



ICP OPERATIONAL MANUAL

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PREFACE

The 2005 Round of the International Comparison Program (ICP) marks a watershed compared with earlier rounds. The sponsors and partners of the program have taken a number of steps aimed at strengthening the ICP operations and improving the quality of its outputs. These included imposing stringent global standards for data collection, validation and processing. This first electronic edition of the ICP OPERATIONAL MANUAL represents part of this effort.

The Manual's primary aim is to provide a general understanding of the basic principles underlying the ICP and how such an understanding can improve the efficiency of its implementation and the management of its operations. To this end, the Manual serves both as an operational guide for planning, coordinating and monitoring of the implementation of the program, and provides reference materials and step-by-step guidelines for price surveys, covering household final consumption, government expenditure, and capital formation. It also gives guidance to the compilers of expenditure weights and offers them a useful tool to validate their data.

The Operational Manual in its current form is a live document in that it is work in progress. It attempts to describe the more important issues in the light of the significant changes introduced in the 2005 round of the ICP. It will be amended and improved as time goes on, in the light of new methods and new approaches for future ICP rounds. In particular, the Manual will be revised and updated at the end of the 2005 round, taking account of problems encountered and experiences gained.

How is the Operational Manual different from the ICP Handbook? The ICP Handbook is the principal source of information about the ICP itself, in particular the theoretical underpinning of the idea of Purchasing Power Parities (PPPs) and the linkage of the ICP with the concepts and practices of national accounts construction, as embodied in the UN System of National Accounts (SNA 1993). The Handbook is a comprehensive reference source for all those seeking to understand the underlying concepts of the ICP.

This Operational Manual is a companion to the Handbook: it does not attempt to replace it, but to complement it: it translates theory into practice, by describing the procedural rules and the practical methods of obtaining all the data required for this vast global program. It is therefore primarily addressed to ICP practitioners, whatever their role, from the army of price collectors in the majority of countries around the world, to the national ICP coordinators and the regional and global levels of ICP coordination and calculation. There is inevitably a degree of overlap between the two documents.

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Chapter I. Introduction to the ICP

1. THE INTERNATIONAL COMPARISON PROGRAM (ICP) OBJECTIVES, HISTORY AND ORGANISATION

1.1. Objectives of the ICP

1. Gross Domestic Product (GDP) is the measure most often used by economists to represent the total economic size of countries. GDP and its components on a per capita basis represent the distribution of a country's goods and services as they contribute to its economic welfare. By comparing countries' GDPs and their components it is possible to measure differences in economic welfare, in total and on a per capita basis. But before such comparisons can be made, it is necessary to express the GDPs – which are in national currencies and valued at national price levels– in a common currency at a uniform international price level.

2. The International Comparison Program was established to provide Purchasing Power Parity conversion factors, as an alternative to direct conversion of currencies based on exchange rates, so as to be able to compare GDP between countries on a real basis. The PPP between two countries is the rate at which the currency of one country needs to be converted into that of the second country to ensure that a given amount of the first country's currency will purchase the same volume of goods and services in the second country as it does in the first. PPPs generated by the ICP provide meaningful comparisons based on the prices of hundreds of products, thereby avoiding the deficiencies of exchange rates.

3. Why “meaningful”? Because economic statistics are often measured in terms of national currencies: the GDP of Germany is x euros; the average household income in Mexico is y pesos; the balance of payments in Tanzania is z shillings, and so on. The usual way of comparing values in different countries is to express them all in terms of a common currency, often the US dollar. The conversions are frequently made using the normal market exchange rate, sometimes the annual average exchange rate, or maybe the exchange rate on a particular day, when a report is being made.

4. But market exchange rates are notoriously volatile, depending as they do not only on aspects of the real economy in a country but on other factors, notably interest rates, and on intangibles such as political perspectives. Exchange rates can change drastically within the space of 24 hours, even though the economic fundamentals have not changed. Moreover, an exchange rate-based conversion factor assumes that exchange rates either equate to or move in line with relative prices. This implies that any discrepancy between a country's exchange rate and the corresponding PPP is transitory. In other words, it is assumed that over the long term a country's exchange rate gravitates towards its long term equilibrium rate which is approximated by its PPP. However, research findings abound that this does not

hold. A country may have relatively stable exchange rates over time but they can be far from its PPP.

5. Another important distinction is that an exchange rate-based conversion factor assumes that a common price level exists throughout an economy. As a result, the same conversion factor is used to deflate GDP, consumption, capital formation or any of its lower level aggregates, such as food, clothing, medical care, education, etc. On the other hand, separate PPPs are calculated for different economic aggregates.

6. It would be possible, for example, to calculate PPPs for tourist expenditure. If a tourist visits a foreign country, he will need to spend his own country's currency in order to buy – and spend – the currency of the country he visits. He will buy currency at a commercial exchange rate. When abroad, he may find that the money he has bought will buy him significantly less (or significantly more) than the same money would have bought him in his own country. He will consider that the foreign country is relatively “cheap” or relatively “expensive”. In fact it is the exchange rate he has obtained which leads to this impression. A tourist PPP (if it existed) would give him an exchange rate that equalized the quantity of tourism-related goods and services that he could buy in both countries. No country would seem “cheap” or “expensive” using this PPP exchange rate.

7. The data in Table 1.1 below illustrates the large difference in international comparisons of per capita GDP– and its growth rates – by using PPPs instead of monetary exchange rates.

Table 1.1. The effect of using PPPs compared with exchange rates

		Per capita GDP (National currency)	Per capita GDP (US \$) "Nominal" "Real" (Exch rate) (PPP)		Exchange rate Y/\$	PPP Y/\$	Price level (relative to USA)
		(1)	(2)	(3)	(4)	(5)	(6)=(5)/(4)
Japan (Yen)	2000	4,026,200	37,280	25,975	108	155	1.435
	2004	3,976,800	36,822	29,678	108	134	1.241
USA (\$)	2000	34,364	16,581	16,581	1.0	1.0	1.0
	2004	39,650	19,558	19,558	1.0	1.0	1.0
Japan / United States							
	2000		2.248	1.567			
	2004		1.883	1.517			

Sources: UN, OECD.

1.2. Uses of PPPs

8. Comparisons of per capita expenditures are generally considered to be a good approximation of relative economic development. Countries compare their per capita expenditures on food, education, and health, for example, with other countries from their region. Health and education expenditures as a percentage of government expenditure or total GDP give a comparable measure of the domestic resources devoted to these uses. These measures, when based on PPPs, are important because the relative prices of these services differ greatly between countries. It is useful for national policy purposes to have ratios in both national and international prices.

