

## International Comparison Program

# [02.01]

## National Accounts Framework in the ICP

Draft

**Global Office** 

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#### 1. THE NATIONAL ACCOUNTS FRAMEWORK IN THE ICP

#### Introduction

1. The ICP is a major statistical exercise which requires a great deal of cooperation and coordination between prices statisticians and national accountants. Inevitably, a large part of the overall work program is directed at identifying the representative and comparable products to be priced and then collecting the prices required to produce PPPs. However, the national accounts are a critical part of the overall ICP. PPPs are of no use unless other relevant data are available to use with them. For example, PPPs are combined with national accounts data to produce real expenditures expressed in a common currency, which can be used to compare the relative size of countries. PPPs can also be combined with exchange rates to provide price level indexes (PLIs), which show the relative price levels in different countries thereby enabling countries to be compared on the basis of whether they are "expensive" or "cheap" to live in or to visit.

2. It is clear the national accounts have a major impact on the overall outcomes of the ICP and one of the aims in the 2011 round is to improve the quality of the national accounts data. Any errors in the national accounts data will have a direct impact on the real expenditures derived by applying PPPs to the national accounts values.

3. Countries participating in the 2011 ICP round will be required to provide a very detailed breakdown of the final expenditure categories of gross domestic product (GDP). There are 155 detailed expenditure sub-classes or basic headings involved, and they are defined in the ICP Expenditure Classification. A detailed breakdown of the national accounts aggregates is needed to provide the values that are converted into real expenditures at the basic heading level. These values also provide the weights that are used in calculating the PPPs at more aggregated levels, up to the level of GDP itself. As is generally the case with price indexes, the prices of goods and services that account for large shares in final expenditure are given a larger weight in calculating the PPPs for broader aggregates than are the prices of goods and services that have relatively small shares.

The purpose of this chapter is to define the national accounts framework that is going to 4. be used in the 2011 ICP. One question that needs to be answered is why do we need to define a national accounts framework for the ICP when the System of National Accounts, 1993 (i.e. the "1993 SNA") already provides the international framework for national accounts. It is true that the 1993 SNA focuses mainly on the national accounts as time series, whereas the ICP is designed to compare activity levels between countries (i.e. spatial comparisons) for a single year. However, the starting point for the time series is the level of GDP in different periods (years and quarters). For ICP purposes, the level of GDP and its main aggregates in a single year is the main national accounting requirement, although there is also considerable interest in using the time series data from the national accounts to produce PPP-based comparisons for years other than ICP benchmark years. In fact, the main output from the ICP is a set of comparable estimates of GDP expressed in a common currency for the majority of countries in the world, with the definition of GDP being consistent with that in the 1993 SNA. Therefore, it is clear the ICP uses the 1993 SNA as the national accounting framework, but there are some specific ICP requirements that mean it is necessary to make some

modifications and clarifications. For example, the ICP uses a special product classification, which is required because of its use as the starting point for specifying the product lists to be priced for the ICP. In addition, a number of the GDP components pose special problems for the ICP that are less pronounced in time series and so special consideration is required for ICP purposes.

5. It would be very useful if the prices underlying the deflators used in the time series could be used directly in the ICP. In some cases it is possible to use prices collected for other purposes, such as the CPI. In practice, it is a difficult exercise because, in time series, the main requirement is for consistency over time in the products being priced whereas pricing products that are comparable across countries is the critical issue in the ICP. However, one of the aims of the ICP is to include products defined for the ICP in each country's CPI to the extent possible.

6. Some countries do not have complete sets of national accounts and so some special consideration will be required. For example, a number of countries do not compile expenditure-based estimates of GDP. Some have only production-based estimates or the expenditure on GDP is incomplete with the production estimate of GDP providing a benchmark and the difference between that estimate and those expenditures that can be recorded being shown as a balancing item.

Experience with the 2005 ICP has shown it is highly likely that, in some countries, the 7. ICP results will be the first time any national accounts are presented for 2011. Some of these countries may be forecasting 2011 GDP using rather rudimentary methods because their underlying data sources are not available in time to meet the ICP deadlines for 2011 GDP estimates. In such cases, it will also be necessary to develop some way of breaking GDP down into the detailed expenditure categories (i.e. basic headings - see the section titled "Basic headings" below) required for the ICP. If detailed data are not available, it may be necessary to use an updated version of the 2005 basic heading splits, with some amendments to cater for known large changes in the economy concerned between 2005 and 2011. In all these cases, special validation procedures will be required to ensure that the GDP estimates provide a reasonable picture of these countries' economies and that the prices collected for the ICP are as consistent as possible with the national accounts values. Some of these issues are mentioned in this chapter but the next chapter ""National accounts estimation in the ICP" presents more specific details, particularly underlining the main issues that national accounts experts may need to consider in producing and validating the national accounts estimates.

#### Background

8. A little background on the ICP is necessary to fully appreciate the uses of national accounts in the ICP. There is increasing interest in making international comparisons of the size of economies, which requires values of aggregates such as GDP (or GDP per capita) to be expressed in a common currency. Many analysts still use exchange rates to convert values from national currencies into a common international currency (typically the United States dollar). The major flaw in using exchange rates is that they do not adjust for the differences in price levels between countries and so can lead to very misleading results. The main reason exchange rates are still used for this purpose, despite their well-documented shortcomings, is that they are readily available and up-to-date information can be obtained for virtually any pair of countries in the world. The 2005 ICP made a huge step forward in providing analysts with PPP-based comparisons for almost 150 countries but some analysts still do not

appreciate the problems involved in using exchange rates for making international comparisons. The major flaw in using exchange rates is that they do not adjust for the differences in price levels between countries and so can lead to very misleading results. Exchange rates can also fluctuate quite markedly and so produce exchange rate based comparisons that are implausible. For example, between its introduction in 1999 and the end of 2009, the euro was initially worth \$1.19, dropped below parity in early 2000, bottomed out at \$0.83 in late 2000 and then did not regain parity with the dollar until late 2002. Since then it has fluctuated, but peaked at \$1.60 in April 2008 before dropping to \$1.44 at the end of 2009. The annual average exchange rates for the trough year (2000) and peak year (2008) of the euro against the dollar were  $\notin 0.92$  and  $\notin 1.47$  respectively. Using exchange rates rather than PPPs for adjusting the GDP of euro currency countries into United States dollars would have resulted in those countries' GDP dropping by almost 40% compared to that of the United States between the trough and peak in the \$/euro exchange rate. Such an outcome is economically implausible given that the total growth in GDP volumes between 2000 and 2008 in euro zone countries was 14.7% compared with that in the United States of 18.6%. Clearly, using exchange rates to convert values expressed in national currencies into a common currency at a time when exchange rates are fluctuating to this extent would lead to quite misleading results. PPPs, though, abstract from such changes in exchange rates and so provide more meaningful international comparisons.

9. When PPPs are applied to a value in national currency to convert it into a common currency, the outcome is referred to as a "volume" or a "real expenditure". It is important to not confuse the PPP-based volumes with the more familiar time series volumes obtained from the national accounts. While there are some similarities between them, there are also some significant differences in the characteristics of these two sets of volume data. The ICP aims to compare the levels of activity in different countries. It differs from the more commonly used measure of changes in activity because the comparisons based on ICP data are intercountry (or "spatial") comparisons rather than the more commonly used time series comparisons, which estimate changes over time ("temporal" comparisons).

- 10. The main uses of real expenditures derived using PPPs are:
  - PPP-based real expenditures of GDP provide a means of comparing the relative size of economies;
  - PPP-based per capita real expenditures enable broad comparisons of the degree of economic development in countries;
  - similarly, PPP-based per capita real estimates of household final consumption expenditure can be used as an indicator of the relative standard of living between countries;
  - PPP-adjusted data can also be used for aggregating national accounts for countries to regional (or world-wide) levels of GDP and its major aggregates.

11. The national accounts directly provide the values underlying the ICP real expenditures (and per capita real expenditures) and so any shortcomings in the national accounts data will be reflected in the PPP-based real expenditures and associated estimates. An additional use of the national accounts is to provide the weights required to combine PPPs at the most detailed ("basic heading") level to broader aggregates, up to and including GDP. The *System of National Accounts, 1993* (the "1993 SNA") will provide the national accounting framework

on which the 2011 ICP is to be compiled because, in 2011, the vast majority of countries will still be using the 1993 SNA rather than the 2008 version for their national accounts.

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#### 2. THE INTEGRATED ECONOMIC ACCOUNTS

(1993 SNA, paragraphs 2.85 – 2.96 and 2.188 – 2.209)

12. The 1993 SNA (paragraph 2.85) defines an account as a tool which records, for a given aspect of economic life, the uses and resources or the changes in assets and the changes in liabilities and/or the stock of assets and liabilities existing at a certain time.

13. Accounts can be built up for institutional units and sectors, transactions within the local economy and with the rest of the world and for assets and liabilities. The current accounts of the integrated economic accounts are presented in the following table, which is a truncated version of Table 2.8 from the 1993 SNA. The cells in which values should appear are marked by "x". There are five institutional sectors in the domestic economy but, for convenience of presentation, they are not shown in the following table:

- non-financial corporations;
- financial corporations;
- general government;
- household;
- non-profit institutions serving households (NPISHs).

14. The importance of the institutional sectors is that they group together units that are likely to have similar factors influencing their economic behavior.

#### Table 2.8 (1993 SNA): Integrated economic accounts – current accounts

	<u>Uses</u>		<u>Uses</u>		<b>Resources</b>		
Accounts	L	and	the	world econom	Transactions and balancing items	econom v the world and services L	Accounts
Production/external account	2		2		Imports of goods and services	2 2	Production/extern l account
of goods and services	2			2	Exports of goods and services	2 2	of goods and services
	2	2	2		Output	3	
	2				2 Intermediate consumption	2	
	2	;	2		Taxes less subsidies on products	2	
	2				2 Value added, gross/Gross domestic product	2	Generation of income account
	2				> Consumption of fixed capital		
	2				2 Value added net/Net domestic product	2	
				2	External balance of goods and services	2	
<i>Generation of</i> <i>income account</i>	2			2	<ul> <li>Compensation of employees</li> </ul>	2 2 2	Allocation of primary income
	2			2	2 Taxes less subsidies on production and imports	2 2 2	account
	2			2	2 Taxes less subsidies on products	2 2 2	

#### Table 2.8 (1993 SNA): Integrated economic accounts – current accounts

	2	2	> Other taxes less subsidies on production	2 2 2	
	2		2 Operating surplus, gross	2 2	
	2		Mixed income, gross	2 2	
	2		> Operating surplus, net	2 2	
	2		> Mixed income, net	2 2	
Allocation of primary income	2	2	<ul> <li>Property income</li> </ul>	3 3 3	
account	2		Balance of primary incomes, gross/National income, gross	2 2	Secondary distribution of
	2		Balance of primary incomes, net/National income, net	2 2	income account
Secondary distribution of	2	3	2 Current taxes on income, wealth etc.	· · · · · · · · · · · · · · · · · · ·	
income account	2	2	2 Social contributions	2 2 2	
	2	2	2 Social benefits other than social transfers in kind	2 2 2	
	2	2	> Other current transfers	2 2 2	
	2		2 Disposable income, gross	2 2	Redistribution of income
	2		2 Disposable income, net	2	in kind account

Table 2.8 (1993 SNA): Integrated	economic accounts - current accounts
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Redistribution of income	2		2	Social transfers in kind	2	:	
in kind account	2		2	Adjusted disposable income, gross	2		Use of income account
	2		2	Adjusted disposable income, net	2		
Use of income account				Disposable income, gross	2	:	
				Disposable income, net	2		
	2		2	Actual final consumption		2	
	2		2	Final consumption expenditure		2	
	2	2	2	Adjustment for change in net equity of households in pension funds	2 2		
	2		2	Saving, gross			
	2		2	Saving, net			
	2	2		Current external balance			
L							

15. The above table presents, in summary form, all the current accounts in the 1993 SNA. The links between them are shown in the following diagram, which is based on Figure 2.4 in the 1993 SNA. The accounts and flows highlighted in green and yellow respectively are those that make up the framework for the 2011 ICP.



#### 3. GDP AND ITS MAIN AGGREGATES

(1993 SNA, paragraphs 6.233 - 6.239)

#### **GDP** measures

16. Broadly speaking, GDP is a concept of value added (gross output less intermediate consumption) from all economic activity within an economy. There are three approaches to measuring GDP and the production measure is the one that most closely accords with the concept outlined in the previous sentence.

- The **production measure** of GDP 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.
- The **expenditure measure** of GDP is derived as the sum of expenditure on final consumption plus gross capital formation plus exports less imports.
- The **income measure** of GDP is derived as compensation of employees plus gross operating surplus plus gross mixed incomes plus taxes less subsidies on both production and imports.

17. As the terms are used in the national accounts, the *gross output* of an economy consists of two kinds of goods and services - *intermediate* and *final*. The former are goods and services that are used up, in a single accounting period, in the process of production. The latter are all the other goods and services included in gross output. One common way to calculate GDP is to subtract the value of intermediate goods and services from the value of the gross output of each producer to obtain what the national accountants refer to as *value added*. GDP is then obtained by adding up the value added of all producers. Clearly, the value added of all producers must be equal to final expenditures because when intermediate expenditures have been subtracted from gross output all that is left is final, by definition. It is also clear that another way to calculate GDP is to add up those final expenditures directly, which is referred to as the "expenditure approach" to estimating GDP.

18. The expenditure approach is required for the ICP because the prices that are most readily observable are those related to final expenditures. The main expenditure aggregates are:

- household final consumption expenditure
- final consumption expenditure by non-profit institutions serving households (NPISHs)
- government final consumption expenditure
- gross fixed capital formation
- change in inventories
- net acquisitions of valuables
- net international trade.

19. For ICP purposes a slightly different classification is used; details of the classification and the logic behind its use are provided in paragraphs 57 to 60.

#### **ICP** requirements

20. National accounts estimates based on the expenditure approach and expressed in local currency units are required for the ICP. The prices that can be most readily observed are those related to final expenditures. For example, the consumer price index (CPI) collects prices that are directly related to many components of household final consumption expenditure. However, collecting prices for outputs and intermediate inputs, which would be required if the production-based estimates of GDP were used in the ICP, is a much more difficult process. It will be necessary to estimate expenditures for countries that have only production-based GDP or which have only rudimentary expenditure-based GDP estimates.

21. To the extent possible, the links between aggregates on the production side of the accounts will be used to systematically estimate expenditure components. The techniques used will be commodity-flow analysis and supply-use (SUT) tables (described in the chapter "National accounts estimation in the ICP").

## 4. MARKET OUTPUT, OUTPUT PRODUCED FOR OWN FINAL USE AND OTHER NON-MARKET OUTPUT

#### (1993 SNA, paragraphs 6.44 – 6.51)

22. The SNA distinguishes between market output, output produced for own final use and other nonmarket output.

#### Market output

23. Market output is output that is sold at prices that are economically significant or otherwise disposed of on the market, or is intended for sale or disposal on the market. Prices are said to be economically significant when they have a significant influence on the amounts the producers are willing to supply and on the amounts purchasers wish to buy. Apart from certain service industries for which special conventions are adopted, the value of the market output of a producer is given by the sum of the values of the following items for the period in question:

- the total value of goods and services sold (at economically significant prices);
- the total value of goods or services bartered;
- the total value of goods or services used for payments in kind, including compensation in kind;
- the total value of goods or services supplied by one establishment to another belonging to the same market enterprise to be used as intermediate inputs;
- the total value of changes in inventories of finished goods and work-in-progress intended for one or other of the above uses.

#### Output produced for own final use

24. Output produced for own final use consists of goods or services that are retained for their own final use by the owners of the enterprises in which they are produced. As corporations have no final

consumption, output for own final consumption is produced only by unincorporated enterprises, for example, agricultural goods produced and consumed by members of the same household. The output of domestic and personal services produced for own consumption within households is not included, although housing services produced for own consumption by owner-occupiers and services produced on own account by employing paid domestic staff are included under this heading. Goods or services used for own gross fixed capital formation can be produced by any kind of enterprise, whether corporate or unincorporated. They include, for example, the special machine tools produced for their own use by engineering enterprises, or dwellings, or extensions to dwellings, produced by households. A wide range of construction activities may be undertaken for the purpose of own gross fixed capital formation in rural areas in some countries, including communal construction activities undertaken by groups of households. The value of output produced for own final use is given by the sum of the values of the following items for the period in question:

- the total value of goods and services produced by household enterprises and consumed by the same households;
- the total value of the fixed assets produced by an establishment that are retained within the same enterprise for use in future production (own-account gross fixed capital formation);
- the total value of changes in inventories of finished goods and work-in-progress intended for one or other of the above uses.

25. Additions to work-in-progress on structures intended for own use are treated as acquisitions of fixed assets by their producers. Goods or services produced for own final use are valued at the basic prices of similar products sold on the market or by their costs of production if no suitable basic prices are available.

#### Other non-market output

26. Other non-market output consists of goods and individual or collective services produced by nonprofit institutions serving households (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. Such output may be produced for two reasons:

- it may be technically impossible to make individuals pay for collective services because their consumption cannot be monitored or controlled, so the production of such services has to be organized collectively by government units and financed out of funds other than receipts from sales, namely taxation or other government incomes;
- government units and NPISHs may also produce and supply goods or services to individual households for which they could charge but choose not to do so as a matter of social or economic policy; the most common examples are the provision of education or health services, free or at prices that are not economically significant, although other kinds of goods and services may also be supplied.

27. The value of the non-market output of a producer (other than output produced for own final use) is given by the sum of the values of the following items for the period in question:

• the total value of goods and services supplied free, or at prices that are not economically significant, to other institutional units, either individually or collectively;

- the total value of goods or services supplied by one establishment to another belonging to the same non-market producer to be used as intermediate inputs;
- the total value of changes in inventories of finished goods and work-in-progress intended for one or another of the above uses.

28. Government final consumption expenditure is obtained by deducting the value of any receipts from sales from this value of output.

29. As prices that are not economically significant may reflect neither relative production costs nor relative consumer preferences, they do not provide a suitable basis for valuing the outputs of the goods or services concerned. Therefore the non-market output of goods or services sold at these prices is valued in the same way as goods or services provided free, i.e. by their costs of production.

30. The main method used to obtain PPPs for government final consumption expenditure is to compare the wages paid in a number of government occupations (wages are the main component of the overall costs). Significant differences in relative wages are observed in some regions, generally reflecting the different level of economic development between countries and therefore the amount of capital equipment available for use. In some regions it may be necessary to adjust the wages estimates for the large productivity differences between the countries.

#### 5. IMPUTED EXPENDITURES

#### Introduction

31. Some goods and services are acquired without any payment involved. For national accounting purposes it is necessary to impute values to all these types of transactions to ensure that GDP measures the value of all the production in the economy and to improve the comparability between countries. The main imputations are consumption of own-produced goods, income in kind, the rents of owner-occupiers, financial intermediation services indirectly measured (FISIM), and barter transactions. Values are imputed for these goods or services based on the prices of similar goods or services sold on the market, or by the costs of production when suitable prices are not available. For the ICP, it is important to ensure that the prices used in calculating PPPs have the same pricing basis as that underlying the national accounts values.

#### Consumption of own-produced goods

(1993 SNA, paragraph 9.52)

32. The production of goods and services on own account can be split into two components – those that need to be included (via imputed values) in the national accounts and those that are excluded. The production of household services that are consumed within the household is specifically excluded. They include services such as cooking food (although the cost of the food items themselves must be included), washing, ironing etc. Housing services provided to the owner-occupiers of a dwelling, though, are included in GDP (via an imputed value) as are services produced by paid domestic staff (e.g. a cook or a gardener). Household final consumption expenditure also includes the values of goods and services produced by unincorporated enterprises owned by households and which are consumed by members of the household that owns the unincorporated enterprise (e.g. food produced for own consumption by farmers).

#### Income in kind

(1993 SNA, paragraphs 9.50 - 9.51)

33. Employers sometimes partly pay their employees indirectly, through income in kind, which means the employees receive goods and services free or at very low prices as part of their compensation. For example, railway workers may have the right to free train travel, coal miners may receive a regular ration of coal, and members of the armed forces may be provided with free meals. In the national accounts, goods and services provided as income-in-kind are recorded as part of compensation of employees and the same amount is included in individual consumption expenditure by households.

#### Rents of owner-occupiers

(1993 SNA, paragraphs 6.29, 6.89, 9.58)

34. People who live in their own dwellings are regarded by the SNA as selling dwelling services to themselves. Therefore, expenditures on rents are estimated both for those who really do pay rents to the owners of their dwellings and for those who own their own houses or apartments.

35. The general rule is that rents of dwellings occupied by their owners should be imputed by reference to rents actually paid for similar dwellings. "Similarity" in the case of dwellings is usually judged by considering the type of dwelling (single-family or multi-family), location (city centre, suburban or rural), and facilities (floor-space, running water, indoor toilet, electricity, central heating, etc.). The recommended approach is to complete a matrix of prices showing the average rents actually paid for a number of different types of dwelling. The number of owner-occupied dwellings of each type is then distributed over the same matrix to obtain, by multiplication, the imputed rents of owner-occupiers for each type of dwelling, which are then aggregated to a national total. Problems arise in countries that do not have a well-developed and broadly based rental sector (e.g. the rental sector might be mainly confined to the higher-priced part of the rental market, such as for expatriates working in the country for a relatively short time).

