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Guidelines and proposed sequence of ICP-related national accounts activities

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Paul McCarthy & Michel Mouyelo-Katoula



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1 Introduction

1. The ICP is a statistical program that adjusts national accounts aggregates to a common currency using purchasing power parities (PPPs). The main outputs of interest to analysts are the real expenditures (often referred to as “volumes”) and the per capita estimates of these real expenditures. The ICP work program is directed at both collecting prices to produce basic PPPs and breaking down gross domestic product (GDP) into very detailed categories of expenditures that will be adjusted with basic PPPs and used as weights to aggregate basic PPPs up to the GDP level.
2. While the ICP handbook and the ICP Operational manual provide abundant guidance on statistical activities to be undertaken to effectively collect and process prices for goods and services pertaining to the main components of GDP, there is so far no operational recommendations to National Accounts experts on steps to be followed to split GDP expenditures into detailed sub-aggregates or to ensure that prices collected and used to compute PPPs are consistent with these detailed expenditures.
3. It emerges from lessons learned in the implementation of ICP 2005 that some specific sections of the SNA-1993 must be extracted in a coherent manner and completed with additional material (on supply and use tables, price and volume measurement, etc.) to form the national accounts framework for ICP. The framework will build on Chapter 8 of the ICP handbook and include additional write up on the consistency between prices and GDP aggregates. A separate paper has been prepared by Paul McCarthy on this framework and the way it will be developed. Another lesson learned is the need to translate the framework into operational guidelines to help the countries provide as reliable and consistent GDP expenditures vectors as possible. The quality of global and regional PPPs and PPP-adjusted GDP hinges on good quality prices and sound GDP expenditures estimates.
4. The aim of this paper is to underline the relevance of these guidelines and give an initial indication of the main tasks that national accountants will be required to undertake for the 2011 ICP during the next few years. These include the range of activities to be carried out in the national and regional Offices. This paper presents some initial ideas on the broad issues involved but without going into specific details about the national accounts matters. One of the outcomes expected from this Regional Coordinators’ meeting is feedback on the ideas set out in this paper, which will assist in finalising the operational section of the national accounts chapter of the 2011 ICP Handbook. Complete details of the tasks involved and ideas on how to implement them will be presented in this redrafted chapter, which should be available by mid 2010.

2 Disaggregation of GDP

5. The task of splitting GDP expenditures into basic headings implies that expenditures on goods and services will be disaggregated into as much detail as possible. Yet, all producers and users of national accounts data know that the very principle of national accounts is to combine detailed data into aggregates from bottom up. Ideally, detailed prices, production data and expenditures are the point of departure instead of them being derived from any composite or aggregate data. In most countries in the world, there are many reasons to the contrary: the paucity of basic data sources, discrepancies in GDP estimates between the three approaches of GDP compilation, the fact that many countries don’t

implement the expenditure approach, the limited dimension of supply and use tables (SUT), limited human capacity, inadequacy of resources for national accounts activities, etc.

6. It's essential to make the most of existing data to ensure utmost consistency in the national accounts activities for ICP. It's all about consistency: consistency between prices collected in the field and prices embedded in GDP expenditures, between production data and expenditure data, between import prices, producer prices and purchaser's prices, between wholesale prices and retail prices, consistency and likelihood of per capita expenditures at basic heading level in nominal and real terms, as well as consistency of the above between countries belonging to the same economic clusters, etc.
7. The compilation and disaggregation of GDP constitute the core part of national accounts activities for ICP. In principle, only the expenditure approach is required for this work. However, the other approaches (production and income) should also be used or at least taken into account. The distinction usually made between the three approaches is not always justified as the three methods rely on the same pool of data, at least to some degree although the extent varies across countries. For example, given the definition of Government services, output for these services is the starting point for calculating consumption of them. Also, in the absence of a survey of business' capital expenditures, the major sources of expenditures data for machinery and equipment are import statistics and statistics on outputs of producers of these items. In cases where all these data sources are available, the various data sets can be reconciled in a supply-use table. These commonalities should be used to the extent possible to estimate GDP or selected components thereof using the three approaches. A critical advantage of implementing them is that their respective specificities facilitate validation and cross-checking of source data and GDP estimates.
8. Guidelines that will be prepared for implementation under the ICP 2011 will therefore lay emphasis on:
 - (i) basic headings for which basic data will be required;
 - (ii) data sources for each basic heading or higher levels of GDP breakdown;
 - (iii) categories of prices of products under each basic heading or at each higher level;
 - (iv) the utilisation of ICP survey prices in national accounts work for ICP;
 - (v) estimates of notional quantities or values at constant prices for each basic heading or higher aggregate;
 - (vi) consistency between these prices and ICP survey prices;
 - (vii) compilation of supply and use tables;
 - (viii) GDP forecast from benchmark ICP work;
 - (ix) validation procedures at country and regional level;
 - (x) data processing issues; and
 - (xi) implementation timetable.
9. These work requirements will entail training and technical assistance that will be provided according to modalities yet to be defined.
10. The topics that are covered in later parts of this paper include:
 - defining the GDP classification to be used in compliance with the ICP national accounts classification;
 - ensuring that products to be priced in the ICP prices survey include major products whose prices are included in the national accounts data for each basic heading;
 - carrying out activities aimed at determining prices/costs and expenditures for the so-called "comparison resistant" areas;