9. Examples of specific uses include the following:

- A key measure of the potential for economic growth is the ratio of investment to the GDP. Where economic growth is related to the amount of investment, it is appropriate to make these comparisons between countries using PPP-based measures.
- Living standards in different countries can be evaluated by comparing PPP-based per capita expenditures of household consumption or components of household consumption.
- Price levels of basic consumption items or total consumption are used to assess the incidence of poverty and to monitor progress of policies targeted to poverty alleviation. The current practice to produce global poverty estimates makes use of US\$1/day and US\$2/day poverty lines. The comparison between countries is made using PPPs for the private consumption aggregate of GDP. The ICP framework can be used to investigate the incidence and distribution of poverty in various regions of the same country.
- The European Commission spends some 30 per cent of its total budget on the Structural and Cohesion Funds, the overall aim of which is to gradually reduce economic disparities between EU Member States. The list of regions eligible for fund allocations, is established on the basis of PPP-converted GDP per capita, as well as the actual allocations.
- The comparison of the relationship between PPPs and exchange rates for similar countries will allow a country to consider the effect of its exchange rate policies. The extent of the deviations of PPPs from the official exchange rates shows the extent to which a currency over or understates the general price levels.
- Multinational businesses need PPP data to help them in locating their operational centers, as they need to know the relative prices of labor, raw materials, and indeed

the size of markets. They also use PPP results to determine equitable levels of compensation for expatriate staff, bearing in mind the difference in price levels between their home country and the country where they are assigned.

- The results of the ICP also address a very common concern for tourists, compensation administrators, and traders, namely how expensive is “my” country compared to a neighbouring country or a country to be visited. This concern can only be addressed by knowing the prices of goods and services to be bought or sold in each country as generated by the ICP along with the price of currency, the exchange rate.

1.3. History of the ICP

10. The program was first established in 1968 as a joint venture of the United Nations and the University of Pennsylvania, with financial contributions from the Ford Foundation and the World Bank. Starting with a modest project to undertake comparisons in 10 countries in 1970, further ICP rounds were conducted in 1975, 1980, 1985, 1990 and 1993. By the time of the last round, the ICP had expanded to the status of a truly global program. Coverage increased from the initial 10 countries in 1970 to 118 in 1993, covering all regions of the world for the first time. The OECD and Eurostat (the Statistical Office of the EU) calculate PPPs in their member states on a permanent basis.

11. The World Bank has now assumed the role of global coordinator for the ICP in non-EU/OECD countries. The 2003-2006 ICP round marks a watershed in the program’s history. It will produce PPP data for about 150 countries including those in the EU and OECD (see Annex 1). Significant steps have also been taken to enhance the credibility of the program. A new strategic framework has been developed to address long-standing issues, including the program’s governance structure, resource base, and methodological underpinnings. These are described in the next section.

1.4. Organization of the ICP

12. The new ICP Governance Framework establishes institutional responsibilities and organizational arrangements worldwide. It specifies the roles and responsibilities of the executive, managerial and advisory bodies, and the procedures that they follow, which ensure that the International Comparison Program is run to high standards, globally, regionally and nationally.

13. The ICP Executive Board is responsible for the successful implementation of the Program. An international secretariat at the World Bank, known as the Global Office, headed by the ICP Global Manager, manages the ICP on a day-to-day basis. It reports to the Executive Board and prepares annual work programs and budgets for its approval. The Technical Advisory Group provides guidance on technical issues and monitors the use of

appropriate methodology. Regional Implementing Agencies (see Annex 1.2) are responsible for setting up the structures required to implement and monitor the program at the regional level. (Note that “regional” here indicates global regions such as entire continents or large groups of countries). Each regional agency has established a Regional ICP Office headed by a Regional Coordinator. Regional agencies have established regional boards to maintain contact with participating countries. Within participating countries, the ICP is carried out by a National Implementing Agency that will nominate an ICP National Coordinator.

14. The Organizational Framework lays out the organizational structure specifying how the global, regional and national implementing agencies are organized to carry out their responsibilities. As far as the results are concerned, the regional agencies produce PPPs for their respective regions in a selected regional currency, while the Global Office links the regional estimates to produce a globally consistent set of results in an international currency such as the US dollar.

15. A list of the global regions and Implementing Agencies is given in Annex 1.2.

2. RELATIONSHIP OF ICP WITH THE UN SYSTEM OF NATIONAL ACCOUNTS (SNA)

16. The System of National Accounts (SNA), which a large number of countries use to compile their national accounts (and hence to measure GDP) consists of a consistent and integrated set of macroeconomic accounts, balance sheets and tables based on a set of internationally agreed concepts, definitions, classifications and accounting rules. It provides a comprehensive accounting framework within which economic data can be compiled and presented in a format designed for economic analysis, decision-taking and policy-making purposes. The accounts provide a comprehensive record of the complex economic activities taking place within an economy. The SNA provides information not only about economic activities, but also about the levels of an economy’s productive assets and the wealth of its inhabitants at particular points of time.

17. In the SNA, total GDP is broken down into a number of major headings. These are:

- Household consumption expenditure (including purchases of goods and services for everyday living, and some imputed expenditure such as the imputed rents of owner-occupied dwellings and the consumption of home-produced food).
- Government expenditure.
- Capital formation.
- Stock building.
- Exports and imports.

18. It is of course important from the point of view of international comparisons that national estimates of GDP are comparable, and indeed this is why the SNA has been developed. Taking account of population estimates, it then becomes possible to compare countries' national incomes on the standardized basis of income per capita. It is at this point that the problem of conversion to a common unit of currency emerges, as discussed in section 1.1. Since GDP estimates are compiled from the bottom up, i.e. by aggregating from small sub-headings, via the major aggregates mentioned above, it is necessary that PPPs also be calculated at similar stages of aggregation. It is thus an essential part of the ICP that the classifications and aggregations used for PPPs are as close as possible, if not identical, to those used for compiling the national accounts.

19. The SNA has paved the way for a number of internationally-agreed classifications. Chief among these are:

- COICOP (Classification of Individual Consumption according to Purpose).
- COFOG (Classification of the Functions of Government).
- COPP (Classification of the Outlays of Producers according to Purpose).