36. The experience in previous ICP rounds has been that major inconsistencies have arisen between the prices underlying the imputed values of rents for owner-occupied dwellings and the prices supplied for calculating PPPs in the ICP. As a result, a different approach was attempted in the 2005 ICP, using a questionnaire to obtain details of the numbers of dwellings, classified by type, size, locality, region and facilities available (electricity, inside water, private toilet) underlying the national accounts values of rents of owner-occupied dwellings. However, while such an approach is useful in obtaining better estimates of the real expenditures on dwellings, the cost is that the PPPs have to be derived implicitly. As a result, they will contain any errors that arise from inconsistencies between the prices and the quantities underlying the national accounts values and from any differences between those quantities and the quantities reported in the ICP questionnaire.

#### Table 1: Illustrative matrix for imputing rents of owner-occupied dwellings

	Traditional			
Separate	Semi- detached, row	Flat, unit,	Other	dweilings (thousands)

	house	or terrace house, townhouse	apartment	
No. of rooms:		]	Major urban	
1 - 2	· · · · · · · · · · · · · · · · · · ·			
3 - 4				
5+				
Total				
No. of these dwellings with:				
Electricity				
Inside water				
Private toilet				
No. of rooms:		I	Minor urban	
1 - 2				
3 - 4				
5+				
Total				
No. of these dwellings with:				
Electricity				
Inside water				
Private toilet				
No. of rooms:			Rural	
1 - 2				
3 - 4				

5+			
Total			
No. of these dwellings with:			
Electricity			
Inside water			
Private toilet			

37. Tables similar to the above are required separately for rented dwellings and for owner-occupied dwellings. Note that the above table is purely illustrative. If details are available by floor area rather than by the number of rooms then those data would provide a suitable basis for estimating the rents of owner-occupied dwellings. Apart from number of rooms, three aspects of "facilities" are shown in the above table (electricity, inside water supply and private toilet). Additional facilities such as central heating, air-conditioning, etc. could also be included as cross classifications. In many countries it will be important to distinguish between dwellings constructed from traditional materials (e.g. sun-baked bricks) as opposed to modern materials (e.g. furnace-fired bricks). The classification by location and by facilities should be determined by the extent to which these various factors influence the level of rents, which will vary from one country to another. Equally important is the availability of data. Clearly the matrix cannot be more detailed than the information that is available on the characteristics of owner-occupied and of rented dwellings.

38. The statistics on average rents for this table would usually come from observations on rents actually paid for dwellings that correspond to the characteristics defined by each cell of the table. An alternative could be to use rents estimated by hedonic regression techniques. An advantage of these techniques is that they can provide estimates of what the average rents would be for dwellings that fall in cells for which there are no actual observations. However, hedonic methods will usually be feasible only for countries with extensive data bases.

39. Imputation based on the rents actually paid for similar dwellings is not practical in some countries because so few dwellings are actually rented. In other cases the method can be applied in large cities but cannot be used for dwellings in other areas. When it cannot be used, the alternative is to value the rents of owner-occupied dwellings as the total of costs (i.e. consumption of fixed capital, net return on the owner's capital, the costs of regular repairs and maintenance and the costs of insuring the dwelling against fire, other damage and natural catastrophes). Consumption of fixed capital will be the largest cost component. It should be calculated from the current market value of the dwelling and not the original or "acquisition" price and in order to do this it will usually be necessary to use the perpetual inventory method (PIM). The net return on the owners' capital can be estimated by applying an interest rate to the estimated value of dwellings; the interest rate should be what the owners could realistically earn if, instead of buying dwellings, they had invested in a safe financial asset, such as a savings account or government bond.

#### Financial intermediation services indirectly measured (FISIM)

(1993 SNA, paragraphs 6.124 – 6.131)

40. The SNA explains that valuing the output of the financial sector poses particular problems because some financial intermediaries are able to provide services for which they do not charge explicitly by paying or charging different rates of interest to borrowers and lenders (and to different categories of borrowers and lenders). They pay lower rates of interest than would otherwise be the case to those who lend them money and charge higher rates of interest to those who borrow from them. The resulting net receipts of interest are used to defray their expenses and provide an operating surplus. This scheme of differential interest rates avoids the need to charge their customers individually for services provided and leads to the pattern of interest rates observed in practice. However, in this situation, the SNA must use an indirect measure (financial intermediation services indirectly measured, or FISIM) of the value of the services for which the intermediaries do not charge explicitly. FISIM is measured by the difference between the interest received on loans and the interest paid on deposits.

41. The 1993 SNA recommends that FISIM should be recorded as an imputed expenditure by the sector that benefits from the financial services being charged for indirectly, i.e. as intermediate consumption by enterprises, as final consumption by households or government, or as exports to non-residents. It also provides a fall-back option of allocating FISIM entirely as the intermediate consumption of a "nominal industry". The treatment adopted can lead to a significant difference in the level of GDP, with the distribution of FISIM to the using sectors potentially leading to GDP being up to about 3% higher compared with when it is treated as the intermediate consumption of a nominal industry.

42. New, improved methods for calculating FISIM have been developed since the 1993 SNA was released. The differences from the 1993 SNA methodology are described in Annex 3 in the 2008 SNA. The relevant paragraphs are presented below because the Global Office recommends that countries that are developing or improving their estimates of FISIM should take into account these developments.

#### FISIM – Annex 3, 2008 SNA

A3.24 The method for calculating financial intermediation services indirectly measured, widely known as FISIM, has been refined in the light of experience in implementing the *1993 SNA* recommendations. By convention the 2008 SNA recommends that FISIM applies only to loans and deposits and only when those loans and deposits are provided by, or deposited with, financial institutions. The 2008 SNA calculates the output of FISIM on loans (yL) and deposits (yD) only, using a reference rate (rr). Assuming that these loans and deposits attract interest rates of rL and rD respectively, the output of FISIM should be calculated according to the formula: (rL - rr) yL + (rr - rD) yD.

A3.25 The method recommended in the 2008 SNA for the calculation of FISIM implies several changes to the *1993 SNA* formula. For financial intermediaries, all loans and deposits are included, not just those made from intermediated funds. The reference rate should contain no service element and reflect the risk and maturity structure of deposits and loans. The rate prevailing for inter-bank borrowing and lending may be a suitable choice as a reference rate. However, different reference rates may be needed for each currency in which loans and deposits are denominated, especially when a non-resident financial institution is involved. For banks

within the same economy, there is often little if any service provided in association with banks lending to and borrowing from other banks.

A3.26 The 2008 SNA recommends that the consumption of FISIM should be allocated between users (lenders as well as borrowers) treating the allocated amounts either as intermediate consumption by enterprises or as final consumption or exports.

A3.27 The *1993 SNA* calculated FISIM as the difference between property income receivable and interest payable. The property income receivable excluded that part which was receivable from investment of own funds. The *1993 SNA* recognized that in practice it may be difficult to find any method of allocating FISIM among different users and, therefore, accepted that some countries may prefer to continue to use the convention whereby the whole of the services are allocated to intermediate consumption of a notional industry. This possibility has been removed in the 2008 SNA.

43. In order to obtain the best possible comparisons between countries, the Global Office encourages all countries to allocate FISIM to final expenditures (household and government final consumption expenditure and net exports) as well as to intermediate consumption. Regional Offices, in conjunction with the Global Office, will provide assistance to countries to allocate FISIM across final expenditures.

44. A reference PPP will be applied to FISIM in the 2011 ICP, so no explicit prices are required.

#### Allocating FISIM

45. For the purposes of the ICP, FISIM has to be allocated across the various categories of final demand. For completeness, allocations to intermediate consumption should also be estimated. Details of allocating FISIM are included in the section "Allocating FISIM" in the chapter "National accounts estimation in the ICP".

#### **Barter transactions**

(1993 SNA, paragraphs 9.49)

46. Barter is the exchange of goods or services for other goods and services without money changing hands. In principle, final consumption expenditure by households should include the value of barter transactions, which should be valued at the market value of the goods or services exchanged. If the goods or services exchanged are not of equal value then the average market value of the goods or services involved should be used.

#### 6. EXPENDITURES AND ACTUAL FINAL CONSUMPTION

#### **Expenditures**

(1993 SNA, paragraphs 9.22 – 9.26)

47. The 1993 SNA defines expenditures as the values of the amounts that buyers pay, or agree to pay, to sellers in exchange for goods or services that sellers provide to them or to other institutional units designated by the buyers. The SNA notes that the buyer incurring the liability to pay need not be the

same unit that takes possession of the good or service. An example would be a government unit (or an NPISH) paying for health services that a non-government seller provides directly to a household.

48. The 1993 SNA goes on to explain that expenditures on goods or services occur at the times when buyers incur liabilities to sellers. These are usually the times when:

- the ownership of the good is transferred from the seller to the new owner; or
- the delivery of a service by the producer is completed to the satisfaction of the consumer.

49. The 1993 SNA considers that goods and services are acquired by institutional units when they become the new owners of the goods or when the delivery of services to them is completed. The values of the goods or services received are actually recorded as expenditures by the institutional units or sectors that acquire them. The times at which goods and services are acquired are when the change of ownership occurs or the delivery of the services is completed. Acquisitions are valued at the prices paid by the units that incur the expenditures.

#### Consumption goods or services

#### (1993 SNA, paragraphs 9.41 – 9.44)

50. The 1993 SNA defines a consumption good or service as one that is used (without further transformation in production) by households, NPISHs or government units for the direct satisfaction of individual needs or wants or the collective needs of members of the community. It goes on to distinguish between an individual consumption good or service (i.e. one that is acquired by a household and used to satisfy the needs and wants of members of that household) and a collective consumption service, which is a service provided simultaneously to all members of the community or to all members of a particular section of the community, such as all households living in a particular region. Collective services are automatically acquired and consumed by all members of the community, or group of households in question, without any action on their part. Typical examples are public administration and the provision of security, either at a national or local level. By their nature, collective services cannot be sold to individuals on the market, and they are financed by general government units out of taxation or other incomes.

51. It is important for ICP purposes to consider the special case of acquisition for purposes of final consumption, which leads to the concept of actual final consumption. The total value of goods and services acquired by households for purposes of final consumption is described as actual final consumption of households; it includes goods and services used by, but not directly purchased by, the final user. The 1993 SNA defines actual final consumption of households as the value of the consumption goods and services acquired by households, whether by purchase in general, or by transfer from government units or NPISHs, and used by them for the satisfaction of their needs and wants; it is derived from their final consumption expenditure by adding the value of social transfers in kind receivable. NPISHs do not have any actual final consumption because most of their services are individual in nature and so, for simplicity, all services provided by NPISHs are treated by convention as individual (as social transfers in kind). On the other hand, government units do have actual final consumption expenditures. The 1993 SNA defines actual final consumption of general government as the value of the collective (as opposed to individual) consumption services provided to the community, or large sections of the community, by general government; it is derived from their final consumption expenditure by subtracting the value of social transfers in kind payable.

#### Individual versus collective consumption expenditure

(1993 SNA, paragraphs 9.42 – 9.44 and 9.80 – 9.89)

52. The 1993 SNA defines an individual consumption good or service as one that is acquired by a household and used to satisfy the needs and wants of members of that household. It goes on to say that individual goods and services can always be bought and sold on the market, although they may also be provided free, or at prices that are not economically significant, as transfers in kind. In practice, all goods and most services are individual.

53. A service that is not classified as "individual" is described as being "collective". The 1993 SNA defines a collective consumption service as one that is provided simultaneously to all members of the community or to all members of a particular section of the community, such as all households living in a particular region. Collective services are automatically acquired and consumed by all members of the community, or group of households in question, without any action on their part. Typical examples are public administration and the provision of security, either at a national or local level (e.g. defense or police). By their nature, collective services cannot be sold to individuals on the market, and they are financed by government units out of taxation or other incomes.

54. All consumption expenditure by households is considered to be individual and all consumption expenditure by private non-profit institutions serving households (NPISHs) is also treated as individual because it is assumed to be for private use. Governments, however, have both individual and collective expenditures. Thus for example, government expenditure on primary schools is individual because the services are provided to individual children, while government expenditure on the police force is collective because it is for the benefit of the whole community.

#### Individual consumption expenditure by households

#### (1993 SNA, paragraph 9.42)

55. In almost all countries, individual consumption expenditure by households is the largest component of final expenditure on GDP. It covers:

- the purchases of goods and services that people need for daily living food, clothing, consumer durable goods, rent, transport, personal services etc.;
- payments for goods and services that are provided by government or NPISHs at low ("not economically significant") prices; and
- wages paid to domestic servants including food and other goods provided to them as part of their compensation.

#### Final consumption expenditure versus actual final consumption

#### (1993 SNA, paragraphs 9.90 – 9.99)

56. The distinction between *who consumes* (individuals or the community) and *who pays* (households, NPISHs or government) is used in the *1993 SNA* to derive a new aggregate termed *actual final consumption*. *Actual individual consumption* of households is obtained by adding individual consumption expenditures by NPISHs and by government to individual consumption expenditure by households. All consumption expenditures by NPISHs are defined as individual, so NPISHs have no actual consumption. Government, however, has collective as well as individual consumption

expenditure and the former is classified as *actual collective consumption*, which is entirely attributable to government. The table below shows the relationships between these concepts.

Final consumption expenditure	Actual final consumption
<u>Households</u>	Actual individual consumption
Individual consumption expenditure by households	Individual consumption expenditure by households
	+ individual consumption expenditure by NPISHs
	+ individual consumption expenditure by government
<u>NPISHs</u>	
Individual consumption expenditure by NPISHs	
<u>Government</u>	Actual collective consumption
Collective consumption expenditure by government	Collective consumption expenditure by government
+ individual consumption expenditure by government	

 TABLE 2: Relationship between final consumption expenditure and actual final consumption

57. The ICP uses the concept of actual final consumption rather than that of final consumption expenditure when presenting the results for consumption expenditures to improve the consistency of the comparisons between countries that have different institutional arrangements for supplying services such as health and education. In other words, the PPPs and the associated real expenditures and PLIs will be calculated for the aggregates shown in the right-hand column of the above table.

58. The remaining major aggregates are those defined in the 1993 SNA (and described in paragraph 18) so the full set of broad aggregates used in the ICP is as follows:

- individual consumption expenditure
  - by households
  - by NPISHs
  - by government
- collective consumption expenditure by government
- gross fixed capital formation
- change in inventories
- net acquisitions of valuables

• net international trade.

59. The value of GDP is not affected by which of these alternative classifications is used because they both simply provide a means of systematically identifying all the components of GDP. The two alternatives provide a different, but consistent, view of what makes up total expenditure on GDP. The reason for the different classification used by the ICP is that different institutional arrangements in countries mean that some goods and services, particularly in health and education, are provided to varying extents by the private sector and by government in different countries. A more consistent basis for international comparisons can be obtained by combining them into a single category, on the basis of *who consumes* the goods or services rather than *who pays for* them, which is the rationale for the ICP classification. If the ICP were to use the 1993 SNA expenditure concept, it would give misleading comparisons of the real expenditures on the different kinds of goods and services actually being **consumed** by households in different countries.

60. Note, however, that countries participating in the 2011 ICP will be required to provide final consumption expenditures as listed in the left-hand column of the above table. The ICP regional coordinators, in collaboration with the national statisticians, will make the conversion from final consumption expenditure to actual final consumption.

#### 7. MAJOR AGGREGATES AND VALUATION

#### Introduction

61. The general rule in the 1993 SNA is that transactions are valued at the actual prices agreed upon by the transactors. Such prices are commonly referred to as *market prices* although the 1993 SNA prefers the term *purchasers' prices*. Purchasers' prices include any non-deductible value-added tax (VAT) and other taxes on products. Purchasers' prices also include any transport charges that must be incurred to take delivery of the goods even when the transport charges are separately invoiced. Purchasers' prices are readily available for the large majority of the goods and services that enter into the expenditure aggregates because, in many cases, they are the prices used to calculate consumer and retail price indexes. However, there are some problem areas where additional guidance may be helpful.

62. Transaction prices are measured net of discounts or rebates i.e. they are lower than the quoted price by the amount of any reduction in the quoted price granted by the seller to the customer. The price reduction may have come about through bargaining or the reduction may have been spontaneously offered by the seller to promote sales. In general, these price reductions do not cause any special problems for estimating the expenditures because estimates of final expenditures in the national accounts are almost always valued at the correct, net-of-discount, prices. Provided the national accounts estimates are based on the value of sales reported by producers or on the value of purchases reported by the customer, they will automatically reflect the fact that some of those sales have been made at discounted prices. They may, however, cause problems for price collection because the prices reported by countries for the 2011 ICP must be consistent with the prices underlying the expenditures and so they must take account of any discounts and rebates that are commonly granted to purchasers.

#### Household final consumption expenditure

(1993 SNA, paragraphs 9.45 – 9.65)

#### Concepts

63. The 1993 SNA defines household final consumption expenditure as consisting of expenditure incurred by resident households on consumption goods or services, but excluding expenditure on fixed assets in the form of dwellings or on valuables. When dwellings are rented by their owners, rentals are recorded as output of housing services by the owners and final consumption expenditure by the tenants. When dwellings are occupied by their owners, the imputed value of the housing services enters into both the output and final consumption expenditure of the owners.

64. The SNA treats unincorporated enterprises as part of the household sector. When a household includes one or more persons who own an unincorporated enterprise, it is necessary to ensure that only expenditure for the direct satisfaction of human needs and wants is included in household final consumption expenditure; all expenditure incurred for business purposes is excluded from household consumption expenditure and is treated as intermediate consumption of the business. Splitting expenditures in this way may not be easy in practice when the same good or service (for example, electricity or other fuels) may be used equally well for business purposes or for household final consumption. Therefore, business expenditures cannot be identified purely on the basis of the type of good or service purchased. Particular care needs to be exercised in the case of farms, including subsistence farms, where goods that have been purchased, or produced on own account, may be used either for household final consumption or for intermediate consumption; for example, corn or potatoes may be consumed by members of the households, fed to animals or used as seeds for future crops.

65. Household final consumption expenditure includes the values of barter, expenditures on goods and services received as income in kind, expenditures on goods and services produced on own account, expenditures on financial intermediation services, and the costs of the maintenance and repair of household durables.

#### Valuation

(1993 SNA, paragraphs 9.66 – 9.71)

66. The 1993 SNA states that household final consumption expenditure should be recorded at the purchasers' prices paid by households including any taxes on products that may be payable at the time of purchase. The purchaser's price of a good is defined as the amount payable to take delivery of a unit of the good at the time and place required by the purchaser. It includes any transport charges incurred by the purchaser not already included in the seller's invoice price. The purchaser's price does not include any interest or service charges that may be added when the seller arranges for credit to be provided to the purchaser. Similarly, the purchaser's price does not include any extra charges that may be incurred as a result of failing to pay within the period stated at the time the purchases were made, such charges being effectively interest payments on the credit extended by the seller.

67. The SNA points out that different households may pay different prices for identical products because of market imperfections. Price differences may persist because households may not be aware of them, or they may have imperfect information because the costs of searching for the retail outlets selling at the lowest prices may be too great. Even when households are aware of the price differences, it may be too inconvenient or costly to visit the outlets selling at the lowest prices. Another reason for the persistence of price differences is that many service producers deliberately practice price discrimination by charging different households different prices for identical services e.g., by charging lower prices or fees to pensioners or people with low incomes. As services cannot be retraded, price discrimination is extremely common, or even prevalent, among service producers. Household

expenditures are nevertheless recorded at the prices actually paid, even though this may mean that goods and services may not be valued uniformly.

68. Therefore, the staff responsible for collecting the price information will need to consult with the national accountants to determine the basis of the prices that underlie the national accounts. Special care needs to be taken in two particular areas:

- Some kinds of services customarily involve payment of "tips" (or "gratuities") in addition to the advertised price. Common examples are restaurant meals, taxi rides, haircutting and similar personal services. The correct procedure for the national accounts is to value the output of these services at the advertised price plus the usual amount of tips. For these services the national accountants will need to tell the price collectors the percentages that have been added in respect of tips so that they can add the same amounts in reporting prices for the ICP.
- In many countries, expenditure on motor vehicles is estimated by multiplying the number of new vehicle registrations by average vehicle prices. People buying motor-cars usually bargain with the car salesmen and end up paying less than the official "list price". The price collectors will again need to consult with the national accountants so that they can report for the ICP the same kinds of prices that have been used for the national accounts.

69. As noted above, individual consumption expenditure of households includes a number of imputed expenditures where, by definition, no purchases or sales take place so that purchasers' prices cannot be observed.

70. Goods that are consumed by the households (including family members) that produce them should be valued at purchasers' prices. In many countries the largest item will be crops and livestock produced by small farmers. Prices of similar goods in local markets can be used to value them.

71. Income in kind is valued at purchasers' prices if the employer has purchased the goods or services that are being provided to the employees. It is valued at producers' prices if the goods or services have been produced by the enterprise itself. Producers' prices are the amounts received by the producer from the purchaser minus any VAT, or similar deductible tax, which has to be paid by the purchaser.

#### Final consumption expenditure by NPISHs and government

## *Estimating values for non-market services* (1993 SNA, paragraphs 6.90 – 6.92)

72. The 1993 SNA (paragraph 6.90) explains that non-market production is recorded at the time it is produced, which is also the time of delivery in the case of non-market services. In general, suitable prices are generally not available to value such production, either because there are no markets for collective services such as public administration and defense, or because there are often important differences between the types and quality of services provided even when similar kinds of services are produced on a market basis and sold alongside the non-market services. In most cases it is not possible to find enough market services that are sufficiently similar to the corresponding non-market services to enable their prices to be used to value the latter, especially when the non-market services are produced in very large quantities.

