consumption expenditure at its four digits. The latter itself also was developed at the lower level of six digits.

276. The 2007 data on household consumption of imported goods (paragraphs 45-47) were extrapolated backwards to 2004-2006 and forwards to 2008-2010 using external trade data on imports as quantity indicators to arrive at *constant 2007 price estimates for 2004-2010.*

277. *For that purpose – need for suitable quantity indicators for imported goods - the external trade statistics have been converted into COICOP using the conversion table from HS to COICOP. The later was created based on the relevant correspondence tables from the United Nations Classifications Registry: HS 2002 - CPC Ver.1.1, CPC Ver.1.1 - CPC Ver.1.0, and from CPC Ver.1.0 – COICOP⁴³.*

⁴² http://www.timortelecom.tp/index.php?option=com_content&view=article&id=78%3Amove-servico-pre-pago&catid=46&Itemid=49&lang=en

⁴³ Available online on the UN website at: <http://unstats.un.org/unsd/cr/registry/regot.asp?Lg=1>

278. The current price estimates have then been derived by applying relevant annual average CPI indices with previous year equal 100, and the constant 2010 price estimates by dividing the nominal value by an appropriate annual CPI index with 2010 equals 100.

279. Similarly the final consumption expenditure on other domestically produced goods and services other than food products of domestic origin, were extrapolated forwards to 2008-2010 and backwards to 2004-2006 using a variety of quantity indicators, as suitable, including:

- a) The growth rate of population adjusted upwards to reflect increasing incomes, including wages and salaries in the public sector;
- b) Administrative records, such as data on vehicle registration by the Ministry of Infrastructure, number of passengers arriving at and departing from Dili airport (source: Immigration Department, Timor-Leste National Police), and others.⁴⁴
- c) Business statistics on production and consumption of electricity, telecommunication services, and others.

6.4.2 Compensation of Employees

280. The CPI, WEO and other price indices relate to flows of goods and services, on domestic and direct imports and exports respectively. However, it is also possible to decompose some other flows directly into their own price and volume components, including compensation of employees (2008 SNA, 15.173).

6.4.2.1 Government Compensation of Employees

281. In order to arrive to constant price estimates for consumption of employees, the volume, the labor cost and, and for the first time, labor productivity indicators / deflators were estimated for the government sector, excluding expenditures on compensation of employees by the development partners and the UNMIT. The underlying assumption is *that the change of the total amount of wages and salaries paid by government can be decomposed into three factors: a change in the number of employees, changes due to collective agreements as a proxy for the compensation for inflation, and changes due to changes in labour productivity*⁴⁵. The “changes in labour productivity” effectively relate to changes in composition of government workforce and are further split into structural changes – due to the changes in staffing profile by levels, as well as assumption estimates due to the increase in experience and skills of the workforce, as illustrated in the table below for the wages and salaries of general government using 2010 data as the example (percent change on previous year):

⁴⁴ Please see *Quarterly Statistical Indicators and 2010 and 2009 Timor-Leste in Figures* published by the National Directorate of Statistics and available online at: <http://dne.mof.gov.tl/>.

⁴⁵ “Volume measurement of government output; the Dutch practice since revision 1987.” Brugt Kazemier. Kengetal: P-30/1997-2. ISSN: 1385-1845.

			2010
A	Increase in compensation of employees	Actual data	7.1
	<i>Attributed to:</i>		
B	Change in number of employees	Actual data	0.0
C	Change in composition of government workforce	$C=(D+100)^* (E+100)/100-100$	3.3
	Of which due to:		
D	<i>Change in structural levels</i>	<i>Estimate</i>	0.0
E	<i>Change in experience</i>	<i>Estimate</i>	3.3
F	Changes in number and in composition combined	$F=([B+100]^* (C+100)/100$	3.3
G	Wage deflator – residual item	$G=(A+100)/ (F+100)^*100-100$	3.7

6.4.3 FCE on Goods and Services by Government and NPISHs

282. The constant price estimates on goods and service components of final consumption expenditure by general government, including spending by development partners (covers NPISHs), and UNMIT are derived by dividing the *current price values* by an appropriate price index:

- a) CPI for the goods and services in the domestic market, including those of imported origin;
- b) WEO indices for direct imports.

6.4.3.1 Compensation of Employees by UNMIT and DPs

283. Constant price estimates on compensation of employees of UNMIT were derived by dividing the relevant current price estimates by annual average weighted growth rates on United Nations *Salary scale for the professional and higher categories*⁴⁶;

284. The same indices derived from UN salary scale have then been used as the wage price for the components on compensation of employees by development partners.