20. The same classifications are used in the ICP for national accounts items and for the classification of goods and services in price collection. The national accounts values are used generally as weights for the aggregation of prices collected in the ICP.

3. OVERVIEW OF THE PRINCIPLES OF PRICE REQUIREMENTS

3.1. Grouping of products by Basic Heading (BH)

21. It is necessary to break down total expenditures into sub-groups in order to be able to deal with relatively homogeneous groupings of products. This is necessary both from the point of view of establishing weights and also from the price collection point of view. A BH is a group of related products for which an expenditure weight is available. It is the lowest level at which PPPs are calculated. Products within a BH are priced, but there is normally no weight available -the weight is the proportion of total national household consumption which is spent on a particular product. (At the product level, simple ratios of average prices may be compared between countries. These are sometimes referred to as PPPs, but strictly speaking PPPs are calculated only at the BH level and above.)

22. The justification for this approach is related to practical, rather than theoretical, considerations. Take for example the household consumption of meat. The COICOP classification distinguishes between several varieties of meat (beef, chicken etc). Building up the total values of expenditure for GDP does not always require such distinctions to be made, but the collection of prices certainly does. The ICP requires that an agreed "basket" of

goods and services be priced in all the participating countries. We cannot ask a price collector to go into the shops and find out the price of a kilo of “meat”. It is far too vague. It is even too vague to require the price of a kilo of beef. There is too much variety within the heading “beef”, and the prices obtained would be far too diverse. Price collectors need to have a list of products each of which is sufficiently well specified as to make its identification certain and unique.

23. An example of an individual product specification (let’s stay with beef) is:

- Beef without bones.
- Cut from animal without distinction of special parts.
- Without offal.
- Unpacked.
- Refrigerated.
- Price per kilogram.

At this level of detail, no weight is likely to be available. To calculate the PPP for the BH, the price ratios between countries of each of the products within the BH are calculated. The BH PPP is the unweighted average of each of its price ratios. When average price ratios (PPPs) for all the BHs are available, they can be aggregated into larger groups (such as “Food”) and eventually into total GDP, using weights which are known for each BH.

3.2. Principles of product selection

Comparability

24. Comparison lies at the heart of the ICP. The aim of the program is about being able to compare national economies in a meaningful way. But comparisons of prices, and price levels, are a prerequisite.

25. The comparison of prices between countries has some similarities with the comparison of prices within countries which are made usually every month for the purpose of compiling a Consumer Price Index (CPI): the usual measure used for inflation. But there are some crucial differences too. Perhaps the most fundamental common aspect is the need for comparability: with a CPI it is necessary to compare the prices of the same products month by month; with the ICP the same products must be priced more or less simultaneously in all the participating countries.

26. The key concept is comparison of “like with like”. It is self-evident that the same products should be compared internationally (we cannot compare the price of beef in one country with chicken in another). But we must also compare the prices of the same quantity

of each product (not a kilo of beef here and a pound there). Prices must also be those paid by the final purchaser, inclusive of all taxes and discounts.

27. Moreover, all price-determining factors associated with each product must also be standardized, at least as far as possible. Factors such as type of retail outlet (market stall or shop etc), packaging (loose or packed etc) may have an important influence on price, and comparability must take such factors into account. In general, quality aspects should also be standardized, though it is not always a simple matter: it is possible to specify that fruit sold in an open market should be priced early in the day when it is fresh, but whether such fruit is comparable between different countries as regards degree of freshness is debatable.

28. One of the fundamental difficulties of the ICP, which is not an issue with national CPIs, concerns differences in national consumption habits. For a country whose inhabitants generally do not eat beef, there is no sense in trying to compare beef prices, even assuming that they can be located in the market of that country. Beef is not a representative product in that country. A similar problem arises with many staple diets such as rice and potatoes. Countries can be found where one or the other of these products, but not both are consumed on a wide scale as the staple diet. Is it reasonable to compare the price of potatoes in one country with the price of rice in another, on the grounds that they each fulfill the same basic function? Such problems as these have exerted the minds of experts for many years. There are no perfect solutions, but practicable techniques have evolved which provide reasonable responses to such difficulties.

Representative products

29. In the previous section we looked at an example of a particular product selected for pricing within the BH “Beef”. In this section we describe how the selection of products is made.

30. In the “Beef” group, as in most of the BHs, there is still a wide range of products which could be selected for pricing. The choice depends to a large extent on the homogeneity of the group. Homogeneity in this context should be interpreted in terms of the dispersion of the individual price ratios across countries. Of course, when BHs are initially drawn up, this information is not yet known, though a combination of information from previous ICP rounds and intelligent guesswork is likely to provide a sufficient basis for decision.

31. Although the COICOP classification has been designed to group together products of a similar type, this grouping is in terms of function rather than by physical specification or by price level. A representative product is one which is (or is believed to be) in terms of relative total expenditure within a BH, among the most important products purchased in the national market. In other words, it can be taken as representative of the BH itself. Typically, a representative product will be included in the basket used for the national CPI, but this may depend on how up-to-date the CPI basket is. It should be noted that expensive items

purchased by relatively few people may still be considered representative, as their contribution by value to the total expenditure in the BH may still be important. For example, 1000 polyester blouses costing \$20 each will contribute the same towards GDP as 10 leather jackets each costing \$2000.

Striking a balance between representative and comparable products

32. It is not possible for each country to include only its representative products in the basket. If a country priced just its own representative products there would be a risk that none of them (tightly specified as they are) would be priced in other countries. Representative products may not be comparable, while comparable products may not be representative. The list of items chosen needs to strike a reasonable balance between these conflicting requirements.

33. The method of calculating PPPs requires that identical products must be priced in more than one country – though not necessarily in all countries. The choice of both representative and non-representative products depends to a large extent also on the number of products being selected for the BH (see section 4.1) and on the number of non representative products required for international comparability.

Services

34. The examples mentioned above – meat and clothing – are products with a physical form, known collectively as “goods”. Increasingly, households purchase non-tangible products known as “services”. For example, an alternative to buying beef and cooking it at home is to go out to a restaurant or café to eat it. The product being here is not beef as such, but the service of a restaurant (which cooks the beef and serves it, and moreover washes up the customer’s dishes afterwards). Services are also included in COICOP, and in principle are covered in the ICP just as goods are. The only differences are that the “retail outlets” will usually differ (the services of a plumber are not generally bought at a plumber’s shop but by direct contact with the plumber, say, over the phone); and that the specifications of the services have to be developed in a different way than for goods. Services tend to be less uniform than goods (how can a restaurant meal be defined in a precise way?) and are often more difficult to specify. An example illustrates this point. It is the specification for a domestic cleaner:

- Time worked: 10 hours per week.
- Officially registered cleaner.
- Social security paid by employer.
- Meals included.