73. For these reasons, and also to ensure that the various non-market services produced by government units and NPISHs are valued consistently with each other, the 1993 SNA defines their value as the sum of the costs incurred in their production; that is, as the sum of:

- intermediate consumption;
- compensation of employees;
- consumption of fixed capital;
- other taxes, less subsidies, on production.

74. The net operating surplus on the production of non-market goods or services produced by government units and NPISHs is assumed always to be zero.

75. For ICP purposes, the major problem with valuing non-market services this way is that productivity differences between countries can be very significant, with government workers in high-income countries being assisted by capital equipment such as modern communications facilities and sophisticated medical equipment. It becomes very important to adjust for productivity differences so that the comparisons are not distorted by the disparity in the amounts and types of capital equipment available within each country. However, doing so is not a straightforward exercise, with both conceptual problems and data problems affecting the outcomes.

#### Individual consumption expenditure by NPISHs

(1993 SNA, paragraphs 4.64 – 4.67, 9.44)

#### Concepts

76. The 1993 SNA defines non-profit institutions serving households (NPISHs) as non-profit institutions which provide goods or services to households free or at prices that are not economically significant.

77. In practice, NPISHs are institutional units that have been set up by a group of households to provide services, and occasionally goods, on a non-profit basis. NPISHs have two special features. First, they provide their services (and sometimes goods) on a non-market basis. Non-market means that the services or goods are provided free or at prices that are not economically significant, that is at prices which do not have a significant influence on the amounts that producers are willing to supply or on the amounts that purchasers wish to buy. Second, NPISHs are mainly financed by donations or regular subscriptions from households. NPISHs may also finance part of their operations from interest and dividends earned on investments made from donations and subscriptions from an earlier period, and they may also receive some funds from government or from enterprises. The important point is that households, rather than government or corporations, provide the main financial support for NPISHs.

78. There are two kinds of NPISHs:

• The first kind is those that are created by associations of persons to provide services (and possibly goods) for the benefit of the members themselves. Common examples are political parties, trade unions, sporting, cultural and recreational cubs and religious organizations. Note that religious organizations also cover schools, clinics and hospitals

run by those organizations as well as mosques, churches, temples and other places of worship.

• The second group consists of charities, relief and aid agencies that are created for philanthropic purposes rather than to provide services to the members financing the NPISHs. Their resources may come from foreign as well as domestic sources. If externally funded NPISHs (such as UNICEF, OXFAM, Médécins sans Frontières, the Red Cross and the Red Crescent) are expected to operate in a country for more than twelve months, they become resident NPISHs of that country for national accounts purposes.

79. Bodies serving similar functions but which are controlled and mainly financed by government units are classified as government non-profit institutions rather than as NPISHs.

80. In paragraph 9.44, the 1993 SNA acknowledges that some of the services provided by NPISHs to the members of the associations that own them have some of the characteristics of collective services; for example, some research carried out by NPISHs may benefit all members of the community. However, most of the services provided by NPISHs are individual in nature and, for simplicity, all the services provided by NPISHs are treated by convention as individual.

#### Valuation

81. By definition, the output of NPISHs cannot be valued at the prices at which they sell their output because these are "not economically significant". Their expenditures have to be estimated as the sum of their costs of production. The components involved are compensation of employees, expenditures on goods and services for intermediate consumption, gross operating surplus (which is usually equal to consumption of fixed capital), taxes (minus subsidies) on production, minus any payments received from households for services provided. (These have to be deducted because they have already been included in individual consumption expenditure by households.)

#### Consumption expenditure by government

(1993 SNA, paragraphs 9.75 – 9.87)

82. The 1993 SNA notes that general government incurs expenditures on a wide range of consumption goods and services. The expenditures are financed principally out of taxation or other government revenues and may be provided either on selected individual goods or services or on collective services.

#### Individual consumption expenditure by government - Concepts

- 83. Individual consumption expenditure by government is of two kinds:
  - First, the production of services by government for the benefit of individual households. Examples are running schools and hospitals. Here the government is itself organizing and financing the production of services for consumption by individual households.
  - Second, the purchase of goods and services by government from other producers which are then passed on to households, either free or at prices below the costs of production, without any further processing by government. Examples are the provision to households of medicines and medical services for outpatients. In some cases, households obtain these goods and services free or at very low prices at the point of sale while in other cases

households pay the full price at the point of sale and are later reimbursed, in part or in full, by government.

84. For the 2011 ICP, the purchase by government of goods and services for delivery to households is particularly relevant for two functions, health and education. The difference is important because different methods are used to collect prices for them.

85. In most countries, there are several different levels of government, such as municipal, local, state, provincial, federal. For the 2011 ICP, data are required only for the total of these different levels, which is termed "general government" in the 1993 SNA. Thus, for example, expenditure on education or health services must be the total of expenditures on education or health services by all levels of government.

#### Individual consumption expenditure by government - Valuation

86. Individual consumption expenditure by government has two broad components:

- the production of services where the government itself produces services for consumption by individual households;
- the purchase of goods and services by government from other producers which are then passed on to households without any further processing by government.

87. The first component (production of services by government) has to be valued at cost, in the same way as for NPISHs. (Valuation of consumption expenditures of government and NPISHs at their costs of production is also referred to as the *input-price approach*.) It is clearly unsatisfactory because it does not capture differences in the quality of the services produced. Differences between countries in the quality of non-market services may arise because of differences in the labor/capital mix, because countries are more or less efficient at using capital and intermediate inputs or because government employees are more or less well trained, managed and motivated. Over the last two decades there has been much research into this issue and a few countries have recently started using direct output methods in their national accounts, rather than input-price methods for government services. The second component, however, is valued at purchasers' prices, i.e. at the cost to government of buying the goods and services from other producers.

#### Collective consumption expenditure by government - Concepts

88. Government current expenditure that is not individual is termed "collective". Current expenditures defined as collective fall under the broad headings of general public services, defense, public order and safety, economic affairs and environment protection but they also include certain expenditures under housing, health, recreation and culture, education and social protection that are considered to be for the benefit of the community at large. These are expenditures on formulating and administrating government policy at the national level, setting up and enforcing public standards, and on research and development.

#### Collective consumption expenditure by government - Valuation

89. Collective consumption expenditure by government is valued at cost using similar cost components to those listed for NPISHs in paragraph 81 above.

#### Gross capital formation

90. Gross capital formation consists of gross fixed capital formation, changes in inventories and net acquisitions of valuables.

#### Gross fixed capital formation - Concepts

(1993 SNA, paragraphs 10.33 – 10.95)

91. The 1993 SNA defines gross fixed capital formation (GFCF) as the total value of a producer's acquisitions, less disposals, of fixed assets during the accounting period plus certain additions to the value of non-produced assets (such as subsoil assets or major improvements in the quantity, quality or productivity of land) realized by the productive activity of institutional units. Fixed assets are tangible or intangible assets produced as outputs from processes of production that are themselves used repeatedly or continuously in other processes of production for more than one year. Examples of gross fixed capital formation are the acquisition of buildings, including dwellings, machinery and equipment, mineral exploration, and computer software. It is important to note that the 1993 SNA does not include expenditure on research and development (R&D), although a change was made in the 2008 SNA to include such expenditures as capital formation.

92. Fixed assets were classified into two broad categories in the 1993 SNA – *tangible* fixed assets and *intangible* fixed assets.

93. The broad categories of tangible fixed assets in the 1993 SNA are:

- dwellings;
- other buildings and structures;
- machinery and equipment;
- cultivated assets, (e.g. trees and livestock) that are used repeatedly or continuously to produce products such as fruit, rubber, milk, etc.

94. Intangible fixed assets are:

- mineral exploration;
- computer software;
- entertainment, literary or artistic originals;
- other intangible fixed assets.

95. GFCF also includes major improvements to tangible non-produced assets, including land, plus any costs associated with the transfers of ownership of non-produced assets. As is the case with production, fixed assets can be acquired by means other than purchasing them, such as through barter, or as capital transfers in kind, or produced on own account but which are not yet completed or fully mature. Acquisition of new assets covers not only complete assets but also any renovations, reconstruction or enlargements that significantly increase the productive capacity or extend the service life of an existing asset.

96. GFCF is always measured after deducting receipts from sales of existing assets. The assets concerned may be sold as second-hand assets to other producers either within the country or abroad,

they may be sold for their scrap value or, in the case of livestock, they may be sold to abattoirs at the end of their productive lives. In all cases receipts from sales are counted as negative capital formation and are deducted from outlays on the purchase of new or second-hand assets. Sales are considered to include existing fixed assets surrendered in barter transactions and existing fixed assets surrendered as capital transfers in kind.

#### Gross fixed capital formation - Valuation

97. Gross fixed capital formation is valued at purchasers' prices but note that these should include not only the cost of transport but also the cost of installation and any fees or taxes for transfer of ownership. In the case of a machine or building, for example, the purchasers' price is the total amount that has to be paid to have the asset in a fit state for use in the production process.

98. Own-account production of fixed capital assets is important in most countries. Such production is valued at basic prices, which are equal to producers' prices minus any product taxes. If basic prices are not available, own-account production of fixed assets should be valued at the costs of production, including an estimated mark-up for operating surplus.

99. New fixed assets purchased are valued at purchasers' prices, so the prices obtained for the ICP should include all transport and installation charges as well as any costs incurred in the transfer of ownership, such as fees paid to surveyors, engineers, architects, lawyers, estate agents, etc., and any taxes payable on the transfer. Fixed assets produced for own gross fixed capital should be valued at their estimated basic prices, or by their costs of production when satisfactory estimates of their basic prices cannot be made. Purchases of existing fixed assets are valued including all transport, installation and other costs of ownership transfer incurred by the purchaser while sales of existing fixed assets are valued after deducting any costs of ownership transfer incurred by the seller.

100. It is important to note that the 1993 SNA definition of capital assets is narrower than that in the 2008 SNA, so adjustments are required to the accounts of countries that are using the 2008 SNA as their national accounting framework. The key additions to GFCF in the 2008 SNA are expenditures on research and development, on weapons systems, on water resources (in some specific cases), and on all databases having a life of at least one year (only "large" databases were included in GFCF in the 1993 SNA).

#### Change in inventories - Concepts

(1993 SNA, paragraphs 6.57 – 6.79 and 10.96 – 10.115)

101. According to the 1993 SNA, the basic principle underlying the measurement of changes in inventories is that output should be recorded at the time it is produced and valued at the same price whether it is immediately sold or otherwise used or entered into inventories for sale or use later. No output is recorded when goods produced previously are withdrawn from inventories and sold or otherwise used.

102. The value of changes in inventories is the value of the inventories acquired less the value of the inventories disposed of during the year. Some of these acquisitions and disposals are attributable to actual purchases or sales, but others reflect transactions that are internal to an enterprise (i.e. an increase in inventories of finished goods attributable to production being greater than sales of those goods). In concept, inventories are valued in the same way as other assets, but he process is complicated by the starting point for measuring inventories being their values at the end and at the

beginning of the year. The prices underlying these values are different and so the simple difference between them is not the value required as the estimate of change in inventories.

103. Conceptually, entries into inventories must be valued at the basic prices prevailing at the time of entry, while withdrawals must be valued at the prices at which they are then sold. In this way, the value of the sales or other uses of goods produced previously is cancelled out by the (negative) value for withdrawals from inventories. This method of valuing changing inventories, which may be described as the "perpetual inventory method" or PIM, is not always easy to implement in practice, however, and it sometimes leads to results which may be counter intuitive.

104. When prices are stable, the measurement of changes in inventories is relatively simple. However, when there is inflation, significant price increases may occur while goods are held in inventory. Holding gains accruing on goods held in inventory after they have been produced must not be included in the value of output in the national accounts. The perpetual inventory method ensures their exclusion by valuing goods withdrawn from inventory at the prices prevailing at the time they are withdrawn and not at the prices at which they were entered, or their "historic costs". This method of valuation can lead to much lower figures for both output and profits in times of inflation than those obtained by business accounting methods based on historic costs.

#### Change in inventories - Valuation

105. The 1993 SNA states that goods entering inventories are valued at the basic prices prevailing at that time (that is, the prices at which they could have been sold when first produced), while goods withdrawn from inventory are valued at the basic prices prevailing at that time (that is, the prices at which they can then be sold). The SNA goes on to define the total value of the changes in inventories of finished goods recorded within a period as the sum of the values of all goods entering inventory less the sum of the values of all goods withdrawn from inventory less the value of any recurrent losses of goods held in inventory during that period.

106. In practice, the levels of inventories are typically recorded in business accounts at the end of each accounting period, which can also be considered as the beginning of the following accounting period (assumed to be a year from here on). These "book values" provide the starting point for calculating the change in inventories to be recorded in the national accounts, but several steps are required in the process. A difference can arise between the beginning and end of year book values even if exactly the same quantity of each product is held in inventories at both points in time because of the changes in prices over the course of the year. In this case, if prices are rising then the change in book value of inventories will be entirely a capital gain because there is no change in the inventories themselves. Such capital gains should be excluded from the change in inventories and included as a revaluation.

107. The measure of inventories required for national accounting purposes is the change in inventories valued at the average prices ruling during the year. It can be calculated by taking the difference between closing (i.e. end of year) inventories and opening (i.e. beginning of year) inventories both valued at average annual prices for the year in question. The data required are prices for inventories at the end of the year, at the beginning of the year and the average for the year as a whole. The physical change in inventories valued at average annual prices is then obtained as follows:

Change at average annual prices = 
$$\begin{bmatrix} BV_E \div \begin{pmatrix} P_E \\ P_{avg} \end{pmatrix} \end{bmatrix} - \begin{bmatrix} BV_B \div \begin{pmatrix} P_B \\ P_{avg} \end{pmatrix} \end{bmatrix}$$

where  $BV_E$  = book values of inventories at the end of the year

 $BV_B$  = book values of inventories at the beginning of the year

 $P_E$  = price index of inventories at the end of the year

 $P_B$  = price index of inventories at the beginning of the year

 $P_{avg}$  = price index of average inventory prices for the year.

108. The difference between the change in book values (i.e.  $BV_E - BV_B$ ) and this change in inventories at average annual prices is a measure of the capital gain (or loss).

109. In practice, the change in inventories at average annual prices is calculated in several steps so that the change in inventories at constant prices (required for the volume estimates of GDP) is calculated as part of the process. In this case, the following steps are required:

Constant price book value at beginning of year =  ${}^{BV_{B}}/P_{P} \times 100$ 

Constant price book value at end of year =  $\frac{BV_E}{P_E} \times 100$ 

Change in inventories at constant prices = 
$$\binom{BV_E}{P_E} \times 100 - \binom{BV_B}{P_B} \times 100$$

Change in inventories at average annual prices =  $\left[ \left( \frac{BV_{E}}{P_{E}} - \left( \frac{BV_{B}}{P_{B}} \right) \right] \times P_{avg} \right]$ 

110. Note that the factor of 100 is not shown in this formula because the average price index ( $P_{avg}$ ) would have to be divided by 100 which would cancel with the 100 in the numerator. Using simple algebra to manipulate the first equation shown above for change in inventories at the average prices for the year will show that it is equivalent to this one.

111. Calculating the change in inventories at average annual prices in this way is an approximation to the conceptually desirable values (obtained by recording every entry into inventories and every withdrawal from inventories). It makes a number of assumptions about the inventory valuation methods used by businesses, the structure of the inventories, the rate of entry into and withdrawal from inventories during the year, as well as the smoothness of the rate of price changes during the year.

112. Inventories are usually classified into three broad categories – finished goods, materials and fuels, and work-in-progress. Finished goods include goods acquired for resale by wholesalers and retailers, all goods stored by government as strategic reserves, such as food and fuel, as well as finished goods that are awaiting delivery to customers. Materials and fuels include raw materials and supplies which will be used up as intermediate consumption in the course of production in a future year.

113. Work-in-progress consists of goods and (less often) services on which some processing has taken place but which are not yet in a finished form suitable for delivery to customers. In agriculture, work-in-progress consists of the natural growth of vineyards, orchards, plantations and timber tracts and the natural growth in livestock that are being raised for slaughter. In construction, work-in-progress will include unfinished buildings and civil engineering works and there may be substantial differences in construction work-in-progress from year to year.

114. Reference PPPs, based on the PPPs for goods related to those held in inventories, will be used for inventories.

115. The 2011 ICP requires participating countries to report the total change in inventories at average annual prices, as used in calculating the estimates of expenditure on GDP. The following table provides an example of how to calculate the change in inventories at average 2011 prices (the value in the row that is highlighted is the value required for basic heading *160111 - Changes in inventories at average 2011 prices*).

Inventories data		
(a) Value of inventories at beginning of 2011 (i.e. at 31 December 2010)		660
(b) Value of inventories at end of 2011 (i.e. at 31 December 2011)		855
(c) Change in value of inventories (i.e. change in book value) in 2011	(a) – (b)	195
Price indexes for inventories		
(d) Price index at beginning of 2011 (base year of volume estimates =100)		11(
(e) Price index at end of 2011 (base year of volume estimates =100)		114
(f) Average price index for 2011 (base year of volume estimates =100)		112
Inventories at constant prices		
(g) Book value level at beginning of 2011, at constant prices	(a)/(d) x 100	600
(h) Book value level at end of 2011, at constant prices	(b)/(e) x 100	750
(i) Change in book value in 2011, at constant prices	(h) – (g)	150
Change in inventories at average 2011 prices		
(j) Change in inventories at average 2011 prices	(i) x (f)/100	168

 Table 3: Calculating change in inventories at average 2011 prices
Capital gain	(c) – (j)	27
Capital gain	(c) = (j)	21

116. If inflation is low, the estimate of change in inventories at average 2011 prices will be approximated by taking the change in the book values of inventories over the course of the year (i.e. the difference between the inventory levels at 31 December 2011 and the levels at 31 December 2010) and divide it by a price index for inventories. Ideally, this price index would relate to the average prices for inventories during the year, but a suitable approximation would be the mid-year prices. However, if inflation is high (say, greater than 10% per annum) then the shortcut may not be satisfactory and so the full process described above should be followed.

Acquisitions less disposals of valuables (1993 SNA, paragraphs 10.116 – 10.117)

# Concepts

117. Valuables are assets that are acquired and held primarily as stores of value. They are not used for production or consumption, they do not deteriorate over time under normal conditions and they are generally held in the expectation that their prices will increase over time, at least in the longer term. They include precious metals and stones, jewellery, works of art, and collections of coins, stamps, medals and similar objects for which there is an established market.

118. Valuables may be held by corporations, households, NPISHs or government. In practice the most important type of valuable is gold and other precious metals held by financial corporations.

## Valuation

119. The 1993 SNA recommends that acquisitions of valuables should be valued at the actual or estimated prices payable by the units acquiring the assets to the units disposing of the assets plus any associated costs of ownership transfer incurred by the units acquiring the assets such as fees payable to expert valuers, agents, auctioneers, etc. Disposals are to be valued at the prices payable by the units acquiring the assets to the units disposing of the assets of ownership transfer incurred by the latter. On aggregation, therefore, acquisitions less disposals of valuables include dealers' margins and the costs of ownership transfer on new and existing valuables, whether the transactions consist of purchases and sales, barter or capital transfers in kind.

120. For the 2011 ICP, participating countries are requested to report both purchases of valuables (acquisitions) and sales (disposals). A reference PPP will be used for valuables in the 2011 ICP.

# Net international trade

(1993 SNA, paragraphs 14.36 – 14.44 and 14.88 – 14.115)

## Concepts

121. The 1993 SNA defines exports of goods and services as sales, barter, or gifts or grants, of goods and services from resident to non-residents, while imports consist of purchases, barter, or receipts of gifts or grants, of goods and services by resident from non-residents. International transactions in services differ in many respects from those in goods so exports (and imports) of goods and services are considered and classified separately from each other.

# Valuation

122. The 1993 SNA states that exports and imports of goods should be recorded at the market value of the goods at the point of uniform valuation (the customs frontier of the economy from which they are exported), i.e. the goods are valued free on board (f.o.b.) at that frontier. The value includes that of the goods and of the related distributive services up to that point, including the cost of loading on to a carrier for onward transportation, where appropriate. Conceptually, the f.o.b. price can be regarded as the purchaser's price that would be paid by an importer taking delivery of the goods after they have been loaded on to his own carrier, or other carrier, at the exporter's frontier after payment of any export taxes or the receipt of any tax rebates. The time at which the export or import of a service is to be recorded is the time at which it is rendered (delivered or received), which mostly coincides with the time at which the service is produced. In some instances (e.g., freight and insurance, port services, etc.), as may be the case with trade in goods, there may be pre-payments or post-payments for such services.

123. Imports are often reported in customs records at their value at the frontier of the importing country, i.e. at cost, insurance and freight (c.i.f.) prices. If merchandise imports are adjusted to f.o.b. values the effect is to reduce the value of merchandise imports but to increase net imports of freight and insurance services by exactly the same amount. The 2011 ICP requires only the values of total exports of goods and services and total imports of goods and services so their valuation on either an f.o.b. or a c.i.f. basis does not affect the values reported for the ICP. A reference PPP (exchange rates) will be used for net international trade because of the very different structure of exports and imports in countries around the world.

# Time of recording

## (1993 SNA, paragraphs 3.87 – 3.113)

124. The 1993 SNA recommends that transactions should be recorded on an accrual basis. It goes on to define accrual accounting as recording flows at the time economic value is created, transformed, exchanged, transferred or extinguished. This means that flows which imply a change of ownership are recorded when ownership passes, services are recorded when they are provided, output at the time the products are created and intermediate consumption when materials and supplies are being used. On the other hand, cash accounting records only cash payments, at the times these payments occur. This method is widely used to record government revenues and expenditures and it is also employed for certain business purposes. Problems arise when using cash accounting in the national accounts because the times at which payments take place may diverge significantly from the related economic activities and transactions, which are the underlying activities and transactions that the SNA is attempting to measure.