- validating prices collected and national average prices computed from the main survey as well as other price surveys from the national accounts perspective;
- compiling detailed expenditure values for the components of GDP
 - some steps (including training and other assistance) are proposed below;
 - the Global Office would welcome suggestions concerning any other process(es) that may be effective or how the proposed processes could be improved.

3 Uses of basic headings

11. The “basic heading” is the most detailed level at which national accounts data are required and so it is the building block on which the whole ICP is based. 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.

12. The final sentence of this definition identifies the main issues covered in this paper. 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 this 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. 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). 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.
13. While real expenditures and PPPs will not generally be published at this detailed level, data consistency will be checked using basic headings as the starting point. Checking the consistency of the distribution of basic heading values between countries with similar types of economies will be one element of this process. Other checks at the basic heading level will be based on the consistency within a country of real expenditures and the per capita real expenditures with other components of GDP as well as their consistency with similar components in other countries in each region.
14. Another important use of basic headings is that the values provide the weights used to aggregate PPPs to broader national accounts aggregates. If a value is not recorded for any basic heading then it is given zero weight in the aggregation process. Therefore, values should be recorded against all basic headings (unless of course, there is genuinely no expenditure on the products covered by a particular basic heading, which should happen very rarely and in only a handful of countries).

4 National accounts activities

15. 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 organising 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.
16. This section summarises the types of tasks that national accountants will have to undertake. Detailed instructions will be provided in the national accounts chapter in the ICP Handbook on the processes to be followed, samples of national accounting forms, definitions of the items, links between components etc.
17. The national accounts classification used for the ICP has 8 major categories:
 - 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
18. The individual consumption expenditure components are a rearranged presentation of the standard national accounts classification of household final consumption expenditure (generally including NPISHs) and government final consumption expenditure. The estimates for individual consumption expenditure and its various categories will be derived by Regional Offices using basic heading data supplied by national statistical offices (NSOs).
19. Separate details will be required for NPISHs final consumption expenditure (which is combined with relevant categories of household final consumption expenditure in many countries' national accounts). The national accounts basic heading questionnaire will contain categories seeking disaggregated expenditures by NPISHs. Where this information is not provided, national accountants will distribute NPISH total expenditures to the relevant household consumption expenditures, using properly justified methods, including proportional allocation.
20. 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.

21. 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 ICP framework.

22. National Accountants will:

- i. 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;
- ii. 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 utilised to assist in editing survey prices;
- iii. 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;
- iv. 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.
- v. 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;
- vi. 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;

- vii. 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;
 - viii. 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;
 - ix. 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;
 - x. 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;
 - xi. create a new metadata flowchart for 2011;
 - xii. compile estimates/forecasts for GDP expenditures and main aggregates for 2006, 2007, 2008, 2009, 2010 and 2011;
 - xiii. compile simplified supply-use tables (SUT) at a reasonable classification level;
 - xiv. update the vector of GDP breakdown for the reference year 2011, building on the steps above.
23. 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.
24. 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 emphasise 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).