But it is not possible to standardize the productivity of cleaners: in 10 hours it is obvious that some cleaners will do a better job than others.

35. Even relatively standard services, such as the price of a railway ticket, can be complicated to specify. Factors such as the type of ticket (single/return), time of day, day of week, status of traveler (student, old person, etc.) may all have an influence on the ticket price and must be carefully included in the specification, as the following example illustrates:

- 100km railway journey.
- Adult full-fare one way.
- Reserved seat.
- Saloon coach with upholstered seats.
- Luggage up to 30kg.
- Pre-surveys.

36. Readers will understand that the wide-ranging considerations described in this section require a great deal of forethought and pre-planning. Conducting a statistical survey needs a thorough preparation in order to make the survey efficient and successful.

37. For the ICP surveys, the major part of the preparation is to conduct pre-surveys in each country for which all the relevant aspects of the survey have to be taken into account:

- The investigation of the domestic market.
- The pre-selection of products as representative items.
- The selection of outlets.
- The establishment of the organizational structure of the survey (price collector team; timetable; action plan; etc.)
- Training of price collectors, e.g. in outlet and product recognition.

38. This work, and indeed much of the ICP price collection work, is made easier by reason of the fact that in most countries a consumer price collection infrastructure is already in place for the purposes of the national consumer price index (CPI). Of course, many adjustments usually need to be made, in terms of products, outlets, regions, timetable, and so on. For example, the CPI survey is in many countries based on prices in the capital cities only, whereas the ICP requires national coverage of prices. The types of outlet surveyed in the CPI may also need to be extended for the ICP to reflect national shopping habits. Nevertheless, the existing CPI structure provides an important starting point for the ICP

survey. Indeed, one of the important by-products of the ICP is the spin-off of technical improvements to the statistical infrastructure of the participating countries (see section 9).

Sample design

39. What meaning can be attached to the word “price” when applied to an ICP product? Within a given country, the price of a product will depend on the shop or retail outlet which sells it; the location of the shop within a city; possibly the day of the week or even the time of day (if the product is perishable); the season of the year; the region within the country.

40. Just for a single product, there may be thousands of prices which could be selected – but the ICP (just as with a consumer price index) has to limit itself to taking a small sample of these many possible prices. In designing the sampling scheme, two particular criteria must be met. The price data from each country must correspond to the aggregate expenditure data in the national accounts of that country. The average price, when divided into the expenditure on a given product, should be the unit value which gives the quantity of the product purchased in the country during the year. In principle, the required annual national average price for an individual product is a weighted average of the prices at which it is sold in the different months of the year and in the different regions of the country, using the quantities purchased in each month and region as weights.

41. This implies that the sample must relate to the whole country, not just to the capital city or its region. It must also relate to the whole year, not just to a particular day, month or season. Chapter 2 of this Manual describes in somewhat more detail the steps needed to select a sample for the ICP. In brief, the design of the sample should take into account the following factors:

- Regional coverage. Not all regions must necessarily be covered, but the average prices should be a good reflection of the overall national average price.
- Selection of towns, cities, villages within regions. It is unnecessary to cover all or even most of the population centers within a selected region. The choice will be a balance between statistical requirements and budget constraints.
- Selection of shopping districts within the selected towns. If the town is already covered by the CPI, the choice of shopping districts is probably obvious. Otherwise, a local pre-survey is needed to select the appropriate districts, which will generally be those where retail outlets are clustered.
- Selection of individual retail outlets. Again, the outlets used for the CPI will often be appropriate. Otherwise, the local pre-survey should be used to select the outlets for ICP collection.
- See also Section 7 of this chapter for further details concerning the requirements for calculating national annual average prices.

4. HOUSEHOLD CONSUMPTION EXPENDITURE

4.1. Introduction

42. The largest part of GDP is consumed by private households. Consequently a large part of the ICP effort is devoted to obtaining prices for household expenditure goods and services. As discussed briefly in section 3.1., the universe of goods and services which comprise GDP is, for the purposes of the ICP, divided into relatively homogeneous groups known as Basic Headings (BH). For each BH, a number of specific products are selected for pricing. The choice of products is dictated by criteria of representativity and international comparability.

43. The current ICP project has put much more effort into the selection, specifications and descriptions of the products to be priced than in previous ICP rounds. Experience has shown that a good understanding of the products at every level of the procedure – especially the surveyors who actually collect the prices in each country – is crucial to the success of the project. Technological progress, particularly in computing, internet accessibility and power, and in digital photography, now permits a much more accurate and comprehensive listing of the products to be priced. Errors of identification are now likely to be much reduced.

4.2. Deciding on the number of products in each Basic Heading

44. When drawing up the product lists, a rough target has to be set for the number of products within each BH for which prices are to be collected. This figure depends on a combination of factors. There are no scientifically precise criteria which can be used to determine the choice or number of products to be included in the basket. As a guiding principle, the larger the weight of a particular BH, the greater the number of products may be needed. This is not always the case. For example, for electricity (which may have a relatively large weight) there may be only a very few “products”, such as two different tariffs relating to a unique electricity supplier. In fact, each BH is unique, and has to be considered on its own merits.

45. In practice, countries submit to their regional coordinator lists of products which they propose to price within each BH. These lists are compared and products which are unlikely to be available in any countries will generally be discarded. The more homogeneous the markets of the countries in the region, the shorter the list will be. The more heterogeneous, the longer the list will be. Underlying this process is the knowledge of the total resources likely to be available for pricing, which will serve to keep the size of the final list to a manageable level. For the ICP 2005, the list size varies from about 700 to about 1300 products.

46. Finally, it is necessary to take account of the amount of variation in the price ratios for the individual products that may be expected on the basis of general knowledge of the market or evidence from previous or other PPP surveys. The greater the variation, the more

products may need to be priced (and vice versa). For instance, in the BH for eggs and egg-based products, which in many countries consists overwhelmingly of hens' eggs, one single product may sufficiently represent the BH, though weight or size will still of course need to be included in the specification of the product.