125. Other issues related to the time of recording transactions arise in cases where the production takes more than one accounting period to complete (e.g. some agricultural products such as crops, and construction projects such as large building, or major equipment items such as ships). In such cases, it is necessary to calculate the value of the work completed during each accounting period and record it as inventories of "work in progress". More generally, inventories also record the difference between production and sales of goods in the economy. For example, if a good is produced in one period and sold in the next then it is recorded in inventories of finished goods.

# The ICP in countries with high inflation

126. From an ICP viewpoint, the key issue is to maintain consistency between the basis on which the accounts are compiled and the price levels recorded for the ICP products that are priced. If the accounts are recorded on the basis of observed values (i.e. they are not adjusted back to a constant price level) then a simple monthly or quarterly average of the prices collected for the ICP will be broadly consistent with the national accounts values. Even though these values will be dominated by the prices in the latter part of the year, the same will be true of the annual average price recorded for the ICP if it is calculated as a simple average of the monthly or quarterly prices unless there are large variations in the monthly quantities.

127. The following example illustrates the issue. It is based on exactly the same quantity of a product being purchased each month. The rate of inflation is 20% per month. The values are calculated as the product of the monthly quantity and price. Annual values are the sum of the monthly or quarterly values. Annual and quarterly prices are the simple averages of the monthly prices. The annual value (39,560) is the sum of the monthly values but the same result is obtained in this example by taking the simple average of the monthly prices and multiplying it by the annual quantity. Clearly, if the monthly quantities vary significantly then you could get quite a different outcome but it would depend on the extent to which the quantities significantly above or below the monthly average are in the early or later part of the year.

	Quantity	Price	Value	Quarterly quantity (sum of months)	Quarterly price (average of months)	Quarterly value (sum of months)	Quarterly value (mid- point price)
January	20	50	1,000				
February	20	60	1,200				
March	20	72	1,440	60	61	3,640	3,600
April	20	86	1,720				
May	20	103	2,060				
June	20	124	2,480	60	104	6,260	6,180
July	20	149	2,980				
August	20	179	3,580				
September	20	215	4,300	60	181	10,860	10,740
October	20	258	5,160				

November	20	310	6,200				
December	20	372	7,440	60	313	18,800	18,600
Year	240	165	39,560	240	165	39,560	39,120

128. The final column shows the effect of using the price for the middle month of each quarter rather than the quarterly average price. It is clear there is a downwards bias in this series but it is not significant (just over 1%), particularly given the other uncertainties with the data in a country suffering from high inflation.

# 8. BASIC HEADINGS

## Introduction

129. Very detailed national accounts data, consistent with the conceptual framework described in the 1993 SNA, are required for the ICP. The most detailed level at which national accounts data are required is referred to as the "basic heading" and so it is the building block on which the whole ICP is based. The consistency of the data in the ICP is very dependent on the consistency of the basic heading data reported. The importance of the basic heading to the whole ICP process can be seen from its definition:

The basic heading is the lowest level of aggregation of items in the GDP breakdown for which parities are calculated. In theory, a basic heading is defined as a group of similar well-defined goods or services. In practice, it is defined by the lowest level of final expenditure for which explicit expenditure weights can be estimated. Thus, an actual basic heading can cover a broader range of products than is theoretically desirable. Basic headings are the building blocks of a comparison. It is at the level of the basic heading that expenditures are defined, products selected, prices collected, prices edited, and PPPs first calculated and averaged.

130. The first point to note is that the basic heading is the lowest level at which values are provided from the national accounts and so it is also the lowest level for which real expenditures will be calculated. PPPs must also be available for each basic heading to enable real expenditures to be estimated, which implies that prices have to be collected and aggregated for each basic heading. The starting point for the ICP price collection is to define the products to be priced. The basic heading is critical for this purpose because it sets the bounds on the types of products specified and also provides an indication of the number of products to be priced. For example, all the countries in each region will have to agree on what kinds of bread are to be priced for the basic heading 110111.3. Should the bread be wrapped or unwrapped, sliced or unsliced, white or brown, what weight, and what type of flour is it made from? A decision on how many products should be specified partly depends on the importance of any particular basic heading within a region and its breadth of coverage (i.e. the diversity of the products within the basic heading). At an extreme, it may be necessary to collect only one price. For example, if there is a single rate for posting letters anywhere within a country then only that single price needs to be provided for letter postage within basic heading "1108111 Postal services". More broadly, it becomes clear that there is a trade-off between having basic headings which are so broad that it is difficult to specify representative products to be priced and having basic headings which are so detailed that it is impossible to calculate values for them with any degree of precision.

131. There were 155 basic headings identified in the 2005 ICP, although some regions included additional basic headings for their own purposes. No final decision has been made yet on the number of basic headings to be used in the 2011 ICP. The 155 basic headings used in the 2005 ICP are being analyzed using the 2005 results to assess the extent to which the basic headings may need to be redefined to ensure robust volume measures can be calculated for the main national accounts aggregates in 2011.

132. The Global Office will be responsible for defining the basic headings for 2011. A key element flowing from the decision will be to maintain consistency between the basic headings set out by the Global Office and those used in each region. As a result, the Global Office will be taking account of specific regional requirements to the extent possible but it may still be necessary, in a limited number of cases, for some regions to specify additional basic headings. An important issue is that any such region-specific basic headings should be only a more detailed dissection of a world-wide basic heading. In other words, regional basic headings must not cut across the world-wide basic headings.

133. In principle, a basic heading consists of a set of very similar goods or services. However, countries are required to estimate expenditures for each basic heading and there is a trade-off between the theoretical need for close similarity of the products within the basic heading and the practical difficulty of assigning expenditures to very detailed basic headings. Hence, the basic headings in the classification can cover a broader range of goods or services than is theoretically desirable. For example, rice (110111.1) is a very homogeneous basic heading but gross fixed capital expenditure on agricultural and forestry machinery (15.01.13.1) is much less so.

134. The basic headings are defined in terms of the classifications contained in the 1993 SNA (COICOP, COFOG, etc.). Therefore, it is important to ensure that countries actually follow these classifications in their national accounts in practice. If not, then the basic heading data should be adjusted to bring them into line with the classification. For example, basic heading 111111.1 relates to catering services, which include meals, snacks, drinks and refreshments provided by restaurants, cafés, buffets, bars, tearooms, etc. However, some countries classify alcoholic drinks provided by restaurants etc. to one of the basic headings under 110210 "Alcoholic beverages" (i.e. 110211.1 "Spirits" or 110212.1 "Wine" or 110213.1 "Beer"). The result is that each of the catering services and the alcoholic drinks basic headings has a different scope in practice in different countries. The Regional Coordinators should emphasize the need to adhere as closely as possible to the classification standards underlying the basic heading definitions when providing their data.

## Uses of basic headings

135. Ideally, each country should price at least one, and preferably more than one, of the specified products within each basic heading. On the other hand, it is important to note that not every specified product has to be priced. A balance is required between comparability and representativity in the products that are priced, and pricing too many non-representative products can distort the links between the national accounts and the PPPs as well as compromise the quality of the inter-country comparisons. However, some non-representative products need to be priced at times to ensure adequate coverage of priced products between countries.

136. Other important uses of basic headings are to provide the starting point for calculating PPPs and in editing the data collected for the ICP, including prices. For example, the Regional Offices will compare the bread prices reported by each country in order to detect exceptionally high or low prices. Countries may be asked to go back and check that no mistake has been made, either in recording prices

or in interpreting the specifications for bread. PPPs, volumes and per capita volumes at the basic heading level are key variables in the validation process, particularly in verifying the price data. Despite the noise in the data at this detailed level, very useful insights can be obtained into the accuracy of both the prices and the national accounts estimates by comparing various data items across countries. Prices reported for products within a basic heading should be consistent with the values in that basic heading so it is important for national accounts and prices statisticians to collaborate to ensure consistency between the national accounts values and the prices collected for the ICP. As was the case in the 2005 ICP, PPPs for all the basic headings will be aggregated to the broader national accounts aggregates (including GDP) for publication so the basic heading values must be consistent with the broader aggregates provided for the ICP.

137. National accounts values are required for all basic headings. Zero values for basic headings lead to distorted PPPs and volumes at aggregate levels because the PPPs for basic headings with zero values are excluded from the broader aggregates. If countries do not supply basic heading values, the regional coordinators will have to estimate ("guesstimate") them because they cannot leave them as zero (unless, of course, there is genuinely no expenditure at all in a particular basic heading in a country). Clearly, individual countries are in a better position than the regional coordinators to make such estimates. Even if the data on which countries make an estimate are poor, it is better to provide an informed guess than to use something like an even split of the values at the next highest level. Possible means of estimating basic heading values would be to use an old expenditure split (preferably with values "price updated" – see paragraphs 186 to 188), or weights from price indexes such as the CPI or, as a last resort, split broader expenditures to basic heading expenditures in the same proportions as countries with a similar type of economy.

138. Countries with national accounts based on the 2008 SNA will have a higher level of GDP than those using the 1993 SNA. The main differences arise from capitalizing research and development expenditures and the consumption of fixed capital associated with capitalizing military equipment such as weapons system. It appears likely that GDP on the basis of the 2008 SNA could be about 2% higher than that based on the 1993 SNA. As a result, countries using the 2008 SNA for their national accounts may be asked to provide additional data to enable adjustments to be made to bring their accounts back to a 1993 SNA basis.

## Distribution of basic headings

139. The following table presents details of the distribution of basic headings for major expenditure aggregates of GDP. The full list of basic headings for the 2011 ICP is provided in Annex B. **Table 4: Distribution of basic headings, 2005 ICP** 

Aggregate	Number of basic headings
Individual consumption expenditure	132
by households	110
by NPISHs	1
by government	21

Collective consumption expenditure by government	5
Gross fixed capital formation	12
Change in inventories	2
Net acquisitions of valuables	2
Net international trade	2
Gross domestic product	155

# 9. CLASSIFICATIONS USED IN THE SNA

## (1993 SNA, paragraphs 18.1 – 18.14)

140. The classifications used in the ICP are based on those defined in the SNA. The classifications for consumption expenditures are:

- Classification of Individual COnsumption by Purpose (COICOP);
- Classification of the Purposes of Non-profit Institutions serving households (COPNI);
- Classification of the Functions of Government (COFOG).

141. Individual consumption expenditure by households is broken down into 90 classes according to the Classification of Individual Consumption According to Purpose (COICOP). Each class is linked to a five-digit code in COICOP and most classes are further sub-divided, with 110 basic headings being identified in total. There are no COICOP codes corresponding to basic headings as these go beyond the level of detail in COICOP.

142. Individual consumption expenditure by NPISHs is treated as a single basic heading.

143. Individual consumption expenditure by government is broken down into 21 basic headings. Each is linked to a five-digit code in the Classification of the Functions of Government (COFOG). The basic headings are first split according to purpose (housing, health, recreation and culture, education, social protection) and then, in the case of health and education, by whether the expenditure is for the purchase of health or education services from other producers or whether it is for the production of health and education services by government itself. The expenditure on government-produced health and education services (as opposed to those which they buy from other producers) is broken down into basic headings consisting of the cost components required to use the input-price approach. These cost components are:

- compensation of employees;
- intermediate consumption;
- gross operating surplus;
- net taxes on production;
- receipts from sales.

144. The gross operating surplus should be equal to consumption of fixed capital because the net operating surplus should be zero.

145. Collective consumption expenditure by government is defined by reference to the five-digit codes in COFOG and is then broken down into five basic headings consisting of the cost components as required for the input-price approach (i.e. the same categories as those shown in paragraph 143 above).

146. Note that the purpose breakdowns used in COICOP and COFOG are consistent and have been designed so that individual consumption expenditures by households and government can be summed, along with the total expenditure by NPISHs, to obtain actual consumption by households.

147. Gross fixed capital formation is broken down by type of product in line with the Statistical Classification of Products by Activity (CPA). At the aggregated level used in delineating the basic headings, the CPA is consistent with the United Nations' Central Product Classification (CPC). There are 12 basic headings: eight for machinery and equipment, three for construction and one for "other products", namely "products of agriculture, forestry, fisheries and aquaculture", "computer software" and "other products n.e.c.". "Other products n.e.c." covers expenditures on land improvement, such as fencing, leveling, irrigation and land drainage, mineral exploration and creation of entertainment, literary and artistic originals.

148. Change in inventories is broken down into two basic headings: opening value of inventories and closing value of inventories.

149. The item "Acquisitions less disposals of valuables" is split into two components: acquisitions of valuables, and disposals of valuables.

150. The standard classification for international trade is the Standard International Trade Classification (SITC). However, the ICP does not require a detailed split of expenditures on exports and imports because the balance of exports and imports is broken down into only two basic headings: exports of goods and services, and imports of goods and services.

# The expenditure classification

151. The most important aspect of the expenditure classification is to ensure that the categories defined by the classification are consistent and complete (i.e. have no gaps or overlaps), which is essential for making meaningful comparisons and for editing checks.

152. The expenditure classification for the 2011 ICP contains the 155 basic headings for which all countries participating in the 2011 ICP must provide expenditures. Some regions may decide to use a more detailed classification to cater for particular regional circumstances but it is important that the integrity and consistency of the world-wide basic headings are maintained. For example, the OECD-Eurostat region uses an expenditure classification consisting of around 220 basic headings.

153. Some regions may find that the expenditure classification does not adequately reflect expenditure patterns in their countries. A common problem is that different types of cereals dominate expenditures in different countries, even within a single region, and so additional categories may be required to adequately reflect the expenditure patterns in the region, e.g. class 110111 (Bread and cereals) contains the following basic headings:

- 110111.1 Rice
- 110111.2 Other cereals, flour and other cereal products
- 110111.3 Bread
- 110111.4 Other bakery products
- 110111.5 Pasta products.

154. In some regions, rice may be relatively unimportant compared with, say, maize. For these regions it may be useful to divide the second basic heading "Other cereals, flour and other cereal products" into:

- Maize
- Other cereals, flour and other cereal products (excluding maize).

155. Note that it is not permissible to simply replace "rice" by "maize" so that rice then becomes a part of "other cereals, flour and other cereal products". Basic headings can be split into more detailed items but they cannot be merged with other basic headings because the consistency of basic headings across regions is very important when the regional results are being combined into world-wide results.

156. Even though all countries will have to estimate expenditures for **all** basic headings, there are some for which no price data will be collected. For example, no prices will be collected for the basic headings covering the acquisitions and disposals of valuables nor for inventories. In these cases, "reference PPPs" (i.e. PPPs calculated for other, similar goods and services) will be used. A list of the basic headings for which reference PPPs were used in the 2005 ICP round in the Asia-Pacific region, together with details of the reference PPP used, is provided in Annex C. It is important to note that even these basic headings for which no price data will be collected still need expenditures allocated to them in order to correctly apply the reference PPPs in obtaining the PPPs for broader aggregates.

# 10. PRICING BASIS

## (1993 SNA, paragraphs 6.204 – 6.217)

157. The components of expenditure on GDP are valued at the prices at which transactions take place. Typically, these will be purchasers' prices because they relate to final expenditures. However, estimation techniques, such as commodity flows, which may be used in calculating components of expenditures on GDP may not be at purchasers' prices. Therefore, this section briefly describes the links between the different types of prices that are likely to be encountered.

## Basic prices and producers' prices

158. In paragraph 6.205, the 1993 SNA describes two kinds of output prices (basic prices and producers' prices) as:

• The **basic price** is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any tax payable, and plus any subsidy receivable, on that unit as a consequence of its production or sale. It excludes any transport charges invoiced separately by the producer.

• The **producer's price** is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any value added tax (VAT), or similar deductible tax, invoiced to the purchaser. It excludes any transport charges invoiced separately by the producer.

159. Neither the producer's price nor the basic price includes any amounts receivable in respect of deductible VAT (see paragraphs 164 to 166), or similar deductible tax, invoiced on the output sold. Also, the amounts charged by non-market producers when they sell output at prices that are not economically significant do not constitute basic prices or producers' prices as defined above.

160. In paragraph 6.215, the 1993 SNA describes a third pricing basis (the **purchaser's price**) as the amount paid by the purchaser, excluding any deductible VAT or similar deductible tax, in order to take delivery of a unit of a good or service at the time and place required by the purchaser. The purchaser's price of a good includes any transport charges paid separately by the purchaser to take delivery at the required time and place.

161. When comparing the purchaser's price with the producer's price or basic price, it is important to specify whether they refer to the same transaction or two different transactions. For certain purposes, including both supply-use and input-output analysis, it may be convenient to compare the price paid by the final purchaser of a good after it has passed through the wholesale and retail distribution chains with the producer's price received by its original producer. In this case the prices refer to two different transactions taking place at quite different times and locations; they must differ at least by the amount of the wholesale and retail trade margins.

162. When the prices refer to the same transaction (i.e. the purchaser buys directly from the producer) the purchaser's price may exceed the producer's price by:

- the value of any non-deductible VAT, payable by the purchaser; and
- the value of any transport charges on a good paid separately by the purchaser and not included in the producer's price.

163. It follows that the purchaser's price may exceed the basic price by the amount of the two items just listed plus the value of any taxes less subsidies on the product (other than VAT).

164. In paragraph 6.208, the 1993 SNA describes a value added tax (VAT) as being a tax on products collected in stages by enterprises. The SNA goes on to explain that the VAT is shown separately on the sellers' invoices so that purchasers know the amounts they have paid. However, producers are not required to pay to the government the full amounts of the VAT invoiced to their customers because they are usually permitted to deduct the VAT that they themselves have paid on goods and services purchased for their own intermediate consumption or gross fixed capital formation. Producers are obliged to pay only the difference between the VAT on their sales and the VAT on their purchases for intermediate consumption or capital formation, hence the expression "value added tax". VAT is not usually charged on sales to non-residents (i.e. exports). The percentage rate of VAT is also liable to vary between different categories of goods and services and also according to the type of purchaser.

165. In paragraph 6.209 the 1993 SNA defines the following terminology:

(a) **Invoiced VAT** is the VAT payable on the sales of a producer; it is shown separately on the invoice which the producer presents to the purchaser;

(b) **Deductible VAT** is the VAT payable on purchases of goods or services intended for intermediate consumption, gross fixed capital formation or for resale which a producer is permitted to deduct from his own VAT liability to the government in respect of VAT invoiced to his customers;

(c) **Non-deductible VAT** is VAT payable by a purchaser which is not deductible from his own VAT liability, if any.

166. In practice, VAT is generally non-deductible when the purchase relates to a "final" expenditure (such as household final consumption expenditure or gross fixed capital formation). The 1993 SNA (paragraph 6.210) explains that a market producer is able to recover the costs of any deductible VAT payable on his own purchases by reducing the amount of his own VAT liability in respect of the VAT invoiced to his own customers. On the other hand, the VAT paid by households for purposes of final consumption or fixed capital formation in dwellings is not deductible. The VAT payable by non-market producers owned by government units or NPIs may also not be deductible.

167. In summary, the relationships between the different price bases are:

# **Basic prices**

plus taxes on products excluding invoiced VAT

less subsidies on products

# equals Producers' prices

plus VAT not deductible by the purchaser

plus separately invoiced transport charges

plus wholesalers' and retailers' margins

# equals Purchasers' prices.

168. The importance of this section and the above definitions taken from the 1993 SNA is to ensure that the pricing basis being used in the national accounts matches exactly with that of the prices collected for the ICP. Generally, the pricing basis required will be purchasers' prices, because the expenditures recorded in the national accounts are based on the prices paid by the final users of the goods and services (e.g. households for consumption goods, businesses for capital goods). However, when collecting prices for the ICP it may not be possible to obtain prices for some products on the desired basis. The prices collected for consumer goods and services should be on the same basis as those collected for a country's CPI and so will be on the same basis as the national accounts. However, prices for capital goods are not so readily observable and it may be necessary to use proxies (e.g. the f.o.b. prices for imported equipment) and then adjust them from the observed basis to the purchaser's price required for the ICP by adding in taxes, any wholesale and retail margins, and also any transport charges paid by the purchaser.

169. In the SNA, intermediate inputs are recorded and valued at the time they enter the production process, while outputs are recorded and valued at the end of the process. Intermediate inputs are normally valued at purchasers' prices and outputs at basic prices, or alternatively at producers' prices if

basic prices are not available. Gross value added is the difference between the value of the gross output and the value of the intermediate inputs. The valuation basis of the gross value added can differ, though. The importance of different valuation bases becomes apparent when supply-use tables are produced to estimate or verify values calculated using commodity-flow techniques.

170. The 1993 SNA defines **gross value added at basic prices** as output valued at basic prices less intermediate consumption valued at purchasers' prices. Although the outputs and inputs are valued using different sets of prices, for brevity the value added is described by the prices used to value the outputs. From the point of view of the producer, purchasers' prices for inputs and basic prices for outputs represent the prices actually paid and received. Their use leads to a measure of gross value added which is particularly relevant for the producer. **Gross value added at producers' prices** is defined as output valued at producers' prices less intermediate consumption valued at purchasers' prices.