5 Possible data sources

25. The list of potential data sources is designed to identify possibilities rather than imply that countries should have all these available. Ideally, the reference year for data sources used in the 2011 ICP would be 2011. However, it is clear that many of these data sources are not available annually (or even regularly) while others might be available frequently (perhaps even monthly in some cases such as merchandise trade data or VAT data). It is important that the reference period(s) of any surveys or other data sources are provided to the Regional Office to enable the validity of the data to be assessed against the objective of having the best possible data for 2011.
26. The data sources are not necessarily independent and so it may be necessary to extract information for some components from one source and “mix and match” with data from another source. For

example, data from a household expenditure survey generally overlap considerably with retail trade data but are often more comprehensive in terms of covering more components of household final consumption expenditure, particularly amongst the services items. On the other hand, they are often based on a very small sample and so can have much higher standard errors than those from a regular retail survey. In determining which data source (or mix of data sources) to use it is necessary to balance issues such as breadth of coverage, how recent the reference period is for the potential alternatives, how well the underlying concepts match the SNA concepts etc. Using the above example of data from a household expenditure survey versus those from a retail trade survey, the types of issues to be weighed up in making a decision would be:

- the reference period of each compared with the ideal of 2011;
- the relative sample size of the each of the surveys;
- the data item coverage of each compared with the products covered by household consumption expenditure;
- the extent to which retail trade data would need to be adjusted to remove expenditures by businesses and non-residents plus purchases abroad by residents;
- how well the classification used can be matched with the ICP basic heading classification.

27. The following list provides some suggestions on the types of data sources that could be used to estimate detailed expenditure components at the basic heading level:

- household expenditure surveys or equivalent (e.g. such surveys may be called family budget surveys or household budget surveys or similar names in some countries);
- retail trade data;
- capital expenditure surveys;
- inventory surveys;
- balance of payments data;
- merchandise trade data from the Customs Service;
- production statistics from industrial and agricultural censuses and surveys;
- surveys of restaurants and hotels;
- information from Excise authorities on sales of tobacco and alcohol products;
- records of motor vehicle registrations (need to split households and business use);
- sales to households by utility companies and state monopolies
 - water, gas and electricity;
 - posts and communications;
 - rail and air travel;
 - broadcasting;
- data from VAT or other sales taxes classified according to the goods and services taxed;
- supply-use balancing (“product-flow” or “commodity-flow” estimates);
- the Food and Agriculture Organization (FAO) has data for expenditure on food in its Food Balances Database;

- weights used in price indices such as the CPI;
- scanner data.

28. If data are not available from sources such as those listed above, it will be necessary to adopt a fallback procedure. Possibilities include:

- an expenditure breakdown for an earlier year (updated to take account of known changes, such as in relative prices);
- an expenditure pattern from a neighbouring country with a similar type of economy;
- expert opinion either from within the NSO or from experts on the local economy;
- the last resort would be an even allocation below a particular level (but even rough estimates based on the opinions of staff from the NSO would be preferable).

6 Data validation

29. Two major phases will be involved in validating national accounts data. The first will be on an individual country basis (referred to as “national validation”) while the second will be a regional process that compares the consistency of data from like countries within a region (referred to as “regional validation”).

30. The first step in the national validation will be to check that all steps recommended above in Section 4 - *National accounts activities* have been implemented. The following procedures are involved:

- compare GDP and its major aggregates with data reported in the annual national accounts questionnaire, which are stored in the UNSD data base;
- basic checks such as the sum of components equalling corresponding aggregates and that correct signs have been applied to those components that are potentially negative (inventories, net acquisitions of valuables and net international trade);
- completeness checks, such as all basic headings containing non-zero values;
- check whether FISIM is allocated or not (1993 SNA allows for non-allocation of FISIM);
- check whether net expenditures abroad are allocated across products within household final consumption expenditure;
- verify price dynamics from production and imports to final uses for 2011 for all major products;
- compare average price changes from 2005 to 2011 for each basic heading with overall price changes in the country over this period;
- compute per capita expenditure data in nominal values and at 2005 constant prices for each basic heading.

31. FISIM is a potentially important component. Differences of up to about 3% have been observed in the level of GDP between countries that allocate FISIM and those that do not. For the 2011 ICP, GDP estimates are required which contain FISIM estimates that have been allocated across end uses.

One-off adjustments will need to be negotiated between Regional Coordinators and the NSOs in those cases where FISIM is not usually allocated within a country's national accounts.