6.4.4 Consumption of Fixed Capital

285. The consumption of fixed capital at constant prices are direct estimates from GFCF estimates at constant prices based on use of the Perpetual Inventory Method (PIM) as described in paragraphs 75-78. The nominal values are then derived by multiplying the constant price estimates by relevant price indices - same as for GFCF (see the paragraph and table below).

⁴⁶ The data on United Nations *Salary Scale* by categories are available online on the UN website at: http://www.un.org/depts/OHRM/salaries_allowances/salary.htm

6.4.5 Gross Fixed Capital Formation

286. The constant price estimates of gross fixed capital formation are derived by type of asset using the limited number of suitable price indices available, as presented in the table below:

GFCF by Type of Assets	Source	Price index
Dwellings	CPI	Materials for the maintenance and repair of dwellings
Buildings other than dwellings	CPI	Maintenance and repair of dwellings
Other structures	CPI	Maintenance and repair of dwellings
Transport equipment	CPI	Purchase of vehicles
ICT equipment	CPI	Audio-visual, photographic and information processing equipment
Other machinery and equipment	CPI	Telephone and telefax equipment
Animals yielding repeat products		Quantity revaluation method
Mineral exploration and evaluation	WEO	Export price of manufactures
Other fixed assets	CPI	Nonfood, including housing

6.4.6 Changes in inventories

287. *Changes in inventories* are comprised of the component of changes in the number of live animals that are treated as inventories - the young stock of animals and inventories in finished products - ready for slaughter (paragraphs 111-112). Accordingly the constant price estimates were obtained from livestock sector accounts where the volume measures for stock positions were derived using the *quantity revaluation* method, e.g. by multiplying the current period quantities by type of livestock by the relevant 2010 base year price.

6.4.7 Exports and Imports

288. *Exports and imports consist of both goods and services. For both exports and imports, goods and services are expressed in volume terms using quite different deflators because of the very different sources available for goods and services (2008 SNA, 15.160).*

6.4.7.1 Export of Goods

289. The volume and value estimates for petroleum output are equivalent to exports as described in paragraphs 297-298.

290. The export of goods, excluding oil, consists primarily of coffee exports, comprising over 96 percent of the total exports in 2008-2010. The constant price estimates for coffee exports were derived using the *quantity revaluation* method, e.g. by multiplying the current period quantities, derived from external trade statistics by the relevant 2010 base year price for coffee exports. As described in paragraphs 118-119 the export prices were estimated from actual export price for Timor-Leste in 2005 extrapolated forwards to 2006-2010 based on the world trend in coffee export prices expressed in the WEO commodity coffee price index on *Other Mild Arabicas and Robusta*.

291. Goods procured in ports cover fuels (bunkering) and other goods procured by nonresident transport operators in Timor-Leste's ports from resident providers (paragraph 120). Consequently the constant price estimates were derived by dividing the current price values by the WEO index on *Crude Oil (petroleum)*.

6.4.7.2 Import of Goods

292. The external trade statistics on merchandise imports have been deflated at the Harmonized System (HS) levels 1, 2 and 3 of sections, chapters (two digits) and divisions (four digits) respectively – as appropriate depending on the significance of the component (percentage of the group of products in the chapter or division in the total imports) and the availability of a suitable WEO index matching that group of products, as presented in detail in Annex 2.

293. The constant prices estimate for *Imports of goods by travelers* is derived by applying a ratio to the total final consumption expenditure abroad of resident households at constant prices (paragraph 138).

294. The component of *Goods Acquired from Nonresidents in Timor-Leste* at constant prices is estimated by applying a coefficient to the total non-merchandise imports (imports by non-resident institutions), derived from external trade statistics (paragraphs 131-137, 139).

6.4.7.3 Export and Imports of Services

295. The components of *export and imports of services* are generally derived from two major sources, such as balance of payments, or as a percentage from relevant GDP expenditure components. Consequently in the latter cases the constant price estimates are derived by applying a ratio (percentage mentioned) to the relevant expenditure component at constant prices as described in detail in paragraphs 121-128 for exports of services and in paragraphs 140-157 for imports of services.