171. A final point to note about the pricing basis required for the ICP is the importance of ensuring consistency between the prices underlying the national accounts values and the prices collected for the ICP. In practice, it means that annual national average prices must be collected to ensure consistency with the national accounts values. In large countries, it will be necessary to collect prices across a number of regions or adjust prices collected in a smaller number of regions to national average prices. Regional accounts may provide a means of aggregating price data for regions into national average prices, particularly in cases where prices vary on a seasonal basis. There is also a problem with the imputed national accounts estimates because there are no prices to observe. In these cases, the prices required are those that have been used by the national accountants to value the imputed expenditures.

# 11. DATA SOURCES

# Introduction

- 172. The main expenditure aggregates of GDP required for the ICP are:
  - individual consumption expenditure
    - by households
    - by NPISHs
    - by government
  - collective consumption expenditure by government
  - gross fixed capital formation
  - change in inventories
  - net acquisitions of valuables
  - net international trade.

173. The breakdown of GDP into these main aggregates should be based on the regular national accounts estimates, although some countries may not have information on all these aggregates and there will often be at least three gaps.

174. First, expenditure by NPISHs is often combined with household expenditures, due to the lack of data relating to the non-profit sector. In addition, some countries derive a combined aggregate for household final consumption expenditure (including NPISHs) by subtracting government final consumption expenditure, gross capital formation and the balance of exports and imports from a production-based estimate of GDP. Countries that do not make separate estimates for NPISHs should examine the NPISHs known to be operating in their countries and make their best estimate about the likely size of their expenditures and the main purposes that they serve so that their expenditures can be allocated to the correct basic headings.

175. Second, some countries do not have explicit estimates of changes in inventories. They use a version of the method just described but subtract only gross fixed capital formation (rather than gross capital formation) so that their residual consumption figure includes the change in inventories as well as consumption expenditures by household and NPISHs. For the 2011 ICP, participating countries will need to make explicit estimates of the change in inventories. These estimates should cover the main kinds of inventories, such as oil stocks, strategic reserves held by government, agricultural produce held by state marketing boards and inventories held by large enterprises.

176. Third, many countries do not have an estimate of net acquisitions of valuables. For most countries, net acquisitions of valuables for the economy as a whole will usually be trivial because acquisitions and disposals between residents cancel out and net acquisitions from abroad would generally be small. In such cases, they can safely be ignored but it would be important to make an estimate if there is reason to suspect that acquisitions from, or disposals to, abroad are significant. Net acquisitions of valuables could be an important item in those countries whose banks hold large stocks of precious metals and, in such cases, an attempt should be made to estimate them.

177. Assuming that a country has arrived at a plausible breakdown of GDP into the main aggregates listed above, the following paragraphs describe the data sources that can be used for the next step of estimating values for basic headings. Some participating countries already have detailed breakdowns of final expenditures based on household surveys, retail trade statistics, capital expenditure surveys and the like, but it is clear that most countries taking part in the 2011 ICP will not be in this position. The fact that they do not publish detailed expenditure statistics is precisely because they have no regular, comprehensive source data. For these countries, going beyond the main aggregates will involve recourse to irregular data sources and innovative estimation methods. Some suggestions are provided in the following paragraphs.

# Individual consumption expenditure by households

178. Individual consumption expenditure by households is almost always the largest component of final expenditure and it is also the one for which participating countries are required to provide the most detail. There are various sources and methods for estimating the expenditures and each country will need to decide how to proceed in view of the data sources that are available. Note that no single source will ever provide information on all the items in this aggregate. Household expenditure (or household budget) surveys and retail trade statistics may be quite comprehensive in some countries but even so both sources will need to be supplemented by estimates of the various imputed items (see section on "Imputed expenditures" above).

179. Some countries carry out household expenditure surveys on a regular basis; others may have carried out such a survey in the last few years and the results may be sufficiently recent that they can be used for the 2011 ICP. Ideally, the household expenditure survey will cover all areas of the country

and all types of households and will provide estimates of expenditure over a full twelve months, but in practice the survey data may be deficient in several respects. Even if household expenditure data are quite old and even if they cover only part of the population they can provide useful information for estimating expenditures.

180. If the most recent expenditure survey is quite old (say five years or more) it may be possible to update at least some parts of it by using more recent information from other sources. These might include foreign trade statistics, food balances, data from nutrition surveys, information from administrative sources, such as sales tax or excise data, electricity sales, vehicle registrations, etc. The weights from the CPI also provide a means of splitting broader level expenditures for household final consumption expenditure.

181. Retail trade statistics are another important data source. Their usefulness depends on the degree of commodity detail that they provide and in some countries this may only be enough to provide weights for main commodity groups such as food, clothing, furniture etc. Some retail trade surveys collect broad commodity detail from most respondents but ask for more detailed information from a sub-sample of outlets. Retail trade statistics can be particularly useful for estimating expenditure on expensive consumer durable goods that are purchased infrequently and so have high sampling errors in household expenditure surveys. They may also provide more reliable information for products that are renowned for being understated in household expenditure surveys, such as alcohol and tobacco. Another potential source for data on these products is excise statistics because most countries levy a tax on alcohol and tobacco.

182. In the last few years some statistical offices have started using electronic data records that are stored as "scanner data" in the databases of sellers. Scanner data sets include the quantities sold and the corresponding value. The cash register receipts usually give the following information: name of the outlet, date and time of purchase, description of items bought, quantity, price and value, form of payment and, where relevant VAT amount. One problem is that scanner data are commercial property and have to be purchased by statistical offices. In addition, scanner data will usually only be available for sales by large stores and will cover only a small part of all the goods and services that households buy. They also involve very large datasets, which often require a significant amount of editing, so their costs need to be carefully considered before a decision is made to access these data, even if there is no upfront charge involved.

183. The imputed rents of owner-occupiers can be a significant contributor to household final consumption expenditure. The most comprehensive data source for estimating these rents is the census of population and housing, provided the data collected include the number of dwellings, classified by rented/owned, amount of rent (if rented), type of facilities, location (city/other urban/rural). Details on the number of rooms or (preferably) floor area are necessary to enable similar dwellings to be matched.

184. While household expenditure surveys and retail trade statistics are the most obvious sources, there are several other possibilities for countries that have neither. For example:

- production statistics from industrial and agricultural censuses and surveys;
- surveys of restaurants and hotels;
- records of motor vehicle registrations, distinguishing between those registered to be used by businesses and those by households (if this distinction is not possible then a fall-

back could be to allocate all freight vehicles (pickups etc) to business use and passenger vehicles (or a large share of them) to household use);

- reports on sales to households by utility companies and state monopolies (water, gas and electricity, posts and communications, rail and air travel, broadcasting, etc.);
- statistics on VAT (Value-Added-Taxes) or other sales taxes classified according to the goods and services taxed;
- import and export statistics classified by commodity (which provide an important input into commodity-balancing techniques).

185. Finally, the Food and Agriculture Organization (FAO) can be a valuable data source for expenditure on food. The FAO *Food Balances Database* gives detailed information on consumption of a wide range of animal and vegetable products for most member countries. (The home page for the FAO Statistics Division can be accessed at <a href="http://www.fao.org/economic/ess/statistics-division-home/en/">http://www.fao.org/economic/ess/statistics-division-home/en/</a>.) Data are in volume terms and must be converted to values using retail prices. Although the basic data used to construct these food balances come from the countries themselves, the balancing procedures used by the FAO to ensure consistency between the supply and use of commodities are designed to improve the reliability of the basic data. The techniques used are based on commodity flows and the FAO provides some useful background information on methods and their implications in its publications on "Food Balance Sheets".

# Price updating

It is fairly standard practice in price index work to "price update" expenditure weights, 186. particularly when linking new products into a price index. It may also be a useful procedure to use in updating the expenditures from household expenditure surveys by using the price changes recorded in the relevant categories in the consumer price index (CPI). The effect of doing so is to increase the expenditure weights of products that have become relatively more expensive and reduce the expenditure weights of those that have become relatively cheaper. In effect, price updating maintains the base year relativities between the quantities in each underlying expenditure class (in practice, it is impossible to maintain both expenditure and quantity relativities because of the different rates of price changes experienced by different products). This process is most likely to be appropriate if the household expenditure survey was fairly recent, but if the last expenditure survey is several years old it is likely that consumers will have adjusted their expenditure patterns by shifting from more expensive to less expensive products. Therefore, judgment is required in deciding whether to price update the expenditure data from an old survey, with the decision being based on whether it is more likely that the relativities of underlying quantities or the underlying expenditures have changed since the household expenditure survey was conducted. Price updating is most likely to be important in a situation where prices for an important staple (e.g. fuel or a basic foodstuff), which is not a discretionary expenditure, have increased markedly between the base year and the current time. In these types of situations, a very large price increase can have a relatively small impact on demand because the products are so important to everyday living that they are not very price sensitive. Therefore, preserving the quantity relationships is likely to be a better approximation to the current reality than preserving the relative expenditures.

187. Price updating the CPI weights to take account of the changes in relative prices during the period since the CPI reference year is quite a straightforward process. It involves multiplying the

expenditure weights from the CPI base year by the change in prices for the expenditure class for each weight between that year and 2011. The following example describes the process.

188. There are five basic headings in the Clothing and footwear group. Assume that the most detailed expenditure level from the national accounts available is for total clothing and footwear and the value in 2011 is 1,254. In the CPI though, the level at which price indexes are compiled is the same as the ICP basic heading level. The base year of the CPI is 2007 and the weights in that year (as a share of total clothing and footwear) are shown in the column headed "CPI weights" in the table below. The CPIs for each of the components in 2007 and 2011 are in the next two columns. The fifth column contains the CPI weights that have been price updated to 2011, by multiplying them by the increase in the CPI for the relevant product. The sixth column contains the price-updated weights for 2011, standardized to 100. The final column provides the basic heading expenditures for 2011 provided for the ICP; they are the result of applying these standardized weights to the total expenditure on clothing and footwear.

Table 5:	Price up	dating CI	PI weights –	- Clothing and	l footwear
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Product category	CPI weig hts	20 07 C PI	20 11 C PI	Pri ce- up dat ed wei ght s	Sta nda rd- ized upd ated wei ghts	Bas ic hea din g exp end - itur es
110300 Clothing and footwear	100			104 .65	100	1,2 54
110301 Clothing	75					
110311.1 Clothing materials, other articles of clothing and clothing accessories	15	10 0. 0	11 4. 0	17. 10	16.3	204 .4
110312.1 Garments	50	10 0. 0	98 .0	49. 00	46.8	586 .9
110314.1 Cleaning, repair and hire of clothing	10	10 0. 0	12 1. 0	12. 10	11.6	145 .5
110302 Footwear	25					
110321.1 Shoes and other	20	10	10	20.	19.3	242

footwear		0.	1.	20		.0
		0	0			
110322.1 Repair and hire of footwear	5	10 0. 0	12 5. 0	6.2 5	6.0	75. 2

#### Individual and collective consumption expenditure by government

189. Estimates of government consumption expenditure are based on government expenditure records. Many countries now classify government expenditures according to COFOG and for these countries it will be relatively easy to apply the expenditure classification at least to the extent of identifying the principal functions. Distinguishing individual from collective consumption will often present problems. One solution is to assume that all government expenditure on the functions *housing, health, recreation and culture, education* and *social protection* are individual. If this assumption is felt to be too extreme given the institutional arrangements in a particular country then an alternative assumption can be made based on the national accountant's knowledge of the situation. However, it is very likely that a high proportion of these expenditures should be allocated to individual should be closely examined.

## Individual consumption expenditure by NPISHs

190. Countries that do not regularly make explicit estimates in respect of NPISHs will need to do so for the 2011 ICP. These do not need to be comprehensive or very detailed but should cover, where relevant, political parties, trade unions, religious organizations including hospitals, clinics and schools organized by them, charities, and large-scale sporting and recreational clubs. In some participating countries, foreign-based charitable organizations, including those under the United Nations umbrella, may also be important.

## Gross fixed capital formation

191. There are two main sources for private (i.e. non-government) GFCF – investment surveys of enterprises and commodity-flow methods. The latter involves estimating the total supply (domestic production plus imports) of goods used for GFCF. Margins for labor costs, profits and product taxes are then added to obtain the estimated value of GFCF in purchasers' prices. The commodity flow approach will be particularly useful for estimating the eight basic headings needed for machinery and equipment in countries where most of these assets are imported. For government GFCF, the usual source is the government accounts. Capital expenditure by public corporations can be very significant in some countries, particularly those in which transport and/or communications and/or electricity are provided largely by the public sector. Many of these corporations are required to either produce annual accounts or to report to the parliament, both of which are likely to be useful in identifying the basic headings to which expenditures should be allocated. If data are used from such sources in conjunction with commodity flows for the private sector, it is important to ensure that assets are not double counted when the data from the different processes are combined.

# Change in inventories

192. Industry and farm surveys are the main source to estimate changes in inventories other than those held by government and state enterprises. Governments may themselves hold stocks of food, fuel and strategic materials or they may supervise public bodies, such as farm marketing boards, that are responsible for managing strategic inventories. The latter must be included in the estimates of changes in inventories and will be based on government records. Unless special surveys of inventories are run regularly, it will not be possible to cover all inventory changes and so the national accountants should concentrate on covering changes in the most important kinds of inventories.

# Fallback procedures

193. It is certain that all countries participating in the 2011 ICP will experience some difficulties in providing estimates of final expenditure for all the basic headings required for their regional expenditure classification. Suppose that a country has followed the procedures suggested above (including construction of a supply/use table) but is still only able to provide expenditures at the *Group* or *Class* levels of the classification.

194. In this situation, it is important to realize that the ICP organizers must have weights for all the basic headings used for each regional comparison. If a country supplies only weights at the group or class levels for certain items, the organizers will themselves be forced to allocate those weights among the basic headings. This will necessarily be an unsatisfactory way of proceeding because the organizers will always have less information than will the statisticians working in the countries concerned. Therefore, participating countries should assign weights to all basic headings even if this is possible only in a rather arbitrary and subjective fashion. Some possibilities, in order of preference, are:

- An expenditure breakdown may be available for an earlier year, e.g. when the country participated in the 2005 ICP. That breakdown could be at least partially updated.
- A weighting pattern developed by a **neighboring country** could be used if consumption patterns are thought to be similar in the two countries.
- Expert **opinion** can be enlisted. At its best, this might involve consulting retailers, manufacturers, marketing experts, chambers of commerce and other government departments. At worst it might only involve informal discussions within the statistical office but even this is likely to be better than leaving the decision to the ICP organizers.
- Expenditures estimated for a higher level of the classification should **not** be evenly divided among the basic headings. This is an unsatisfactory solution, and an informed guess by a country's national accountants, even if it is rough, is preferable to a simplistic split into even amounts.

# The need for timely expenditure data to calculate PPPs

195. Firm estimates of the main expenditure aggregates for the 2011 ICP will not become available in most countries until the latter part of 2012 at the earliest. However, estimation of the detailed expenditures cannot be postponed until then. Participating countries will need to start immediately to estimate expenditures at the basic heading level for the latest year for which they have firm GDP estimates. The latest year may be anything from 2005 onwards but, clearly, the more recent the year the better.

196. Ideally, participating countries should supply, as soon as possible, a complete set of expenditures for the latest available year and should then recalculate these expenditures, at the same level of detail, for the reference year 2011 when GDP estimates for that year have been finalized. In practice, few countries will have the resources to make two separate, comprehensive estimates of basic heading expenditures. In these circumstances, a short-cut method can be accepted:

- First, the expenditures for **basic headings** calculated for the earlier year are updated using whatever information is available on changes in expenditure patterns. The pattern of GFCF can change significantly in the short term so that updating basic headings within GFCF will need to be done in some detail. Expenditure patterns within household and government consumption, on the other hand, tend to be relatively stable over periods of three or four years so that only minor adjustments may be needed to the weights from an earlier year.
- The expenditures for basic headings are next adjusted mechanically (i.e. pro rata) to match the estimated expenditures of the **main aggregates** in the reference year. There can be significant shifts in the relative expenditures of the main aggregates because the level of gross capital formation, particularly GFCF and changes in inventories. can be quite volatile from year to year. Therefore, care must be taken to ensure that the expenditures for the main aggregates are accurate for the reference year.

# 12. EXHAUSTIVENESS OF THE NATIONAL ACCOUNTS

## Introduction

197. The main objective of the ICP is to compare the real GDP (and per capita real GDP) of participating countries. The starting point is to have reliable and consistent estimates of the level of GDP in the national currency of each participating country. The Regional Coordinators will have to act in conjunction with each country's national accountants to ensure their region's accounts are suitable for the ICP. The conceptual framework for the 2011 ICP will be the 1993 SNA.

198. Comparability of the national accounts estimates is paramount in the ICP, so the estimates of GDP must be "exhaustive", which means all economic activities have to be included, whether legal or not. In ensuring that the GDP estimates are exhaustive, national accountants should look closely at the following areas, which experience has shown can be under-estimated in (or even omitted from) countries' accounts:

- consumption of crops and livestock products that households have produced for themselves;
- food, clothing and household goods sold by street traders or in village markets;
- goods and services that are provided to households by "informal" or "unregistered" producers, such as:
  - food and drinks sold on the street by itinerant vendors;
  - services of unregistered taxi drivers;

- plumbing, electrical, repairing vehicles, and other household maintenance services;
- house-cleaning and child-minding;
- private teaching lessons; and
- personal services such as hair-cutting and shoe-cleaning;
- goods that have been smuggled into the country from abroad without payment of customs duties and without being recorded in the international trade statistics;
- all government expenditures, including expenditures on the military forces, expenditures by municipal and local authorities, and expenditures by the head of state;
- dwellings that people build for themselves; these may be constructed with traditional materials such as sun-baked rather than fired bricks and with palm fronds and similar thatching materials but they nevertheless constitute gross fixed capital formation and they also provide dwelling services to the owner-occupiers, which are included in household final consumption expenditure;
- illegal activities that contribute significantly to production, such as prostitution and drugs.

199. Not all these items are necessarily important in all countries, but the national accountants must carefully review their basic source data to ensure that, if any are significant, they are adequately covered in the estimates of final expenditure on GDP.

200. Several years ago, a number of international agencies collaborated to issue a handbook on the measurement of "underground" or "informal" activities, *Measuring the Non- Observed Economy: A Handbook*. It provides practical advice on how to ensure full coverage of the goods and services that are included in the SNA production boundary but which are sometimes omitted because of difficulties in measuring them. This Handbook can be found on the OECD website at: http://www.oecd.org/document/49/0,3343,en\_2649\_34253\_2463473\_1\_1\_1\_00.html.

## Eurostat tabular approach to exhaustiveness

201. In the late 1990s Eurostat developed a systematic method (the "Eurostat tabular approach to exhaustiveness") that was designed to identify potential sources of understatement in the national accounts due to omissions from the statistical source data used in compiling the accounts. It provides a consistent and complete conceptual framework by classifying adjustments into seven types of "non-exhaustiveness" (listed under N1 to N7 in the table below). It also links the available compilation methods (such as the employment method, fiscal audits, VAT comparisons, etc.) to the non-exhaustiveness types. The distinction between the seven different "N-types" is not important in the sense that some things could potentially be classified under one heading rather than under another. Rather, the important aspects are to ensure that all potential sources of omission from the accounts are identified and included in one of the categories and that there is no duplication across categories.

202. The tabular approach was developed in the context of several PHARE<sup>1</sup> projects with the then European Union Candidate Countries and tested by nearly all these countries. Over recent years, there has been a growing interest by different countries (including non-EU) in the application of the tabular approach.

203. The starting point in identifying the seven types of non-exhaustiveness is the production (or output) approach, due to the more uniform data sources that generally underpin these estimates. The ensuing adjustments are based on a breakdown of producers. In concept, exactly the same data sources as for the production approach can be used for the income approach. If this does occur in practice then the income-based and production-based estimates of GDP are completely consistent, by definition, so the adjustments have to be linked. However, if separate surveys are used to collect data for these two approaches (e.g. an independent survey of profits being used to estimate gross operating surplus on the income side) then it should be possible to confront the data from the different sources to check their consistency. The expenditure approach is based on data that generally come from different sources than those underlying the production and income data sets. However, the conceptual consistency between the three different approaches to measuring GDP provides a framework for checking the accuracy of data from different sources. For example, domestic production plus imports (less exports) of equipment should be equal to gross fixed capital expenditure on that type of equipment (excluding any adjustments for second-hand purchases and sales).

 Table 6: The Eurostat tabular approach to exhaustiveness

# Not registered

# N1 - Producer deliberately does not register (underground activity)

The producer does not register in order to avoid tax and social security obligations or to avoid losing some social benefits. Typically this category includes small producers with income above the threshold set for registration. Producers who do not register because they are engaged in illegal activities should be classified to N2, while producers who deliberately misreport their activities should be classified to N6.

The methods that can be used to estimate the adjustments required include labor inputs (from household-based labor force surveys), commodity flows and supply-use tables.

## N2 - Producer deliberately does not register (illegal activity)

The producer deliberately fails to register because he is involved in illegal activities such as prostitution, sale of stolen goods, dealing in drugs, smuggling, illegal gambling, etc. This category excludes any illegal production not reported by registered producers (which should be classified to N6) and illegal production by units not required to register (classified to N3).

<sup>&</sup>lt;sup>1</sup> The PHARE Programme is a European Union (EU) initiative to support countries preparing for their accession to the EU. It has focused on helping these candidate countries to acquire the required administrative capacity and to bring their industries and basic infrastructure up to Community standards.

The methods that can be used to estimate the adjustments are the quantity-price method, unit per input or use, and expert judgment.