47. Taking account of these various factors, the number of products may vary considerably from one BH to another. In general in economic statistics, classifications of services tend to be coarse in comparison with those for goods. In addition, services tend to be more heterogeneous than goods. For these reasons, it may be appropriate for the number of products per BH to be somewhat greater for services than goods -provided suitable products can be identified.

48. Some illustrative data for 12 BHs in the food group are shown in Table 2 below. Even though 'fresh milk' and 'preserved milk and other milk products' have a similar weight in total household consumption expenditures, three products are deemed to be sufficient for 'fresh milk' as there are relatively few types of fresh milk on the market, whereas a greater number is needed for 'preserved milk and other milk products' to allow for the greater variety of such products.

Table 1.2. Numbers of Products within Basic Headings (Food)

Code	Basic Heading	No. of products in the list	National Accounts Weights
11.01.11.3	Bread	11	1.0 %
11.01.11.4	Other bakery products	15	0.7 %
11.01.12.1	Beef and veal	10	0.5 %
11.01.12.3	Lamb, mutton and goat	3	0.2 %
11.01.12.4	Poultry	8	0.6 %
11.01.12.6	Delicatessen and other meat preparations	18	1.8 %
11.01.13.2	Preserved or processed fish and seafood	6	0.2 %
11.01.14.1	Fresh milk	3	0.7 %
11.01.14.2	Preserved milk and other milk products	10	0.7 %
11.01.14.3	Cheese	15	0.7 %
11.01.14.4	Eggs and egg-based products	2	0.3 %
11.01.15.1	Butter and margarine	3	0.2 %

4.3. Compiling the lists of product specifications

49. The process starts with the compilation of Structured Product Descriptions (SPDs). Introduced in the 2005 round of the ICP, these are generic descriptions that list the characteristics relevant to a particular narrow cluster of products. The SPD does not identify individual products. To identify individual products within the SPD cluster, it is necessary to specify the specific characteristics possessed by the product in question. Indeed, the next step is to use the SPDs to create detailed Product Specifications (PS), that specify the precise characteristics of the individual products for which prices are to be collected.

50. All of this detailed preparatory work is carried out as a co-operative task involving ICP Regional Coordinators, National Statistical Institutes and Country Coordinators, using their knowledge about products gained from conducting CPI price surveys in the countries of each region. In this way, lists of characteristics that best reflect the products in each region were developed.

4.4. Structured Product Descriptions (SPDs)

51. The actual contents of an SPD are best explained by working through an example. Each SPD has the following sections.

- ICP heading: code and name.
- ICP cluster: code and name.
- Quantity and packaging: This section describes the units in which the item is sold. For example, the SPD for rice lists 12 different types of possible package. The size may be measured by weight, by volume, or other dimensions such as length.
- Source: Domestic or imported.
- Seasonal availability and representativity: This section contains check boxes for the twelve months of the year, and the year as a whole, to indicate the times of the year when the product is available for sale.
- It also contains check boxes which indicate the product's representativity and availability.
- Product characteristics: The contents of this section can vary greatly, depending on the nature of the products that make up the cluster. Many of the characteristics refer to materials used or to the method of production which may have almost nothing in common between product clusters. Some of the characteristics may be continuously variable, such as the percentage of cotton or other fiber used in clothing.
- An example is rice, which distinguishes between long, medium and short grain; white or brown; risotto-type or other; pre-cooked/parboiled/instant etc; and other characteristics.

-
- Brand: Brand name (if any).
 - Other product features: This section enables the regional or national coordinators to enter further information about the product, or for the price collector to report back further information.
 - Comments: This section allows the regional or national coordinators to record any comments that they see as important for that SPD.

4.5. Product Specifications (PS)

52. With a national consumer price index (CPI) it is not essential to specify products in great detail (although some countries do this). As long as the product being priced conforms to its generic description and the price collector sticks to exactly the same product in each outlet each month, the conditions for a CPI will be fulfilled. The two approaches are often referred to as “tight” and “loose” specifications.

53. The ICP differs from national CPIs because a specific basket of products is being priced worldwide. The specifications therefore need to be particularly tight. After having established the list of Structured Product Descriptions described above, the task is then to draw up lists of detailed products which price collectors must use in selecting products in shops for pricing. The ideal of having a unique global set of well-defined products cannot always be achieved, as such a list would not also meet the criteria of representativity. Indeed, many products which are common in some countries are just not available in others. So although the first goal is to establish a list of well-defined products, it is necessary at the same time to treat such products as targets. If, in some countries, products cannot be found that exactly match the target specifications, price collectors are instructed to select and price close substitutes instead.

54. Close substitutes are products which possess all but one or two of the specified characteristics. In deciding on what constitutes a close substitute, it is not just the number of characteristics that do not match that have to be taken into consideration but the extent to which the characteristics deviate from the target ones. For the price of a close substitute to be usable for ICP purposes, at least one of two conditions must be met:

- The difference in quality between the substitute and the target is so trivial that its impact on the price is judged to be insignificant and the product is deemed to be comparable with products which do meet the target specifications; or
- The difference in quality between the substitute and the target is not trivial but it is possible to make a reasonable estimate of the effect of the difference on the price (a “quality adjustment”).

55. The advantage of instructing price collectors to price close substitutes when perfectly matching products cannot be found is that it may significantly increase the number of prices

collected and hence the number of price comparisons that can be fed into the PPP calculations. A variant on the “close substitute” strategy is to loosen the target specification slightly, by leaving open the specification of one or two characteristics. For example, in the case of a product such as rice which is otherwise tightly specified, it might be decided not to pre-specify the type of packaging or size of unit. Of course, price collectors would still have to report the actual type of packaging, or size of unit observed.

56. While this strategy would increase the number of prices collected if substitutes were not permitted, no advantage may be gained as compared with specifying precise target specifications but allowing price collectors to choose substitutes. In practice, the choice of strategy is left to the National Coordinators.

57. Shown below is an example of a specification for an unbranded product – a pair of ladies’ shoes. The object is to exclude fashionable shoes sold under brand names, whether the brands are national or international.

Table 1.3. Product Specification

Characteristic	Specification
Title: Code: Brand(s): Type: Styling: Upper material: Lining: Insole: Sole: Heel:	Ladies’ shoes 03.2.1.2a non branded low-heel shoes with laces, without decoration leather synthetic / textile leather synthetic material synthetic material
Further information: (None) See picture Specify: observed label (if any)	

The saying goes that a picture can tell more than a thousand words. It also does not need to be translated. Whenever appropriate and possible, price collectors are provided with color photographs to help them identify the products. Photographs can be particularly useful for clothing, furniture and some foods.