296. The constant price estimates for export and imports of services components sourced from balance of payments are derived using the price deflation method by dividing the nominal values by an appropriate price index as presented in the table below:

Services components	Source	Price Index
Export of services		
Other services of other transport	CPI	Operation of personal transport equipment
Telecommunications, computer & information services	TT *)	Mobile phone services *)
Import of services		
Transport / passenger services	WEO	Crude Oil (petroleum)
Other direct insurance	WEO	Inflation, average consumer

Services components	Source	Price Index
		prices
Charges for the use of intellectual property n.i.e.	WEO	Inflation, average consumer prices
Communications services	TT*)	Mobile phone services*)
Information services	WEO	Inflation, average consumer prices
*) Cellular tariffs - pre-paid, local calls (within TL), Timor-Telecom, available online at: http://www.timortelecom.tp/index.php?option=com_content&view=article&id=78%3Amovel-servico-pre-pago&catid=46&Itemid=49&lang=en		

6.5 GDP Production Measure

297. The data sources used to compile the production measure of GDP can be grouped into six major sources – Oil sector; 2010 Business Activity Survey; Economic Accounts for Agriculture, Forestry and Fishing; entries from the GDP expenditure measure (mostly non-market outputs or outputs for own final use); ballpark estimates for the informal sector; and taxes less subsidies.

6.5.1 Oil Sector

298. *The volume and value estimates for petroleum are obtained for each of the three outputs: condensate, liquid petroleum gas (LPG) and liquefied natural gas (LNG).* An average price for 2010 is obtained by dividing the value by the volume. All volumes are then re-calculated in the prices of 2010, and summed for each year. The resultant total is converted into a volume index with base 2010=100 and the year-on-year changes are calculated. This is an output volume indicator.⁴⁷

299. The intermediate consumption at constant prices is then estimated by using the intermediate consumption to output ratio in 2010.

6.5.2 Business Activity Survey

300. The survey results have been extended backwards to 2004-2009 at ISIC structure level 1 using the *volume extrapolation* method by multiplying the current values in 2010 by a suitable quantity indicator (paragraphs 173-177).

6.5.3 Economic Accounts for Agriculture, Forestry and Fishing:

301. The volume measures are derived at the most detailed product level using the *quantity revaluation* method by multiplying the current period quantities by the base period prices as detailed in paragraphs 197-216.

⁴⁷ The estimates and the metadata for petroleum sector are by Margaret Fitzgibbon, IMF, STA

6.5.4 Entries from GDP Expenditure Approach:

302. The constant price estimates are either direct entries of the relevant expenditure components at constant prices, or derived by applying a ratio to the relevant expenditure component at constant prices as described in detail in paragraphs 273-295.

6.5.5 Informal Activities

303. The prevailing method for current price estimates for informal activities outside the scope of the Business Activity Survey was the *volume extrapolation method*, in which the volume measures are derived by extrapolating the current values in the base period by suitable quantity indicators, as presented below:

GDP-P activity	Quantity indicator
Mining, informal sector	GDP-E, FCE on own account construction by households
Piecemeal manufacturing	Population growth rates: households
Other construction outside the BAS	GDP-E, GFCF: <i>dwelling</i> s, excl. households, plus <i>other buildings and structures</i>
Street vendors	GDP-E, FCE on <i>non-alcoholic beverages (01.2)</i> and <i>tobacco (02.2)</i>
Owner-operator <i>taxis</i> <i>trucks</i>	Number of registered ⁴⁸ : <i>taxies and microlets</i> <i>light and heavy for cargo vehicles</i>

304. The volume measure for *own account construction* by households is an imputation *from GDP-E* (paragraphs 54-56, 217, 218).

305. The constant price estimate for agricultural markets is derived as a proportion at a rate of about seven percent from the agricultural output at purchaser prices on farm food crops, livestock, forestry and fishery (paragraph 227).

6.5.6 Taxes less Subsidies

306. The volume measure for non-oil taxes and subsidies on products was derived using the *price deflation* method by dividing the nominal value by an appropriate price index, as presented below:

Item	Price index
Indirect tax	CPI, annual average, <i>overall</i> index
Rice Subsidy	CPI, annual average, <i>imported Rice</i>
Electricity Subsidy	<i>WEO index on crude oil (petroleum)</i>

⁴⁸ Source: Vehicle registration statistics from the Ministry of Infrastructure. The annual and quarterly data are published in Timor-Leste in Figures and Quarterly Statistical Indicators respectively and available online on the website of the NDS at <http://dne.mof.gov.tl/>.