# N3 - Producer not required to register

Such producers are not required to register because they do not have any market output or it is below a set threshold. Activities include production for own final consumption, own fixed capital formation including construction of own dwellings and repairs to dwellings. They also include market output of households that is below the level at which the producer is obliged to register as a business, paid domestic services, etc. No adjustment is necessary if the estimation method for a particular activity (or survey) implicitly takes account of the non-registered activity.

The methods that can be used to estimate adjustments are household expenditure surveys, building permits, commodity-flow methods, administrative data and time use surveys.

# Not surveyed

# N4 - Legal producers not surveyed

Legal producers who may be registered can still be excluded from statistical surveys. For example, the producer may be newly registered and not yet recorded on the business register because the register updating procedures may be slow or inadequate. On the other hand, a producer may be recorded on the business register but still could be excluded from survey frames because classification data used in developing the frames (e.g. activity code, size of business, geographic location) might be wrong, or there may be a size cut-off that precludes the producer from being selected to participate in a particular survey.

The methods that can be used to estimate adjustments are surveys of the quality of the business register, a review of the lags involved in update procedures and whether they change over time, or cross checking the business register against other administrative sources of businesses.

# N5 - Registered entrepreneurs not surveyed

Registered entrepreneurs (e.g. consultants, private writers, freelance journalists) may not be recorded in the business register, either deliberately or because the register updating sources do not include details of such persons. Even if their details are recorded in the business register they may be excluded from statistical surveys either because of errors in details recorded (e.g. activity code, size of business, geographic location) or because of the small size of their individual activities.

The methods that can be used to estimate adjustments are surveys of the quality of the register, crosschecking against other administrative sources (e.g. income tax statements) or via specialized surveys.

# Misreporting

# N6 - Misreporting by producers

Misreporting involves under-reporting gross output (and therefore revenues) and/or over-reporting intermediate consumption (and therefore the costs of production) in order to avoid paying income tax, other taxes such as value added tax (VAT), or social security contributions. Misreporting may involve maintaining two sets of books to conceal the full extent of sales, hidden secondary activities, cash settlements for sales that are unrecorded because no receipts are given, VAT fraud, salaries paid in cash to avoid on-costs (so-called "envelope salaries") or salaries recorded as external contractual services.

The methods that can be used to estimate adjustments are data from tax audits, comparing average salaries and profits with similar businesses, comparing input/output ratios with those of similar businesses, special surveys and expert judgment on the accounting relationships expected to be observed in such businesses.

# Other

# N7 - Other statistical deficiencies

This category can be divided into two parts - data that are incomplete or cannot be directly collected from surveys, or data that are incorrectly compiled during survey processing.

The items that should be considered in determining the adjustments to be made include how nonresponse was taken into account, the extent to which wages and salaries were paid in kind, production for own final use by market producers, tips, valuation techniques and adjustments for accruals.

204. Worksheets for adjusting an initial set of accounts for the various components of understatement using Eurostat's tabular approach to exhaustiveness are provided in Annex A.

# 13. DATA VALIDATION

205. The national accounts data provided for the ICP will pass through a validation process in each of the Regional Offices. The first step will be basic checks such as ensuring that expenditures have been reported for all basic headings, that the sum of components is equal to the corresponding aggregates, and that correct signs have been applied to those components that are potentially negative (inventories and net trade). In addition, the values reported for GDP and its major aggregates will be compared with the data reported in the annual international national accounts questionnaire, which are stored in the UNSD data base. Checks will also be made on the consistency of the allocation (or not) of net expenditures abroad and whether FISIM has been allocated to final expenditures. The 1993 SNA allows for FISIM to be reported as the consumption of a "nominal industry" rather than being allocated across its final uses, but the impact of doing so is to record a lower GDP than that for those countries which have allocated FISIM. The effects can be significant (2% to 3% of GDP in some countries) and so the Global Office will be encouraging all countries to allocate FISIM in the data reported for the ICP.

206. Once any queries raised from the basic edits have been resolved, a number of other checks will be applied, such as comparisons between similar economies of the shares of GDP contributed by each basic heading and comparisons between similar economies of per capita volumes for each basic heading. Experience in the 2005 ICP round showed that inconsistencies in these shares can point to problems with either the national accounts data or the price data.

# 14. OTHER DATA CONSIDERATIONS

#### Data revisions

207. One of the national accounts issues that needs o be considered for the ICP relates to handling data revisions. National accounts data for the 2011 ICP will be collected systematically between 2010 and 2012 to assist in validating the prices collected. The issue of revisions to the accounts will need to be addressed, particularly for the 2011 data, which will be used in compiling the final ICP results. Broadly speaking, the ICP will aim to maintain consistency to the greatest extent possible with the national accounts estimates supplied in the annual national accounts questionnaire and stored in the UNSD's national accounts database.

## Durable goods

208. A point to note is the different treatment of some durable goods, depending on whether they are purchased by households or by businesses. An example is motor vehicles, which are treated as investment if purchased by businesses (and so are included as part of gross fixed capital formation) but as part of household final consumption expenditure if purchased by households. In this latter case, the treatment assumes that cars are fully depreciated in the period in which they are purchased, and they are referred to as "consumer durables". Other products treated as consumer durables when purchased by households are household appliances such as stoves, refrigerators and air conditioners. The implications for the ICP are relatively minimal because the prices required in both cases are purchasers' prices. However, it is important to note that there may be a different tax treatment of products such as cars depending on whether they are purchased by households or by businesses and so the ICP prices for consumption and investment should reflect any such differences.

#### Government finance statistics

209. The major source for the national accounts estimates of government final consumption expenditure is government finance data, which are often compiled on a cash basis rather than the accruals basis recommended by the SNA. Ideally, all countries should report their entire accounts on an accruals basis.

210. Government final consumption expenditure mainly consists of the value of general government output of goods and services. In many cases, there is no observable value for such output because it is not sold at economically significant prices. Therefore, by convention, it is measured as the sum of wages and the materials inputs involved in producing the output. Government final consumption expenditure is then estimated by deducting the value of any receipts from sales and the value of production for own capital formation.

# Non-profit institutions (NPIs)

211. Non-profit institutions (NPIs) produce goods and services, mostly services, for consumption by other institutional units, mainly households but sometimes by businesses. The key characteristic of an NPI is that it cannot be a source of income or profit for the unit(s) that finances and/or controls it, i.e. if an NPI does make a profit then it cannot distribute that profit to other persons or units. NPIs are often exempt from paying taxes, particularly those that have been established for charitable purposes. Typically, NPIs are non-market but this is not universal because some NPIs provide services to corporations.

212. NPIs that produce services for corporations typically charge membership fees (sometimes described as subscriptions) that are intended to cover the costs of the services they provide to members. In such cases, these NPIs are considered to be part of the corporations sector. Others are financed entirely, or mainly, by government and so are classified as part of the general government sector. The remainder are included in a special sector, for non-profit institutions serving households (NPISHs).

213. As far as the ICP is concerned, it is not essential to specifically identify the value of sales by NPIs. These values are included in final consumption expenditures, either of households, NPISHs or government, with the value being part of the relevant product category. Any sales by NPIs serving the corporations sector would appear as part of intermediate consumption and so would not be considered in the ICP. In many countries, NPISHs are combined with the household sector because their activities are so closely linked with households. However, from an ICP point of view it would be useful to be able to identify the products that are typically provided by NPIs so that analysts who are interested in NPIs could combine product-based PPPs to produce NPI-specific PPPs.

# Agricultural production

214. Agricultural production can be very important for the ICP because of the level of subsistence agriculture in many countries. Even in countries which do not have a significant subsistence sector, the consumption of own-production by farmers can be sufficiently large for specific estimates to be made and included in household final consumption expenditure and GDP. The market price that should be imputed to own account production is the price that would be paid for the produce at the farm gate (i.e. excluding transport costs and traders' margins).

# Net expenditures abroad

# (1993 SNA, paragraphs 9.70 – 9.71)

The data sources for household final consumption expenditure generally cannot distinguish whether goods and services are purchased by residents or non-residents. In addition, it is necessary to check the balance of payments data to determine the level of purchases by residents abroad. As a result, many countries make an adjustment for "net purchases abroad" in their household final consumption expenditure rather than allocating such expenditures to the relevant product groups in household final consumption expenditure. For the ICP, it is important to treat this adjustment consistently for all countries. Ideally, the adjustment should be allocated across household final consumption expenditure by type of product. If it is not possible to do so, then it will be necessary to extract the sales by non-residents in the local economy and by residents abroad from the relevant product categories and estimate net purchases abroad to maintain consistency between countries in calculating PPPs.

215. Individual consumption expenditure by households refers to expenditures by resident households. Therefore, it should include purchases of goods and services by resident households when they are travelling abroad and exclude purchases of goods and services in the domestic market made by non-resident households visiting a country. In practice, many countries find it difficult to allocate these purchases to the appropriate detailed expenditure categories and so their net value is shown in a one-line adjustment for *net expenditures abroad* (i.e. purchases abroad by residents *less* purchases by non-residents in the domestic market).

216. In the 2005 ICP, the net expenditure of residents abroad component of household final consumption expenditure was not reported consistently by participating countries. In many cases, zero expenditure was reported for this item, indicating it had either been allocated across relevant components of household final consumption expenditure or perhaps had not been estimated at all while in others a non-zero amount (sometimes positive, sometimes negative) was reported. Generally the size of this item was relatively small but it was quite significant in a few cases. The net expenditure of residents abroad can be either positive or negative, depending on whether the expenditures of visitors to the country outweigh those of the country's residents who go abroad or vice versa. Two issues arise; the first is the consistency in the ways that countries handle this item and the second is the complication arising from dealing with a negative value in calculating the PPP for total household final consumption expenditure. In order to provide a consistent and simple treatment, it is proposed that non-zero amounts reported for this item in the 2011 ICP should be distributed across relevant products in household final consumption. The Regional Offices will be responsible for distributing the net expenditures abroad across relevant basic headings. Each country's results will be provided to the relevant NSO for comment before they are used in compiling the ICP results.

217. The process is straightforward but has to be based on a number of assumptions. A reasonable assumption is that the net amount is all related to international tourism so the framework provided by the Tourism Satellite Accounts (TSA) can provide the starting point for the allocation. The TSA definitions cannot be used directly because they include both domestic and international tourism, so the focus has to be on those products that are mainly related to international tourism. Products in the TSA are split into "characteristic goods and services" and "connected goods and services". Those defined as characteristic have a high incidence of tourist purchases while those that are connected have a degree of tourist purchases but somewhat less than those for characteristic products.

218. Ideally, the two gross flows underlying the net expenditure of residents abroad would be distributed on the basis of the TSAs for each economy. However, very few countries have TSAs so any allocation will have to be rather arbitrary. To minimize the effect of any misallocations, a broad range of products should be included so that no PPP for a single product could potentially have a large impact on the overall PPP for household final consumption expenditure. For example, most food items should be included because food is a major expenditure of tourists, but it is not possible to narrow down the types of food products likely to be purchased by tourists. Characteristic products that should be excluded from the allocation are those most likely to be purchased mainly by domestic tourists (motor vehicles, major durables for outdoor and indoor recreation, etc.).

219. The final category (medical products) contains the types of expenditures that most tourists hope not to incur. Inevitably, though, tourists fall sick or have a dental problem that needs immediate treatment, or are involved in an accident requiring paramedical and/or hospital services. Therefore, on balance, all four medical services should be included.

220. The following table shows the products over which net expenditure of residents abroad will be distributed, in proportion to the expenditures recorded in each country's national accounts. **TABLE 7: Allocation of net expenditures abroad** 

#### **Characteristic Goods and Services**

Garments

Passenger transport by air

Recreational and sporting services

Cultural services

Accommodation services

Passenger transport by railway

Passenger transport by road

Passenger transport by sea and inland waterway

Combined passenger transport

Insurance

#### **Connected Goods and Services**

Rice, cereals, bread, other bakery products

Pasta products

Beef, veal, pork, lamb, mutton, goat, poultry

Fish and seafood (fresh, chilled, frozen, preserved, processed)

Fresh milk, preserved milk and other milk products

Dairy products (cheese, eggs, butter)

Fruit and vegetables (fresh, chilled, preserved, processed)

Sugar, jams, marmalades and honey

Confectionery, chocolate and ice cream

Coffee, tea and cocoa

Mineral waters, soft drinks, fruit and vegetable juice

Beer, wine, spirits	
Telephone and telefax services	
Games of chance	
Medical Products	
Medical services	
Dental services	
Paramedical services	
Hospital services	

# 15. SOME PROBLEM AREAS

## Comparison-resistant goods and services

221. In collecting prices, several areas are referred to as being "comparison-resistant" because of the difficulty involved in specifying and obtaining prices that are considered representative in each country and comparable between them. They include housing, health, government consumption, imputed dwelling rents of owner-occupiers, non-residential construction, and machinery and equipment, some of which have already been mentioned above.

222. Goods or services may be classified as being comparison-resistant because of either conceptual or practical problems. For example, most government services fall into this category because the conceptual treatment is to measure the output as the sum of inputs and there are no market prices of output to observe. On the other hand, practical problems associated with specifying and pricing comparable products lead to most of gross fixed capital formation being considered comparison resistant. It should be noted, though, that the ICP is not unique in this regard. For example, collecting prices needed for the deflators to compile construction volumes in the time series national accounts is also a difficult practical exercise. Most construction projects are one-off so it is impossible to use the standard approach of pricing the same product from one period to the next to compute price indexes. The solution in the time series national accounts is either to price major inputs and weight the prices together to produce a deflator for different types of construction projects or to price models that are broadly representative of a range of construction projects. Both approaches are less than ideal, with input pricing either ignoring productivity changes over time or requiring the prices to be adjusted explicitly for productivity changes, which is a difficult and relatively imprecise exercise. Model pricing is expensive and the models have to be respecified every few years to ensure they remain as relevant as possible to current conditions in the industry.

223. In the ICP, the problems are magnified by the need to ensure the specifications relate to construction products that are both representative of the construction industry within each country but which are simultaneously comparable across countries. The main aim in the ICP is to obtain the best

possible measure of the real expenditures in construction at an affordable cost. A new method of pricing construction projects is being investigated for use in the 2011 ICP.

224. Comparison-resistant goods and services also feature prominently in the list of national accounts components for which special efforts are required to ensure consistency between the valuation basis of the national accounts estimates and the prices used in calculating PPPs. Additional areas affected by potential inconsistencies between the national accounts values and the prices being used in calculating the PPPs are:

- purchase of motor vehicles;
- goods produced for own consumption;
- goods and services provided as income in kind;
- individual consumption expenditure of NPISH output.

225. Some national accountants may be surprised by some of the omissions from this list. Typically, in national accounting, it is a difficult process to obtain values for inventories and for the acquisition of valuables and also to collect the prices needed for deflating them. However, an indirect approach is adopted in the ICP to produce PPPs for these aggregates. PPP-based volumes for inventories and valuables are based on indirect PPPs rather than prices specifically relating to the basic headings underlying these aggregates. These indirect PPPs are called "reference PPPs", which are defined as PPPs that are based on prices collected for other basic headings. In the 2005 ICP, the reference PPPs were region-specific. As an example, the reference PPPs for inventories in the Asia-Pacific region were based on PPPs for durable and non-durable goods while those for valuables came from gross fixed capital formation (excluding reference PPP basic headings). In all regions, the reference PPPs for exports and imports of goods and services were exchange rates.

226. Volumes for a number of other aggregates will also be based on reference PPPs in the 2011 ICP. However, they are less indirectly related ones than those described above (e.g. PPPs for capital expenditure on other transport equipment are based on a weighted average of PPPs for major products of transport equipment).

# 16. NATIONAL ACCOUNTS ACTIVITIES

227. The ICP provides an opportunity for countries to improve their national accounts because of the ICP's special focus on the real expenditure estimates of GDP. The ICP also provides an incentive for countries that do not have national accounts (or whose national accounts may be lagging by several years) to produce a set of accounts or to update them to 2011. Several important issues arise in this context. First, those countries that do not have national accounts are likely to need assistance to produce them. The Regional Coordinators will be responsible for organizing such assistance, supported by the Global Office. Second, those countries that participated in the 2005 ICP, but which have not fully maintained their accounts since then, will have a reasonable starting point to update their GDP estimates to 2011 and to upgrade them in the process. Third, the estimates required for the ICP are those of expenditure on GDP and some countries have only production-based estimates of GDP so work is required in identifying the data sources that may be available to assist them in producing expenditure-based GDP. Countries will be assisted in this regard.

228. Regional Coordinators should assess the capacity of countries in their respective regions as to how readily they can provide the national accounts data at the basic heading level. Generally speaking, regions can split their countries into clusters depending on the quality of their national accounts. The grouping should also discriminate between those that have a proven, sound and timely system for compiling national accounts and so which should be able to provide the detailed expenditure splits at the basic heading level with little external support being required, and those that are likely to require extensive assistance to produce such estimates.

229. All countries will be asked to review their national accounts data for the ICP against the following aspects so that the Regional Coordinators can assess the implications for their respective regions and then provide advice to individual countries on the best way to progress on improving their national accounts under the national accounts framework.

230. National accountants will:

- identify all major products or, if no major products are specified for a country within a particular basic heading, identify the most representative products from the list of products to be priced under each basic heading;
- need to be fully aware of what prices statisticians will do when developing product lists
  - to assist in developing product lists, national accountants should identify the most representative products in each basic heading in the national accounts, particularly establishing which products are particularly relevant for the national accounts so that the most important products within each country can be assessed for potential inclusion in the regional product list;
  - national accountants should also use ICP survey prices and collect data and other types of information deemed useful for all/major products in the country's products lists to include them in the compilation/validation of their GDP data;
  - conversely, national accounts data available prior to ICP price surveys will be properly documented and utilized to assist in editing survey prices;
- conduct early data collection for 2009 GDP estimates [provisional], 2010 [estimate] and 2011 [forecast] that will enable data problems to be resolved before the final data collection for the 2011 reference year;
- identify data sources that could be used to obtain detailed information for all products in the products lists or at least each major product, in terms of values, quantities and prices. Sources could include statistics on imports, production, household consumption and other expenditures as underlined in the next section.
- prepare a matrix of data availability for all products in the products lists or at least for each major product, which will include proposed methods for forecasting to 2011 if data are available only for earlier years;
  - details of products will be contained in the rows while the columns will show the type of data available to provide product details that can be used to provide the best possible price information for each basic heading;
- implement the commodity-flow approach (supply and use of products via production, imports, final consumption, capital formation and exports) for all major products under

each basic heading. At this level of detail, it is inevitable the approach will have to be implemented roughly because of the lack of reliable basic information;

- implement a price monitoring system for each product in the lists of products to be priced in the ICP surveys (household consumption products, construction materials, machinery and equipment) showing the price dynamics from imports and production to final uses;
- carry out activities aimed at determining prices/costs and expenditures for comparison resistant areas: public and private health services; public and private education services; compensation of employees; housing; NPISHs; construction; equipment;
- create a map, a flowchart or a table showing linkages between input data, data sources, vintage of data, estimation methods and GDP expenditure values used in 2005;
- update the metadata flowchart for each subsequent benchmark year (2006, 2007, 2008 and 2009) for which the country will have updated its GDP expenditure values;
- create a new metadata flowchart for 2011;
- compile estimates/forecasts for GDP expenditures and main aggregates for 2006, 2007, 2008, 2009, 2010 and 2011;
- compile simplified supply-use tables (SUT) at a reasonable classification level;
- update the vector of GDP breakdown for the reference year 2011, building on the steps above.

231. Three major components of GDP can potentially have negative values (changes in inventories, net acquisition of valuables and net international trade). The national accounts data collected will not be restricted to each of the net figures above; the basic headings will include opening stocks and closing stocks, acquisitions of valuables and disposal of valuables, and exports of goods and services and imports of goods and services. However, the problem of handling negative values when aggregating PPPs will remain. The impact depends on the aggregation formula used, with the EKS method requiring the greatest intervention in handling negative numbers. The Global Office will provide detailed instructions on procedures to be followed in aggregating PPPs in due course.

232. One of the major problems that will arise in obtaining national accounts data is that countries generally do not compile their national accounts in the detail required to readily provide data for all the basic headings specified. Countries will be asked to provide the best estimates they can of the basic heading values and they should be encouraged to provide the detailed splits using whatever information is available, even if it is not completely consistent with the national accounts. It is important to emphasize that splitting an expenditure category evenly is not satisfactory (e.g. allocating 25% of a class expenditure to each of the four basic headings in that class).

# 17. PROVISION OF NATIONAL ACCOUNTS DATA

# Introduction

233. National accounts data are required in advance of prices being collected to assist in editing the prices. As a result, the first step will be to collect national accounts at the basic heading level for 2008 in mid 2010. If data are not available for 2008, then they should be supplied for the latest year possible

and these accounts should be consistent with the data reported to the United Nations Statistics Division (UNSD) in the annual national accounts questionnaire (NAQ). The aim is for countries to develop procedures that can be used when the ICP data are collected in respect of 2011. These national accounts data should be updated to 2010 in mid 2011 to use in editing the prices by comparing preliminary estimates of per capita volumes at a detailed level.

234. One of the aims of collecting the national accounts data so early is that it will provide a means of editing the 2011 national accounts data, by checking major changes from 2010. It may also be necessary to develop a procedure to update the detailed splits from the 2008 data to 2011.

# **Collection process**

235. There will be several iterations in collecting national accounts data for the 2011 ICP and they will be coordinated with the data collection for the UNSD's NAQ. Broadly, the UNSD sends out a prefilled NAQ to the UN Member States (excluding OECD countries and Transition economies) in October each year. The NAQ is due to be returned by February, except for those countries that are able to provide data for the latest (i.e. immediately preceding year) when the scheduled return date is May. The final data files for the OECD countries and for the Transition economies are supplied to UNSD around July each year.