32. Net expenditures abroad should also be allocated to avoid the problem of having a potential negative value and also because a large value of net expenditures abroad could potentially distort the basic heading real expenditures and the PPPs for actual final consumption. Distributing net expenditures abroad has to be based on assumptions. A reasonable starting point for the allocation is that the net value is all tourism related and so the Tourism Satellite Accounts (TSA) framework can be used as the basis for the allocation. The TSA definitions of tourism include both domestic and international tourism and so the allocation needs to be based on those products that are mainly related to international tourism. Each Regional Office should assist their countries in estimating the allocations. The exercise should be reasonably straightforward in those cases where a country has a TSA. However, most countries for which it is necessary to allocate net expenditures abroad will not have a TSA so a series of assumptions is required. The key point is to identify the types of expenditures by international tourists and then allocate the net value expenditure of expenditures abroad proportionally to the domestic expenditure on those products. (Ideally, the two gross flows underlying the net expenditure abroad would be distributed on the basis of the TSAs for each economy but this is not possible due to lack of data so the Global Office recommends that the net value form the basis for the allocation.) A broad range of products should be included so that no individual basic heading can unduly influence the result.
33. Each country will be asked to provide some economic justification, as detailed as possible, for the changes observed in their data between the 2005 and 2011 calendar years.
34. The regional validation process will involve comparing the data for countries that have similar economies. Each Regional Office will establish clusters of countries according to economically-based and regionally-agreed criteria. Regional Coordinators will be asked to provide details of the criteria they have used and the rationale for their choice to assist in maintaining consistency across regions. Broadly speaking, there will be various categories of clusters according to the overall economic situation in each country, with GDP per capita being a key indicator of the group to which a country should be allocated.
35. The types of checks to be applied within each cluster of countries are as follows, with outliers being identified on the basis of their standard deviations from the mean:
 - comparisons of shares of GDP contributed by each basic heading;
 - comparisons of per capita real expenditures for each basic heading;
 - the variations (standard deviations) in per capita real expenditures for each basic heading between the countries in each cluster;
 - the consistency of PLIs across basic headings within a country;
 - the variation (standard deviations) of PLIs within basic headings between the countries in each cluster.
36. In the 2005 ICP round, some regions convened national accounts workshops. The aim was to provide guidance on estimating expenditures at the basic heading level, to ensure coverage of GDP that was consistent with the framework provided by the 1993 SNA and to resolve apparent inconsistencies in the accounts that had been revealed by the types of edit checks outlined in this section. The Global Office proposes that all Regional Coordinators should convene at least three such workshops during the 2011 round. Details are provided in the next section.

7 Schedule of national accounts activities

37. 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 United Nations Statistics Division (UNSD) national accounts questionnaire (NAQ). Broadly, the UNSD sends out a pre-filled NAQ to the UN Member States (excluding OECD countries and Transition countries) 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 countries are supplied to UNSD around July each year.
38. 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 organise 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.
39. 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.
40. 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.
41. 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)

42. 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 recognised that, in many cases, the basic heading data may need to be based on splits from years earlier than 2008.
43. 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.
44. The first workshop in each region should be around September 2010. At that time, each region should have available 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.
45. 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.
46. 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.

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

48. The following table summarises the national accounts-related activities during the 2011 ICP.

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)

Date	Activity
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

8 Implications of extrapolating PPPs using time series of national accounts

49. The ICP provides a periodic benchmark but many analysts want to examine changes over time and also to update benchmark PPPs to the latest year for which national accounts are available.
50. The other paper produced for this meeting (*Defining the national accounts framework for the ICP*) has a section containing details of the implications of extrapolating PPP benchmarks using time series national accounts data. For convenience, the relevant paragraphs are reproduced here.
51. 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.

52. 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 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 indices 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.
53. 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 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.

9 Summary

54. The national accounts provide a critical part of the ICP data requirements and their importance is reflected in the procedures being developed well in advance of the live national accounts data collection to ensure the national accounts estimates underlying the ICP are as firmly based as possible.
55. Regional Coordinators, assisted by the Global Office, will be responsible for supporting a training program together with specific assistance to individual countries, where required, to ensure the best possible national accounts data will be available for the 2011 ICP.

56. Broadly speaking, the following processes related to national accounts will be implemented over the next few years:

- identifying means of estimating basic heading values in countries that have limited data availability;
- data validation is a critical element of the ICP process and procedures will be implemented to ensure the accuracy of both national accounts and prices data;
- a program of national accounts data collection is being developed to collect data for periodically for years prior to 2011 to ensure that countries have plenty of time to develop and improve their methods of estimating basic heading values;
- a series of national accounts workshops is planned within each region to provide the best prospects of ensuring accuracy and consistency in each region's national accounts;
- extrapolating ICP benchmarks using time series national accounts data is a common-place exercise but the implications of doing so are not well understood.