ANNEX 1: A Worked Example of a Two Unit Economy

One General Government (GG) Unit and One Public Trading Enterprise (PTE)

Assumptions

1. The General Government Unit

This unit has outlays as follows:

Sales of Goods and Services of total of 3.0

Sales of Rice of 2.5 (Household Final Consumption Expenditure (FCE))

Postage Fees 0.2 (Household FCE)

Business Registration Fees of 0.3 (Intermediate Consumption (IC) of PTE)

Intermediate consumption (IC) of 70 (assumed all imported)

Compensation of employees of 90

Consumption of fixed capital of 10

Subsidy on production to PTE of 5

2. The Public Trading Enterprise (PTE)

Sales of electricity of 90 (assume all sold to households)

Subsidy on production of 5

Intermediate consumption of 50 (assume all imported) + 0.3 (Business Registration Fee) = 50.3

National accounts calculations based on the above

GDP-P:

The gross output of the General Government Unit is $(70 - 3) + 90 + 10 = 167$

The gross value added is $167 - 67 = 100$

The gross output of the Public Trading Enterprise is $90 + 5 = 95$

The gross value added is $95 - 50.3 = 44.7$ (for this exercise assume all of this is gross operating surplus)

Production based GDP is $100 + 44.7 = 144.7$, plus (taxes less subsidies = -5) = 139.7

GDP-E:

Household final consumption expenditure is $90 + 2.7 = 92.7$

Government final consumption expenditure is $67 + 90 + 10 = 167$

Imports are $70 + 50 = 120$

Expenditure based GDP is $92.7 + 167 - 120 = 139.7$

GDP-I:

Compensation of employees is 90

Gross operating surplus is 44.7 (PTE)

Gross operating surplus is 10 (GG)

Plus taxes less subsidies is -5

Income based GDP is $90 + 44.7 + 10 - 5 = 139.7$

ANNEX 2: Imports Deflators

HS Section / Chapter / Division	WEO Subject Code *)	Descriptor
01 Animal & animal products <i>Meat</i> Meat of poultry Other meat <i>Other animal products</i>	PPOULTW PMEATW	Poultry (chicken) Commodity Meat Price Index
02 Crops & vegetables <i>Cereals</i> Rice Maize Other cereals <i>Wheat & other flour</i> <i>Other food products</i>	PRICENPQW PMAIZMTW PCEREW PWHEAMTW PFOODW	Rice, Price Index Maize (corn) Commodity Cereals Price Wheat, Price index Commodity Food Price Index
03 Edible fats & oils <i>Palm oil</i> <i>Other edible fats & oils</i>	PPOILW PVOILW	Palm oil, Price index Commodity Vegetable Oil
04 Foodstuffs <i>Sugar</i> <i>Bread, pasta & alike</i> <i>Waters</i> <i>Beer made from malt</i> <i>Wine, spirits & liqueurs</i> <i>Tobacco (CPI)</i> <i>Other food products</i>	PSUGAISAW PCEREW PBEVEW PBEVEW PBEVEW 02.2.1.02 PFANDBW	Sugar, Price index Free Market Commodity Cereals Price Commodity Beverage Price Index Commodity Beverage Price Index Commodity Beverage Price Index Filtered clove-flavored cigarette filter Commodity Food & Beverage Price Index
05 Mineral products <i>Portland cement</i> <i>Mineral fuels</i> <i>Other mineral products</i>	PINDUW POILAPSP POILAPSP	Commodity Industrial Inputs Price Index Crude Oil (petroleum) Crude Oil (petroleum)
06 Chemicals & Allied	PINDUW	Commodity Industrial Inputs Price Index
07 Plastics / rubbers <i>Plastics & articles thereof</i> <i>Rubber & articles thereof</i>	PINDUW PINDUW PRUBBW	Commodity Industrial Inputs Price Index Commodity Industrial Inputs Price Rubber, Price index
08 Raw hides & skins, leather	PHIDEW	Hides, Price Index
09 Wood & wood products	PTIMBW	Commodity Timber Index
10 Paper and paperboard	PTIMBW	Commodity Timber Index
11 Textiles	PCOTTINDW	Cotton, Price index
12 Footwear / headgear	PHIDEW	Hides, Price Index
13 Stone / glass	PINDUW	Commodity Industrial Inputs Price Index
14 Precious stones & metals	PMETAW	Commodity Metals Price Index

HS Section / Chapter / Division	WEO Subject Code *)	Descriptor
15 Base metals	PINDUW	Commodity Industrial Inputs Price Index
16 Machinery / electrical	TXGM_D	Export price of manufactures
17 Vehicles & transport equipment	TXGM_D	Export price of manufactures
18 Apparatus & instruments	TXGM_D	Export price of manufactures
19 Arms and ammunition	TXGM_D	Export price of manufactures
20 Miscellaneous	PCPIPCH	Inflation, average consumer prices
21 Works of art	PCPIPCH	Inflation, average consumer prices
*) Except tobacco that CPI index is used		

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