236. The Regional Coordinators will be responsible for collecting the national accounts data in their regions. Assisting countries in developing or improving their national accounts will also be a task for the Regional Offices. The Global Office will provide national accounts training for each region and, in conjunction with the Regional Offices, will organize a training program. The first stage will be general training on the 1993 SNA concepts, followed by training on issues that will be specifically targeted to the requirements of each of the Regional Offices (other than OECD/Eurostat and the CIS, which have ongoing PPP Programs). Where needed, the Regional Coordinators will assist countries step by step in developing their national accounts estimates for the ICP.

237. The timetable for data collection is presented below. The most important aspect is that the first collection is scheduled for July 2010. An important objective is to identify those areas of the national accounts that need to be focused on most closely and those countries that need most assistance. An indicative timetable for national accounts training and assistance is provided below. In broad terms, general national accounts training will be provided in regions in early 2010. It will be followed up by training specifically targeted at countries that need to develop national accounts, or to develop expenditure-based estimates of GDP in those countries that have only production-based estimates. A further round of detailed training will be provided around October 2010 once the ICP national accounts questionnaires (due in July 2010) have been assessed.

238. Assistance in upgrading or developing national accounts will be an ongoing task for each of the Regional Offices, commencing with a review of regional requirements following the national accounts training in early 2010. However, there will also be more concentrated activities from time to time to ensure that all countries are working with a common aim. Details are provided in the table below showing the timetable for national accounts activities for the 2011 ICP.

## Summary timetable

239. In Africa, Asia/Pacific, Latin America and West Asia, based on the timetable for countries to provide the NAQ to the UNSD, the national accounts data collection for the ICP will be as follows:

# July 2010

Major aggregates for 2006, 2007, 2008, 2009 (where possible)

Basic heading details (to the extent possible) for final consumption aggregates, preferably for 2008, otherwise for the latest possible year

# November 2010

Major aggregates (revised) for 2006, 2007, 2008, 2009

Values for all basic headings for 2006, 2007, 2008, 2009

# July 2011

Major aggregates (revised data for 2006, 2007, 2008, 2009), preliminary data for 2010

All basic headings for 2006, 2007, 2008, 2009, 2010 (preliminary)

# July 2012 – preliminary data for 2011 for initial results for 2011 (to be used for editing)

Major aggregates for 2011

All basic headings for 2011 (best possible estimates)

# October 2012 –data for compiling preliminary ICP results

Major aggregates for 2011 (any revisions since July 2012)

All basic headings for 2011 (any revisions since July 2012)

# May 2013 - final data to be used in the published ICP results

Major aggregates for 2011 (any revisions since October 2012)

All basic headings for 2011 (any revisions since October 2012).

240. The first data collection in July 2010 is designed to highlight to countries the national accounts requirements for the ICP well in advance of the data collection for 2011 (in mid 2012) so that countries can develop procedures to be used when the full set of ICP data is collected in respect of 2011. In addition, it should expose data problems at an early stage in the process so that procedures can be put in place to overcome them. In this regard, it is recognized that, in many cases, the basic heading data may need to be based on splits from years earlier than 2008.

241. The Global Office proposes that each region should have at least three national accounts workshops during the 2011 ICP. The aim of the first two will be to ensure that countries are using common concepts and methodologies in producing their national accounts, particularly with respect to compliance with the concepts set out in the 1993 SNA, the exhaustiveness of each country's accounts and the methods used to derive the basic heading values. Agreement will be sought on the preferred methods to disaggregate data into the required number of basic headings, and on the adjustments

required to ensure each country's accounts are exhaustive. The third and final workshop will be a validation workshop to discuss the preliminary results for each region.

242. The first workshop in each region should be around September 2010. At that time, each region should have available the first round of estimates of GDP and its major aggregates for each country, as well as values for many of the basic headings in household and government final consumption expenditure. The aim of these regional workshops will be to discuss problems that countries have encountered in providing the national accounts data, particularly the basic heading values for consumption expenditures, and to exchange views on the adjustments to ensure the exhaustiveness of the accounts and on the methods used to compile the basic heading values. The outcomes should assist countries in completing their work on providing values for all the remaining basic headings (i.e. for gross capital formation and net international trade), which are due to be supplied to each Regional Coordinator in November 2010.

243. The second workshop should be held around May or June 2011. The main aim will be to review the prices collected during the first quarter of 2011 in the context of the basic heading values (based on 2009 data) providing an indication of the coherence of the basic heading real expenditures and their per capita equivalents based on PPPs derived using prices from the first quarter's price collection.

244. The third regional meeting with the NSO's national accountants will be a data review workshop. It should be held around the end of 2012 after the preliminary ICP results have been calculated for each region, with the aim being to validate the preliminary results and/or to explain the reasons behind any apparent discrepancies.

245. Of course, regions would be encouraged to convene additional national accounts workshops, if required.

246. The timetable in Annex D provides details of the national accounts-related activities during the 2011 ICP.

# 18. IMPLICATIONS OF EXTRAPOLATING A PPP USING TIME SERIES OF NATIONAL ACCOUNTS

247. The ICP provides a periodic benchmark for PPPs but many studies want to examine the levels of activity in different countries (or regions) over time. Ideally, time series of PPPs would be produced by extrapolating individual prices from the ICP using time series of CPIs and PPIs for each country and then re-estimating the PPPs for each year. A section in chapter 15 of the 2008 SNA headed "Practical considerations for national accountants" provides some very useful information for those who are going to be involved in the ICP. The following paragraphs provide a summary of the details contained in paragraphs 15.224 to 15.238 of the 2008 SNA.

248. The national accounts are important to the ICP because they provide the values that are "deflated" by PPPs to provide the real expenditures expressed in a common currency that enable GDP and its expenditure components to be compared between countries. The lowest level for which PPPs can be compared across all countries involved in a comparison is referred to as the "basic heading" and it is also the lowest level for which national accounts values are required. The basic heading values also provide the weights underlying the process of aggregating PPPs to levels above the basic heading (including GDP itself).

249. The ICP also produces comparative price level indexes (PLIs). A PLI is the ratio of the PPP for a country relative to the official exchange rate, both measured with respect to a reference currency. PLIs are generally expressed on a base of 100, with the base being either a single reference country or a regional average. If one country has a PLI less than another, then the country with the lower PLI would be considered "cheap" by visitors from that other country. In practice, PPPs do not change rapidly over time and so a large change in a country's PLI is usually due to a large change in exchange rates.

250. It is important that the real expenditures in the ICP should not be confused with the time series volumes because they are different measures, although there are some similarities in that they are both designed to measure values that have had the direct effects of price differences removed from them. In a time series of volumes, the effects of price changes from one period to another are removed to produce the volume measures from which rates of economic growth are calculated. In the case of an inter-country comparison, such as the ICP, the effects of differences due to exchange rates and those due to different price levels within each country are removed from the national accounts values to provide a comparison between the real expenditures in the countries concerned.

251. The real expenditure estimates produced from the ICP present a snapshot for a single year of the relationships between countries from all over the world, expressed in a common currency. PPP benchmarks from the ICP are available only once every several years and so they have to be extrapolated using time series from the national accounts of the countries involved. The method commonly used to extrapolate PPPs from their benchmark year to another year is to use the ratio of the national accounts deflators from each country compared with a numeraire country (generally the United States of America) to move each country's PPPs forward from the benchmark. The PPPs derived are then applied to the relevant national accounts component to obtain real expenditures expressed in a common currency for the year in question.

252. Theoretically, the best means of extrapolating PPPs from a benchmark year would be to use time series of prices at the individual product level from each country to extrapolate the prices of the individual products included in the ICP benchmark but, in practice, the detailed price data needed are not available. Therefore, an approach based on extrapolating at a macro level (for GDP or for a handful of components of GDP) is generally adopted. In practice, the extrapolated series of PPPs do not tie in exactly with the benchmarks. One reason is the issue of the consistency between the prices used in the time series national accounts and those used in calculating PPPs. Another problem is that the weighting patterns underlying the deflators in the time series national accounts will differ from those in the PPP benchmarks over time. A third problem is that, conceptually, extrapolating PPPs using time series of prices at a broad level such as GDP will not result in a match with the benchmark PPP-based estimates even if all the data are perfectly consistent, except under very restrictive and unrealistic conditions. Finally, and often most critically, the prices underlying the deflators in the national accounts are adjusted to remove the effects of changes in quality over time and the methods of making such quality adjustments can differ significantly between countries. In particular, the extent of using hedonic methods for adjusting products whose characteristics change rapidly varies significantly from country to country. Electronic products (such as computers) feature prominently in hedonic quality adjustment, although some countries also use hedonics to quality adjust products such as clothing and housing. Comparing price changes in a country that uses hedonics in quality adjusting the price indexes underlying its national accounts deflators with those in one that does not do so will lead to potentially large inconsistencies between the benchmarks and the extrapolated series.

253. There is also a conceptual inconsistency in the extrapolation technique used. GDP volume measures in the national accounts are unaffected by changes in the terms of trade whereas they directly influence real expenditure on GDP in spatial comparisons. For example, an increase in energy prices results in an increase in nominal GDP. In a spatial comparison, the outcome will be an increase in GDP real expenditures for energy exporting countries relative to other countries because the net trade PPPs are based on exchange rates, which do not respond to a change in the terms of trade to a significant extent in the short term. The result is that the increase in the terms of trade is treated as a volume effect in the PPP-based benchmark. On the other hand, in the national accounts of energy-exporting countries, GDP volumes remain unchanged if the same amount of energy is exported and so the increase in the terms of trade is treated as a price effect, which is observed in the GDP deflator used as the price extrapolator. The terms of trade effects can be large, e.g. in countries that export large volumes of oil, so the discrepancy arising from this source can be very significant. As a result, a considerable gap can develop between an extrapolated series and a later benchmark estimate of the PPP for GDP.

254. Improving the consistency of the treatment of the terms of trade between the benchmark and the extrapolated series should be examined. One possibility would be to base the extrapolators on a deflator that takes the terms of trade into account. For example, real gross domestic income (RGDI) is a national accounts measure that is adjusted for the effects of the terms of trade. RGDI measures the purchasing power of the total incomes generated by domestic production. A deflator derived as the ratio of the current price value of GDP to RGDI would ensure the terms of trade effect would be effectively neutralized in the deflator and so would be included as part of the real expenditures in the extrapolated series.

255. A problem arises in this process because there is no single method defined to derive RGDI. The process involves deducting the terms of trade effect from the GDP volume. The formula for calculating the terms of trade effect is:

$$T/T = \frac{\Box - \Box}{\Box} - \left(\frac{\Box}{\Box_{\Box}} - \frac{\Box}{\Box_{\Box}}\right)$$

where

T/T = terms of trade effect

X = exports at current prices

M = imports at current prices

 $P_x$  = the price index for exports

 $P_m$  = the price index for imports

P = the price index selected for calculating the terms of trade effect.

256. The choice of the price index (P in the above equation) to be used in calculating the terms of trade effect is the critical step in the process. The common alternatives are that P should be the deflator for imports or that it should be the deflator for exports, or that it should be an average of the exports and imports deflators. The only consensus is that the choice of the price index P can sometimes change the measured terms of trade effect significantly.
257. Pricing non-market services in the ICP can also affect the quality of the PPPs. The value of output for non-market services is measured as the sum of the labor and material inputs used in producing them which, in the ICP, involves an assumption that productivity is identical in all the countries involved. It may be a reasonable assumption when countries are at roughly the same level of economic development but not so when the countries being compared are at very different stages of economic development. The choices in the ICP are either to assume that productivity levels are identical across countries, even when they are at very different stages of economic development, or to adjust the non-market services estimates in some way to account for productivity differences, with all the associated data problems. Despite the problems, it is sometimes necessary to make productivity adjustments for non-market services because the problems involved in doing so are rather less than the consequences of assuming equal productivity in all the countries in a comparison.

#### 19. NATIONAL ACCOUNTS AND POVERTY PPPs

258. One of the important uses of PPPs is in international poverty analysis. Determining the actual incidence of poverty in countries and in regions within countries is the first step in monitoring the effects of policies designed to alleviate poverty. The 2005 ICP provided the best opportunity to date to produce the data needed to analyze the incidence of poverty around the world. The Global Office established a Poverty Advisory Group to advise on methods that could be used to determine the level of poverty in different countries.

259. The United Nations' Millennium Development Goals (MDGs) include one aimed at halving the incidence of poverty between 2000 and 2015. Poverty PPPs are important for monitoring this MDG because they provide the data required to convert the \$US1/day international poverty line into the national currencies of the countries being analyzed. The national accounts are an important input in calculating PPPs and their associated data (real expenditures, per capita real expenditures and price level indexes) at a national level. However, the national accounts provide data on the consumption patterns of the entire population in each country rather than just those of poor households. To compute poverty PPPs, a specific set of data on the consumption patterns of the poor must be derived for each country, but the national accounts cannot provide this information because their expenditures are not able to be classified by the income level (or ranges) of those incurring the expenditures.

260. The Poverty Advisory Group suggested that poverty PPPs should be compiled using basic heading PPPs from the ICP, but reweighted using expenditures specific to the poor. An assumption is made in this process that the prices faced by the poor are proportional to national average prices in each of the countries being compared. Generally, the data to reweight the basic heading PPPs come from household income and expenditure surveys. While these data often contribute to the process of deriving a benchmark for household final consumption expenditure in the national accounts, a number of adjustments are generally made. For example, the national accounts include estimates of production of goods on own account, which are not included in a household expenditure survey. Therefore, the household income and expenditure survey data are not automatically compatible with the national accounts estimates of household final consumption expenditure have been based on the survey data then the two datasets can be reconciled. If they are completely independent of each other it would be a useful process to reconcile the differences to the extent possible.

261. One of the useful outputs from the analysis using poverty PPPs is an estimate of the share of each ICP basic heading in total household consumption for different categories of the population (in particular by income level, region, urban/rural, age). The poverty PPPs can be used to establish a

benchmark for poverty analysis (e.g. for 2005 from the last ICP round). However, problems arise in extrapolating the poverty line measured in an ICP benchmark year other years, which is necessary for assessing the extent of changes in poverty levels. The issues involved are described in the section "Implications of extrapolating a PPP using time series of national accounts" in this report.

20. ANNEX A:		Worksheets		for	exha	ustiveness	che	checks		adjus	stments	
		Α.	Initi al nati onal acc oun ts esti mat es	N1 - Non - regi strat ion (un der- gro und	N2 - Non - regi strat ion (ille gal acti vity)	N3 - pro duc er not req uire d to regi ster	Adjus N4 - Leg al pro duc ers not surv eyed	stments N5 – Reg ister ed entr epre n- eurs not surv	N6 – Misr eport ing by prod ucers	N7 – Oth er stati stic al defi cien cies	Tot al	Fin al nati onal acc oun ts esti mat es
P	RODUCTION A	APPROACH		acti vity)				eyea				
O (b	utput of goods a pasic prices)	and services										
A	Agrie de forestry	culture, hunting										
В	Fishi	ing										

C Mining and quarrying					
D Manufacturing					
E Electricity, gas and water supply					
F Construction					
G Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods					
H Hotels and restaurants					
I Transport, storage and communications					
J Financial intermediation					
K Real estate, renting and business activities					
L Public administration and defense; compulsory social security					

M Education					
N Health and social work					
O Other community, social and personal service activities					
P Private households with employed persons					
Q Extra-territorial organizations and bodies					
Intermediate consumption (purchasers' prices)					
A Agriculture, hunting and forestry					
B Fishing					
C Mining and quarrying					
D Manufacturing					
E Electricity, gas and water supply					

F Construction					
G Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods					
H Hotels and restaurants					
I Transport, storage and communications					
J Financial intermediation					
K Real estate, renting and business activities					
L Public administration and defense; compulsory social security					
M Education					
N Health and social work					
O Other community, social and personal service activities					

P Private households with employed persons					
Q Extra-territorial organizations and bodies					
Gross value added (basic prices)					
A Agriculture, hunting and forestry					
B Fishing					
C Mining and quarrying					
D Manufacturing					
E Electricity, gas and water supply					
F Construction					
G Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods					

H Hotels and restaurants					
I Transport, storage and communications					
J Financial intermediation					
K Real estate, renting and business activities					
L Public administration and defense; compulsory social security					
M Education					
N Health and social work					
O Other community, social and personal service activities					
P Private households with employed persons					
Q Extra-territorial organizations and bodies					

Taxes on products					
Value added type taxes					
Other taxes on products					
Subsidies on products					
Residual item					
Gross domestic product					
EXPENDITURE APPROACH					
Total final expenditure					
Household final consumption					
01 Food and non- alcoholic beverages					
02 Alcoholic beverages, tobacco and narcotics					

03 Clothing and footwear	1					
04 Housing, wa electricity, gas and other f	iter, uels					
05 Furnishings household equipment and household maintenance	routine					
06 Health						
07 Transport						
08 Communica	tion					
09 Recreation a culture	nd					
10 Education						
11 Restaurants hotels	and					
12 Miscellaneo and services	us goods					
NPISH final consumptio	n					

General government final consumption					
Gross capital formation					
Gross fixed capital formation					
Changes in inventories					
Acquisition less disposals of valuables					
Exports of goods and services					
Goods					
Services					
Imports of goods and services					
Goods					
Services					

Statistical discrepancy (Residual item)					
Gross domestic product					
INCOME APPROACH					
Compensation of employees					
Gross operating surplus and mixed income					
Taxes on production and imports					
Subsidies					
Statistical discrepancy (Residual item)					
Gross domestic product					
Compensation of employees received from Rest of world (ROW)					
Compensation of employees paid to ROW					

Property income received from ROW					
Property income paid to ROW					
Taxes on production and imports subsidies					
Gross national income					

### 21. ANNEX B: ICP classification (including basic headings)

#### NOTE: The basic headings are shown in grey highlight.

Code	Description
100000	GROSS DOMESTIC PRODUCT
110000	FINAL CONSUMPTION EXPENDITURE BY HOUSEHOLDS
110100	FOOD AND NON-ALCOHOLIC BEVERAGES
110110	Food
110111	Bread and cereals
110111.1	Rice
110111.2	Other cereals, flour and other cereal products
110111.3	Bread
110111.4	Other bakery products
110111.5	Pasta products
110112	Meat
110112.1	Beef and Veal
110112.2	Pork
110112.3	Lamb, mutton and goat
110112.4	Poultry
110112.5	Other meats and meat preparations
110113	Fish
110113.1	Fresh, chilled or frozen fish and seafood
110113.2	Preserved or processed fish and seafood
110114	Milk, cheese and eggs
110114.1	Fresh milk
110114.2	Preserved milk and other milk products
110114.3	Cheese
110114.4	Eggs and egg-based products
110115	Oils and fats
110115.1	Butter and Margarine
110115.3	Other edible oils and fats
110116	Fruit
110116.1	Fresh or chilled fruit
110116.2	Frozen, preserved or processed fruit and fruit-based products
110117	Vegetables
110117.1	Fresh or chilled vegetables other than potatoes
110117.2	Fresh or chilled potatoes
110117.3	Frozen, preserved or processed vegetables and vegetable-based products
110118	Sugar, jam, honey, chocolate and confectionery
110118.1	Sugar
110118.2	Jams, marmalades and honey
110118.3	Confectionery, chocolate and ice cream
110119	Food products n.e.c.
110119.1	Food products n.e.c.