5. MARKET AND NON-MARKET PRICES

5.1. Introduction

58. The examples mentioned so far in this manual all refer to fairly simple products purchased in ordinary retail outlets by households (items of food and clothing) and services which are capable of definition.

59. In the SNA, GDP is essentially regarded as a measure of economic welfare, so that, for example, the consumption of food bought by households contributes the same amount to GDP as the consumption of the same volume of food which the household produces for its

own consumption. In the latter case, no economic transactions take place other than the possible purchase of seeds, fertilizers, equipment etc.

60. There are other important examples of non-market transactions, or partially non-market transactions. A person may be prescribed a pharmaceutical drug by a doctor, obtainable from a pharmacy at a discounted price under a national health scheme. The value of the drug may be far higher than the amount paid by the patient. In GDP, it is the total value of the drug which must be recorded. This may not be easy to measure. The collection of prices for such items cannot be based solely – or even at all – on normal price surveys of pharmacies. Information will usually need to be collected from central sources, for example in the health ministry.

61. In the case of subsidized health services, such as a consultation with a general practitioner (which may even be free in some countries) a value must be imputed to the “transaction” for the purposes of measuring GDP. This is not the place to go into detail about the possible methods of imputation, but for the purposes of the ICP, imputed prices must also be attached to such transactions.

62. More information on the treatment of the main categories of non-market and partially non-market goods and services is given in the following sections.

5.2. Government services

63. “General government” is a name which covers not only central government but also regional, state and local government. We will refer to this large sector simply as “government”.

64. The ICP distinguishes between “individual” government services and “collective” government services. Individual services are those which government provides for the benefit of individual households, such as the provision of schools and hospitals. They also include goods and services purchased initially by government and then passed on to households, either free or at subsidized prices. These include such items as medicines, hospital services and education services. Sometimes the items are initially paid for in full by the consumer, and reimbursements (in part or fully) are made later.

65. Collective services are those which provide benefits for the population more generally. They include defense, economic affairs, environmental protection, and so on. These services do not involve the purchase of items by households, but only the production of services by government.

66. Just as with ordinary market-based products, the ICP subdivides government expenditure into a number of basic headings. These are shown in table 1.4.

Table 1.4. Basic Heading for Individual services and Collectives services

INDIVIDUAL SERVICES	
	<i>Housing</i>
13.01.11.1	Housing
	<i>Health benefits and reimbursements</i>
13.02.11.1	Pharmaceutical products
13.02.11.2	Other medical products
13.02.11.3	Therapeutic appliances and equipment
13.02.12.1	Out-patient medical services
13.02.12.2	Out-patient dental services
13.02.12.3	Out-patient paramedical services
13.02.12.4	Hospital services
	<i>Production of health services</i>
13.02.21.1	Compensation of employees
13.02.22.1	Intermediate consumption
13.02.23.1	Gross operating surplus
13.02.24.1	Net taxes on production
13.02.25.1	Receipts from sales
	<i>Recreation and culture</i>
13.03.11.1	Recreation and culture
	<i>Education benefits and reimbursements</i>
13.04.11.1	Education benefits and reimbursements
	<i>Production of education services</i>
13.04.21.1	Compensation of employees
13.04.22.1	Intermediate consumption
13.04.23.1	Gross operating surplus
13.04.24.1	Net taxes on production
13.04.25.1	Receipts from sales
	<i>Social protection</i>
13.05.11.1	Social protection
COLLECTIVE SERVICES	
14.01.11.1	Compensation of employees
14.01.12.1	Intermediate consumption
14.01.13.1	Gross operating surplus
14.01.14.1	Net taxes on production
14.01.15.1	Receipts from sales

We next look in more detail at the main headings in Table 1.4 and describe how prices are collected and PPPs calculated for the ICP.

5.3. Health benefits and reimbursements

67. Many governments purchase health services, pharmaceuticals and other medical goods from companies and then make them available to households either free or at reduced prices. The prices obtained for the ICP are, however, the “total” prices, i.e. the sum of any non-reimbursable price paid by households and the part paid by government. Suppose, for example, that the quantity of a pharmaceutical product purchased is 1000 units

and that the price per unit is \$10, of which households pay \$2 and government \$8. In the national accounts, \$2000 will be recorded as household expenditure and \$8000 will be recorded as government expenditure. If the prices actually paid were used to deflate these expenditures, it would seem that both households and government have each purchased 1000 units -2000 units in total. But if the total price paid (\$10) is used, households will be shown as having purchased 200 units and government 800 units -a correct total of 1000 units.

68. Price data for these items is usually obtained from government ministries or agencies.

69. Hospital services (one of the Basic Headings shown in Table 1.4 above) covers the provision of medical services, pharmaceuticals, etc. which are provided to patients who stay overnight in hospitals for treatment. Since both the methods of provision of such services, and their quality, vary a great deal between countries, the ICP does not attempt to calculate PPPs for this Basic Heading. Instead, a so-called “reference PPP” – a proxy used as an estimate for this heading – is used: it is the PPP for production of health services by government, before deducting receipts from sales. Prices for all the other Basic Headings in 13.02.11 and 13.02.12 in Table 1.4 are collected. In practice, they are collected as part of the price collection for household consumption, as the same goods and services are involved.

5.4. Production of health, education and collective services

70. Many government services are provided free or at low prices which are regarded as being not economically significant. In the absence of any real prices, an alternative method has to be used to calculate PPPs. The method used in the national accounts is to value these services at their costs of production, and this method is also used for the ICP.

71. The costs of producing government services are:

- Compensation of employees;
- Intermediate consumption;
- Net taxes on production gross operating surplus; and
- Receipts from sales (as a negative figure).

72. Compensation of employees is the largest of these. It is in fact the only cost component for which separate price collection is needed. The process bears a close similarity to the construction of a list of products for pricing in the main list for household consumption. Within each sector of government services, a selection is made of

representative occupations – analogous to representative products. List of occupations are drawn up within three separate sectors: health, education and general government.

73. Examples include the following:

- Health sector:
 - Doctor (10 years seniority)
 - Nurse (operating theatre)
 - Laboratory assistant
- Education sector:
 - Primary teacher
 - University lecturer
- Defense sector:
 - Naval frigate commander
 - Air Force ground crewman
- Other:
 - Prison guard
 - Database administrator
 - Cleaner

74. A total of 50 such occupations are covered. For each occupation, wages are obtained on a standardized definition (covering such items as special allowances, benefits in kind, social contributions) from the relevant government ministries. It should be noted that this information is not taken from aggregated payroll data, which would not give internationally comparable averages. Instead, data are taken directly from salary scales and related information. As with prices, the wage data are national annual averages (see section 7).

75. In Table 1.4, only 8 of the basic Headings involve price collection. In all the others, reference PPPs are used. Brief details are as follows:

76. Intermediate consumption: this covers a wide range of goods and services such as printing supplies, office rent, computer services, office cleaning, and electricity. In the defense sector, intermediate purchases include the purchase of weapons. Within intermediate consumption, prices are collected only for three basic headings: pharmaceutical products, other medical goods, and therapeutic appliances and equipment.

77. Net taxes on production consist of taxes on products payable when they are produced, taxes and duties on imports, taxes on the ownership of land, buildings or other

assets used in production, and taxes on the labor used in production. Subsidies on production are considered to be negative taxes and so are deducted. In most countries, net taxes on production of government services are insignificant or zero, so for the ICP reference PPPs are used.

78. Gross operating surplus consists of the net operating surplus plus consumption of fixed capital. In most countries the net operating surplus is insignificant or zero so this item consists only of consumption of fixed capital. Consumption of fixed capital is calculated in respect of government-owned buildings and other structures and machinery and equipment. For the ICP, reference PPPs are used.

79. Receipts from sales cover things such as partial charges for education and health services, passport fees, entrance charges for museums, etc. These expenditures are recorded under household final consumption expenditure and, in a few cases, under the intermediate consumption of enterprises. They must therefore be deducted from government consumption expenditure. For the ICP, reference PPPs are used.

5.5. Housing

80. From the point of view of the occupier, housing is either rented (rent payable to private landlord, company, government, etc.) or owned by the occupier, whether with or without a mortgage. From the national accounts (and ICP) point of view, the nature of the owner in the case of rented housing, and the mortgage status for owner-occupied housing, are irrelevant. The sole distinction made is whether the dwelling is rented or owner-occupied.

81. Actual rents payable are treated within the household consumption sector just as other goods and services. Data on average rents of course have to be collected in a different way from the prices of products sold in retail outlets. Special surveys are usually conducted directly with the occupiers of tenanted dwellings, using a standard set of rent specifications which are defined by indicators such as:

- General type of dwelling (flat or house).
- Age (< 25; 25-50; > 50 years old).
- Size (number of living rooms in a combination with usable surface area).
- Existence of central heating (with and without).

82. Owner-occupied housing is more complicated. What needs to be measured in the national accounts is the annual cost of housing services to the owner-occupiers. This is not directly related to the cost of acquisition of dwellings, which is in any case treated in the national accounts under the heading of capital rather than consumption. In fact, in the national accounts 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 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 compile a table showing the average rents actually paid for each type of dwelling. The number of owner-occupied dwellings of that type is then distributed over the same matrix to obtain, by multiplication, the total imputed rents of owner-occupiers.

83. The resulting average imputed rents are then treated from the point of view of PPPs as if they were actual rents. This procedure depends on the existence of market rental surveys that cover most areas of a country. However, fewer than half of the ICP countries have such surveys. Often rental markets are very thin, serve mainly expatriates, or they do not reflect market rents but rather state or municipal controls and/or subsidies. For these countries, average rents are obtained as unit values by dividing the various subtotals of rental expenditures in the national accounts by the corresponding number of quality-adjusted dwelling units. An explanation of how the number of dwellings is adjusted for quality, and other methods for estimating the value of owner-occupied dwellings, are described in Chapter 10.

6. CAPITAL EXPENDITURE

6.1. Introduction

84. Chapter 6 of this Manual deals with capital expenditure in some detail. Here, just the essential issues are discussed.

85. In the UN System of National Accounts (SNA), gross capital formation (GCF) is one of the principal components of final expenditure, typically accounting for around 20% of GDP. The main components of GCF are:

- Acquisitions less disposals of new or second-hand tangible fixed assets in the form of:
 - Equipment goods (i.e. plant and machinery);
 - Dwellings;
 - Other buildings and structures;
 - Cultivated assets (trees and livestock).
- Major improvements to existing fixed or natural assets, including land.
- Acquisitions less disposals of intangible fixed assets (e.g., computer software).
- Changes in inventories (acquisitions less disposals of stocks held by producers).

-
- Acquisitions less disposals of valuables (precious metals or stones, expensive jewels, works of art, etc. held as investments).

86. Dwellings are treated as fixed assets that are used, together with other inputs, to produce housing services for renting or own use. Owner occupiers do not consume the dwellings as such but rather the housing services produced by the dwellings (see section 5.4 above).

6.2. Price Surveys for Gross Capital Formation

87. Two kinds of price survey are conducted for ICP purposes. One is a survey of the prices of equipment goods and computer software. The second is a survey of the prices of a set of construction components – i.e. the elementary parts that are assembled for a construction project. Price surveys are not carried out for the other components of GCF. The procedure followed for changes in inventories and for net acquisitions of valuables is to impute a reference PPP on the basis of the PPPs calculated for other categories of expenditure.

88. Capital goods can be much more complex and variable than consumer goods, and it is more difficult to obtain perfect matches between the capital goods purchased in different countries than for consumer goods. Furthermore, the complexity of many capital goods is so great that the expertise required to draw up appropriate specifications for the products to be priced and to obtain average prices for them are not to be found within most statistical offices. External experts are usually needed to draw up the specifications and determine the appropriate prices. In some countries these specialists can be found in government departments such as public works departments. In other countries this work has to be contracted out to private consultancy firms. This can be expensive and may use up a lot of the total resources available for PPP work.

6.3. Pricing Equipment Goods

89. The approach adopted for equipment goods is similar to that followed for consumer goods and services in that it starts with the creation of a set of Standard Product Descriptions (SPDs).

90. However, there is an important difference compared with consumer goods and services in that the SPDs are partly converted to Product Specifications (PSs) in the following ways:

- For each SPD, the manufacturers and model numbers of the equipment have been identified in advance of the survey.
- Countries provide prices for these in the order of preference in which they are listed.