110120	Non-alcoholic beverages
110121	Coffee, tea and cocoa
110121.1	Coffee, tea and cocoa
110122	Mineral waters, soft drinks, fruit and vegetable juices
110122.1	Mineral waters, soft drinks, fruit and vegetable juices

110200	ALCOHOLIC BEVERAGES, TOBACCO AND NARCOTICS			
110210	Alcoholic beverages			
110211	Spirits			
110211.1	Spirits			
110212	Wine			
110212.1	Wine			
110213	Beer			
110213.1	Beer			
110220	Tobacco			
110221	Tobacco			
110221.1	Tobacco			
110230	Narcotics			
110231	Narcotics			
110231.1	Narcotics			
110300	CLOTHING AND FOOTWEAR			
110310	Clothing			
110311	Clothing materials, other articles of clothing and clothing accessories			
110311.1	Clothing materials, other articles of clothing and clothing accessories			
110312	Garments			
110312.1	Garments			
110314	Cleaning, repair and hire of clothing			
110314.1	Cleaning, repair and hire of clothing			
110320	Footwear			
110321	Shoes and other footwear			
110321.1	Shoes and other footwear			
110322	Repair and hire of footwear			
110322.1	Repair and hire of footwear			
110400	HOUSING, WATER, ELECTRICITY, GAS AND OTHER FUELS			
110410	Actual and imputed rentals for housing			
110411	Actual and imputed rentals for housing			
110411.1	Actual and imputed rentals for housing			
110430	Maintenance and repair of the dwelling			
110431	Maintenance and repair of the dwelling			
110431.1	Maintenance and repair of the dwelling			
110440	Water supply and miscellaneous services relating to the dwelling			
110441	Water supply			
110441.1	Water supply			
110442	Miscellaneous services relating to the dwelling			
110442.1	Miscellaneous services relating to the dwelling			
110450	Electricity, gas and other fuels			
110451	Electricity			
110451.1	Electricity			
110452	Gas			
110452.1	Gas			
110453	Other fuels			
110453.1	Other fuels			

110500	FURNISHINGS, HOUSEHOLD EQUIPMENT AND ROUTINE			
	MAINTENANCE OF THE HOUSE			
110510	Furniture and furnishings, carpets and other floor coverings			
110511	Furniture and furnishings			
110511.1	Furniture and furnishings			
110512	Carpets and other floor coverings			
110512.1	Carpets and other floor coverings			
110513	Repair of furniture, furnishings and floor coverings			
110513.1	Repair of furniture, furnishings and floor coverings			
110520	Household textiles			
110521	Household textiles			
110521.1	Household textiles			
110530	Household appliances			
110531	Major household appliances whether electric or not			
110531.1	Major household appliances whether electric or not			
110532	Small electric household appliances			
110532.1	Small electric household appliances			
110533	Kepair of household appliances			
110535.1	Classwore, toblewore and heusehold starsile			
110540	Glassware, tableware and household utensils			
110541 1	Classware, tableware and household utensils			
110541.1	Glassware, tableware and nousenoid utensils			
110550	Major tools and equipment			
110551 1	Major tools and equipment			
110552	Small tools and miscellaneous accessories			
110552.1	Small tools and miscellaneous accessories			
110560	Goods and services for routine household maintenance			
110561	Non-durable household goods			
110561.1	Non-durable household goods			
110562	Domestic services and household services			
110562.1	Domestic services			
110562.2	Household services			
110600	HEALTH			
110610	Medical products, appliances and equipment			
110611	Pharmaceutical products			
110611.1	Pharmaceutical products			
110612	Other medical products			
110612.1	Other medical products			
110613	Therapeutical appliances and equipment			
110613.1	Therapeutical appliances and equipment			
110620	Out-patient services			
110621	Medical Services			
110621.1	Medical Services			
110622	Dental services			
110622.1	Services of dentists			
110623	Paramedical services			

110623.1	Paramedical services
110630	Hospital services
110631	Hospital services
110631.1	Hospital services

110700	TRANSPORT		
110710	Purchase of vehicles		
110711	Motor cars		
110711.1	Motor cars		
110712	Motor cycles		
110712.1	Motor cycles		
110713	Bicycles		
110713.1	Bicycles		
110714	Animal drawn vehicles		
110714.1	Animal drawn vehicles		
110720	Operation of personal transport equipment		
110722	Fuels and lubricants for personal transport equipment		
110722.1	Fuels and lubricants for personal transport equipment		
110723	Maintenance and repair of personal transport equipment		
110723.1	Maintenance and repair of personal transport equipment		
110724	Other services in respect of personal transport equipment		
110724.1	Other services in respect of personal transport equipment		
110730	Transport services		
110731	Passenger transport by railway		
110731.1	Passenger transport by railway		
110732	Passenger transport by road		
110732.1	Passenger transport by road		
110733	Passenger transport by air		
110733.1	Passenger transport by air		
110734	Passenger transport by sea and inland waterway		
110734.1	Passenger transport by sea and inland waterway		
110735	Combined passenger transport		
110735.1	Combined passenger transport		
110736	Other purchased transport services		
110736.1	Other purchased transport services		
110800	COMMUNICATION		
110810	Postal services		
110811	Postal services		
110811.1	Postal services		
110820	Telephone and telefax equipment		
110821	Telephone and telefax equipment		
110821.1	Telephone and telefax equipment		
110830	Telephone and telefax services		
110831	Telephone and telefax services		
110831.1	Telephone and telefax services		

110900	RECREATION AND CULTURE			
110910	Audio-visual, photographic and information processing equipment			
110911	Audio-visual, photographic and information processing equipment			
110911.1	Audio-visual, photographic and information processing equipment			
110914	Recording media			
110914.1	Recording media			
110915	Repair of audio-visual, photographic and information processing equipment			
110915.1	Repair of audio-visual, photographic and information processing equipment			
110920	Other major durables for recreation and culture			
110921	Major durables for outdoor and indoor recreation			
110921.1	Major durables for outdoor and indoor recreation			
110923	Maintenance and repair of other major durables for recreation and culture			
110923.1	Maintenance and repair of other major durables for recreation and culture			
110930	Other recreational items and equipment, gardens and pets			
110931	Other recreational items and equipment			
110931.1	Other recreational items and equipment			
110933	Gardens and pets			
110933.1	Gardens and pets			
110935	Veterinary and other services for pets			
110935.1	Veterinary and other services for pets			
110940	Recreational and cultural services			
110941	Recreational and sporting services			
110941.1	Recreational and sporting services			
110942	Cultural services			
110942.1	Cultural services			
110943	Games of chance			
110943.1	Games of chance			
110950	Newspapers, books and stationery			
110951	Newspapers, books and stationery			
110951.1	Newspapers, books and stationery			
110960	Package holidays			
110961	Package holidays			
110961.1	Package holidays			
111000	EDUCATION			
111010	Education			
111011	Education			
111011.1	Education			
111100	RESTAURANTS AND HOTELS			
111110	Catering services			
111111	Catering services			
111111.1	Catering services			
111120	Accommodation services			
111121	Accommodation services			
111121.1	Accommodation services			

111200	MISCELLANEOUS GOODS AND SERVICES		
111210	Personal care		
111211	Hairdressing salons and personal grooming establishments		
111211.1	Hairdressing salons and personal grooming establishments		
111212	Appliances, articles and products for personal care		
111212.1	Appliances, articles and products for personal care		
111220	Prostitution		
111221	Prostitution		
111221.1	Prostitution		
111230	Personal effects n.e.c.		
111231	Jewellery, clocks and watches		
111231.1	Jewellery, clocks and watches		
111232	Other personal effects		
111232.1	Other personal effects		
111240	Social protection		
111241	Social protection		
111241.1	Social protection		
111250	Insurance		
111251	Insurance		
111251.1	Insurance		
111260	Financial services n.e.c.		
111261	Financial intermediation services indirectly measured (FISIM)		
111261.1	Financial intermediation services indirectly measured (FISIM)		
111262	Other financial services n.e.c		
111262.1	Other financial services n.e.c.		
111270	Other services n.e.c.		
111271	Other services n.e.c.		
111271.1	Other services n.e.c.		
111300	BALANCE OF EXPENDITURES OF RESIDENTS ABROAD AND		
	EXPENDITURES OF NON-RESIDENTS ON THE ECONOMIC		
111010	TERRITORY		
111310	BALANCE OF EXPENDITURES OF RESIDENTS ABROAD AND EXPENDITURES OF NON-RESIDENTS ON THE ECONOMIC		
111011			
111311	BALANCE OF EXPENDITURES OF RESIDENTS ABROAD AND		
111211 1	EXPENDITURES OF NON-RESIDENTS ON THE ECONOMIC TERRITORY		
111211.1	Final consumption expenditure of non-resident households in the rest of the world		
111511.2	Final consumption expenditure of non-resident households on the economic		
120000	INDIVIDUAL CONSUMPTION EXDENDITUDE DV NDISU		
120000	INDIVIDUAL CONSUMPTION EXPENDITURE BY NPISHS		
120100	INDIVIDUAL CONSULVIETION CAPENDITUKE BY INFISHS		
120110	Individual consumption expenditure by NPISHs		
120111	Individual consumption expenditure by NDISHs		
120111.1	nurvidual consumption experiature by NF15715		

130000	INDIVIDUAL CONSUMPTION EXPENDITURE BY GOVERNMENT			
130100	HOUSING			
130110	Housing			
130111	Housing			
130111.1	Housing			
130200	HEALTH			
130210	Health benefits and reimbursements			
130211	Medical products, appliances and equipment			
130211.1	Pharmaceutical products			
130211.2	Other medical products			
130211.3	Therapeutic appliances and equipment			
130212	Health services			
130212.1	Out-patient medical services			
130212.2	Out-patient dental services			
130212.3	Out-patient paramedical services			
130212.4	Hospital services			
130220	PRODUCTION OF HEALTH SERVICES			
130221	Compensation of employees			
130221.1	Compensation of employees			
130222	Intermediate consumption			
130222.1	Intermediate consumption			
130223	Gross operating surplus			
130223.1	Gross operating surplus			
130224	Net taxes on production			
130224.1	Net taxes on production			
130225	Receipts from sales			
130225.1	Receipts from sales			
130300	RECREATION AND CULTURE			
130310	Recreation and culture			
130311	Recreation and culture			
130311.1	Recreation and culture			
130400	EDUCATION			
130410	Education benefits and reimbursements			
130411	Education benefits and reimbursements			
130411.1	Education benefits and reimbursements			
130420	Production of education services			
130421	Compensation of employees			
130421.1	Compensation of employees			
130422	Intermediate consumption			
130422.1	Intermediate consumption			
130423	Gross operating surplus			
130423.1	Gross operating surplus			
130424	Net taxes on production			
130424.1	Net taxes on production			
130425	Pagaint from sales			
130425.1				
130300	SUCIAL PROTECTION			

130510	Social protection
130511	Social protection
130511.1	Social protection

140000	COLLECTIVE CONSUMPTION EXPENDITURE BY GOVERNMENT			
140100	COLLECTIVE SERVICES			
140110	Collective services			
140111	Compensation of employees			
140111.1	Compensation of employees			
140112	Intermediate consumption			
140112.1	ntermediate consumption			
140113	Gross operating surplus			
140113.1	Gross operating surplus			
140114	Net taxes on production			
140114.1	Net taxes on production			
140115	Receipts from sales			
140115.1	Receipts from sales			
150000	EXPENDITURE ON GROSS FIXED CAPITAL FORMATION			
150100	MACHINERY AND EQUIPMENT			
150110	Metal products and equipment			
150111	Fabricated metal products, except machinery and equipment [CPA 28.11 to			
1 = 0 1 1 1 1	28.75]			
150111.1	Fabricated metal products, except machinery and equipment			
150112	General purpose machinery [CPA 29.11 to 29.24]			
150112.1	General purpose machinery			
150113	Special purpose machinery [CPA 29.31 to 29.72]			
150113.1	Special purpose machinery			
150114	Electrical and optical equipment [CPA 30.01 to 33.50]			
150114.1	Electrical and optical equipment			
150115	Other manufactured goods n.e.c. [CPA 50.11 to 50.05]			
150115.1	Transport aquinment			
150120	Road transport equipment [CPA 34 10 to 34 30 and 35 41 to 35 50]			
150121	Motor vehicles trailers and semi-trailers			
150121.1	Other road transport			
150121.2	Other transport equipment [CPA 35 11 to 35 30]			
150122.1	Other transport equipment			
150200	CONSTRUCTION			
150210	Residential huildings			
150211	Residential buildings			
150211.1	Residential buildings			
150220	Non-residential buildings			
150221	Non-residential buildings			
150221.1	Non-residential buildings			
150230	Civil engineering works			
150231	Civil engineering works			
150231.1	Civil engineering works			
150300	OTHER PRODUCTS			
150310	Other products			
150311	Other products			
150311.1	Other products			

160000	CHANGES IN INVENTORIES AND ACQUISITIONS LESS
	DISPOSALS OF VALUABLES
160100	CHANGES IN INVENTORIES
160110	Changes in inventories
160111	Changes in inventories at average 2011 prices
<del>160111.1</del>	Opening value of inventories
<del>160111.2</del>	Closing value of inventories
160200	ACQUISITIONS LESS DISPOSALS OF VALUABLES
160210	Acquisitions less disposals of valuables
160211	Acquisitions less disposals of valuables
160211.1	Acquisitions of valuables
160211.2	Disposals of valuables
170000	BALANCE OF EXPORTS AND IMPORTS
170100	BALANCE OF EXPORTS AND IMPORTS
170110	BALANCE OF EXPORTS AND IMPORTS
170111	BALANCE OF EXPORTS AND IMPORTS
170111.1	Exports of goods and services
170111.2	Imports of goods and services

#### 22. ANNEX C: Reference PPPs used in the Asia-Pacific region in the 2005 ICP

(Note: This list describes the reference PPPs used in the Asia-Pacific region in the 2005 ICP as an example.)

Code	Description	Reference
110231.1	Narcotics	PPPs for Tobacco
110411.1	Actual and Imputed Rentals For Housing	Volume relatives for Individual Consumption Expenditures by Household and NPISH (Excluding Rentals for Housing)
110442.1	Miscellaneous Services Relating to the Dwelling	Weighted average of PPPs for maintenance of the dwellings and water supply
110513.1	Repair of Furniture, Furnishings and Floor Coverings	PPPs for maintenance of the dwelling
110533.1	Repair of Household Appliances	PPPs for maintenance of the dwelling
110551.1	Major tools and Equipment	Weighted average of the PPPs for Glassware, tableware and utensils; Small tools and miss. Accessories; and Non-durable household goods
110562.2	Household Services	PPPs for maintenance of the dwelling
110631.1	Hospital Services	Weighted average of PPPs for Medical services; Dental services; and Paramedical services
110712.1	Motor Cycles	PPPs for purchase of vehicles (excluding reference PPPs basic headings)
110714.1	Animal Drawn Vehicles	PPPs for purchase of vehicles (excluding reference PPPs basic headings)
110724.1	Other Services In Respect of Personal Transport Equipment	Weighted average of PPPs for Fuels and lubricants; and Maintenance of transport

		equipment
110734.1	Passenger Transport By Sea and Inland Waterway	Weighted average of PPPs for Operation of personal transport equipment and Transport service (excluding reference PPPs basic headings)
110735.1	Combined Passenger Transport	Weighted average of PPPs for Operation of personal transport equipment and Transport service (excluding reference PPPs basic headings)
110736.1	Other Purchased Transport Services	Weighted average of PPPs for Operation of personal transport equipment and Transport service (excluding reference PPPs BASIC HEADINGS)
110921.1	Major Durables For Outdoor and Indoor Recreation	Weighted average of PPPs for Bicycles and audio-visual, photographic and information processing equipment
110923.1	Maintenance and Repair of Other Major Durables For Recreation and Culture	PPPs for maintenance and repair of the dwelling
110933.1	Gardens and Pets	PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings)
110935.1	Veterinary and Other Services For Pets	Weighted PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings)
110943.1	Games of Chance	PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings)
111221.1	Prostitution	PPPs for Catering; Accommodation services; and Hairdressing and grooming establishments
111241.1	Social Protection	PPPs for household final consumption expenditure on the domestic market (excluding

		reference PPPs basic headings)
111251.1	Insurance	PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings)
111261.1	FISIM	PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings)
111262.1	Other Financial Services n.e.c.	PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings)
111271.1	Other Services n.e.c.	PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings)
111311.1	Final Consumption Expenditure of Resident Households In the Rest of the World	PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings)
111311.2	Final Consumption Expenditure of Non-Resident Households on the Economic Territory	PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings)
120111.1	Individual Consumption Expenditure By NPISHs	PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings)
130111.1	Housing	PPPs for actual and imputed rentals for housing from household
130211.1	Pharmaceutical Products	PPPs for pharmaceutical products from household
130211.2	Other Medical Products	PPPs for other medical products from household
130211.3	Therapeutic Appliances and Equipment	PPPs for therapeutic appliances and equipment from household

130212.1	Out-Patient Medical Services	PPPs for out-patient medical services from household
130212.2	Out-Patient Dental Services	PPPs for out-patient dental services from household
130212.3	Out-Patient Paramedical Services	PPPs for out-patient paramedical services from household
130212.4	Hospital Services	PPPs for hospital services from household
130221.1	Compensation of Employees (Physicians, Nurses and Other Medical and Non-Medical Staff)	Compensation for occupations 110-113 per Box 3, ICP Handbook chapter 3. PPPs were adjusted to account for productivity.
130222.1	Intermediate Consumption	Weighted PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings)
130223.1	Gross Operating Surplus	Weighted PPPs for gross fixed capital formation.
130224.1	Net Taxes on Production	Weighted PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings) and PPPs for compensation of employees for the production of health services by government
130225.1	Receipts From Sales	PPPs for production of health services by government (without net taxes on production and receipts from sales)
130311.1	Recreation and Culture	PPPs for Recreation and Culture from household
130411.1	Education Benefits and Reimbursements	PPPs for Education from household
130421.1	Compensation of Employees (Primary, Secondary, and Post- Secondary Education)	Occupations 106, 201-212,216, and 301-305 per Chapter 3, ICP Handbook. PPPs were adjusted to account for productivity.

130422.1	Intermediate Consumption	Weighted PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings)
130423.1	Gross Operating Surplus	Weighted PPPs for gross fixed capital formation.
130424.1	Net Taxes on Production	Weighted PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings) and PPPs for compensation of employees for the production of education services by government
130425.1	Receipt From Sales	PPPs for production of education services by government (without net taxes on production and receipts from sales)
130511.1	Social Protection	PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings)
140111.1	Compensation of Employees (Defense and Non-Defense Collective Services)	Occupations 201-226 and 401-406 per Chapter 3, ICP Handbook. PPPs were adjusted to account for productivity.
140112.1	Intermediate Consumption	Weighted PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings)
140113.1	Gross Operating Surplus	Weighted PPPs for gross fixed capital formation.
140114.1	Net Taxes on Production	Weighted PPPs for household final consumption expenditure on the domestic market (excluding reference PPPs basic headings) and PPPs for compensation of employees for the collective services by the government

140115.1	Receipts From Sales	PPPs for production of collective services by government (without net taxes on production and receipts from sales)
150110.0	Metal Products and Equipment	Geometric mean of the PPPs of General purpose machinery; Special purpose machinery; and Electrical and optical equipment
150111.1	Fabricated metal products, except machinery and equipment	PPPs for Metal products
150115.1	Other Manufactured Goods n.e.c.	PPPs for metal products and equipment (excluding reference PPPs basic headings)
150120.0	Transport Equipment	PPPs for Motor vehicles, trailers and semi- trailers
150121.2	Other road transport	PPPs for transport equipment (excluding reference PPPs basic headings)
150122.1	Other transport equipment	PPPs for transport equipment (excluding reference PPPs basic headings)
150311.1	Other products	PPPs for metal products and equipment (excluding reference PPPs basic headings)
160111.1	Opening value of inventories	PPPs for Durable and non-durable goods; and Gross fixed capital formation (excluding reference PPPs basic headings)
160111.2	Closing value of inventories	PPPs for Durable and non-durable goods; and Gross fixed capital formation (excluding reference PPPs basic headings)
160211.1	Acquisitions of valuables	PPPs for jewellery, clocks and watches
160211.2	Disposals of valuables	PPPs for jewellery, clocks and watches
170111.1	Exports of Goods and Services	Exchange rates
170111.2	Imports of Goods and Services	Exchange rates

#### 23. ANNEX D: Timetable for national accounts activities - 2011 ICP

Date	Activity
February/March 2010	General 1993 SNA training
April 2010	Assessment of regional requirements for assistance in upgrading/developing national accounts
June 2010	Commence assistance to countries in upgrading/developing national accounts
July 2010	Major aggregates for 2006, 2007, 2008, 2009 (where possible)
July 2010	Basic heading details (to the extent possible) for final consumption aggregates, preferably for 2008, otherwise for the latest possible year
August 2010	Regional Coordinators to provide initial queries and feedback to countries on the quality of their national accounts' submissions
September 2010	Regional workshops to discuss problems encountered in providing national accounts data, particularly the basic heading values for consumption expenditures, and to exchange views on the adjustments to ensure the exhaustiveness of the accounts and on the methods used to compile the basic heading values
October 2010	Regional assistance targeted at problems arising at regional workshops
November 2010	Major aggregates (revised) for 2006, 2007, 2008, 2009
November 2010	Values for all basic headings for 2006, 2007, 2008, 2009
December 2010	Regional Coordinators to provide queries to countries on their basic heading values
January 2011	Training courses in each region targeted at problems identified in data submissions

February 2011	Countries to respond to the Regional Coordinator's queries and provide revised data, where necessary
March 2011	Regional Coordinators to provide detailed feedback to countries on their revised national accounts' submissions
April 2011	Assistance to countries having problems producing expenditure-based national accounts
May/June 2011	Regional workshops to review the prices collected during the first quarter of 2011 in the context of applying them to the 2009 national accounts values to provide per capita real expenditures for editing PPPs based on the first quarter's price collection.
July 2011	Major aggregates (revised data for 2006, 2007, 2008, 2009), preliminary data for 2010
July 2011	Values for all basic headings for 2006, 2007, 2008, 2009, 2010 (preliminary)
September 2011	Regional Coordinators to provide detailed feedback to countries on their national accounts' submissions
October 2011	Regional assistance targeted at problems arising in national accounts submissions
November 2011	Countries to provide revised estimates for any series that need to be changed as a result of the Regional Coordinator's queries
February/March 2012	Regional assistance to resolve problems identified in national accounts submissions
July 2012	Major aggregates for 2011 (preliminary data for 2011 for initial results for 2011, to be used for editing)
July 2012	All basic headings for 2011 (best possible estimates)
August 2012	Regional Coordinators to provide detailed feedback to countries on their national accounts' submissions
September 2011	Countries to provide revised estimates for any series that need to be changed as a result of the Regional Coordinator's queries

October 2012	Major aggregates for 2011 (any revisions since July 2012) – data for compiling preliminary ICP results
October 2012	All basic headings for 2011 (any revisions since July 2012) – data for compiling preliminary ICP results
December 2012	Data review workshop in each region to consider the full set of ICP results based on the semi-final national accounts data
May 2013	Major aggregates for 2011 (any revisions since October 2012) – final data to be used in the published ICP results
May 2013	All basic headings for 2011 (any revisions since October 2012) – final data to be used in the published ICP results
June 2013	Regional Coordinators to query any inconsistent data in countries' national accounts' submissions
July 2013	Countries to reply to Regional Coordinator's queries
October 2013	2011 ICP results released

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