- If two or more of the listed models are available and in common use, countries provide prices for all of them. If none of the models listed is available and in common use, countries price an equivalent model that is commonly used.
- If countries price an equivalent model rather than one of those specified in the SPD, they must also provide equivalent information on Product Characteristics as listed for the pre-identified models.

How many equipment goods should be priced?

91. The ICP has a core list of 108 equipment goods to be used for the “Ring Comparison” which will link the Regions in order to calculate the global PPPs. A shortened version of this list is shown in Table 1.5 below, together with the number of products included within each basic heading. When regions draw up their own lists for the equipment goods to be priced, they look first at these 108 items and price as many of them as they consider being representative for their region. They also price other items that are not on the core list if they are important in their countries. Countries should provide prices for at least 80 of the items specified in the SPDs for equipment goods.

Table 1.5. CORE LIST OF EQUIPMENT GOODS

Basic Heading	Description	Number of products
15.01.11.1	FABRICATED METAL PRODUCTS	5
15.01.12.1	GENERAL PURPOSE MACHINERY	15
	A. Engines and Turbines, Pumps & Compressors	10
	B. Other General Purpose Machinery	5
15.01.13.1	SPECIAL PURPOSE MACHINERY	39
	A. Agricultural and Forestry Machinery	2
	B. Machine Tools	6
	C. Machinery for Metallurgy, Mining, Quarrying & Construction	22
	D. Machinery for Food, Beverages and Tobacco Processing	4
	E. Machinery for Textile, Apparel and Leather Production	0
	F. Other Special Purpose Machinery	5
15.01.14.1	ELECTRICAL & OPTICAL EQUIPMENT	29
	A. Office Machinery	5
	B. Computers and Other Information Processing Equipment	9
	C. Electrical Machinery and Apparatus	2
	D. Radio, Television and Communications Equipment & Apparatus	3
	E. Medical, Precision and Optical Instruments, Watches and Clocks	10
15.01.15.1	OTHER MANUFACTURED GOODS n.e.c.	0
15.01.21.1	MOTOR VEHICLES, TRAILERS and SEMI-TRAILERS	11
15.03.11.1	SOFTWARE	9
TOTAL		108

Used Equipment

92. All the products specified for the equipment goods survey are for new items. For a number of countries, however, a significant proportion of their GCF in equipment goods consists of imports of second-hand goods. There is considerable variation in the quality of the goods priced by different countries. It is very difficult to find second-hand goods that are comparable for pricing purposes. In the ICP, therefore, price collection is confined to new equipment goods, even when second-hand equipment goods are more representative than new goods.

Pricing Construction Projects

93. There are three main methods of calculating PPPs for construction goods:

- The first method involves collecting the prices of a basket of inputs consisting of different kinds of labor (unskilled laborer, bricklayer, carpenter, etc.), standard building materials (cement, sand, etc.) and plant and equipment (hire of trucks, excavators, cranes, etc.).
- The second method entails pricing a set of standard components or operations such as “constructing x square meters of brick wall” of a specified size and load-bearing capacity.
- The third approach is to price model construction projects. The prices obtained for the model projects include all cost components so that the prices compared using this approach are purchaser prices and consistent with the prices used in the national accounts.

94. The standard method used in the ICP is the Basket of Construction Components approach (BOCC). This method, described briefly below, is used by the African, Asian and Pacific, Latin American and West Asia Regions. The OECD/Eurostat group uses the third approach described above (model construction projects) and the CIS countries will continue to use a variant of the BOCC approach which was developed during previous ICP rounds.

95. In the BOCC method 34 “components” are defined. They are of two kinds:

- Composite components such as earthworks or an aluminum framed window;
- Basic inputs, specifically:
 - Skilled and unskilled labor;
 - The cost of renting various standard types of equipment;
 - Several types of building material, such as Portland cement, sand, structural steel.

96. Prices for subsets of the 34 components are used to obtain PPPs for “systems” – a “system” being a discrete part of a complete project such as the construction of a house. For example, one such system would be the Mechanical and Plumbing System: all the construction components related to providing climate control, water services such as heating and cooling, hot and cold water, fire control etc. PPPs for “systems” are then used to obtain PPPs for the three Basic Headings i.e. residential buildings, non-residential buildings, and civil engineering works.

97. The second concept is the “system”, which is a set of related components within a construction project which satisfies a given function, such as the Mechanical and Plumbing System: all the construction components related to providing climate control, water services such as heating and cooling, hot and cold water, fire control etc.

98. The BOCC method is concerned only with components and systems. The final stage of construction – the entire “project”, such as a house or a bridge, is used, as mentioned above, by the Eurostat/OECD group within the ICP.

99. The BOCC method provides a simple and well-defined tool for price comparisons, at the same time drastically reducing the resource and expertise requirements in the price collection process, compared with previous ICP rounds. It underlines the importance of the various components comprising different sets of labor and materials as well as equipment use. Finally, it allows a reasonable degree of flexibility in comparing different construction projects by identifying core components which are common to most countries.

Definition of prices for construction

100. The prices to be reported are as follows:

For the composite components, the price is the total purchase cost of the materials, labor and hire of any necessary equipment. For labor, the total compensation of employees is reported -not just cash wages and salaries. For rent of equipment, purchaser prices are used. These include non-deductible product taxes and the costs of transporting the equipment to the construction site. If the owner of the equipment also supplies a specialized operator for the equipment, these labor costs will also be included. For building materials, the prices include non-deductible product taxes and the costs of delivering the materials to the construction site.

Sources of price information for construction

101. The sources of price data depend on the type of component. Construction experts are normally used to provide the prices for composite components, building materials and hire of equipment.

102. For skilled and unskilled labor there are several possible sources. Some countries regularly compile statistics on the costs of various kinds of labor and may be able to supply

the necessary data from existing records. In some countries construction workers belong to trade unions which enforce standard levels of employee compensation. Provided that a high percentage of employees in the industry are unionized, the standard trade union rates can be used. In other countries it is necessary to make special investigations among building contractors, public or private employment agencies, or advertisements in construction trade publications.

7. NATIONAL ADJUSTMENTS TO THE BASIC PRICE DATA: AVERAGE ANNUAL NATIONAL PRICES

103. As mentioned in Section 3.2.6., the sample must relate to the whole country, not just to the capital city or its region. It must also relate to the whole year, not just to a particular day, month or season. In other words, the average prices reported by each ICP participating country must be national annual averages.

The following two sections describe briefly how these averages are obtained from the sample of prices collected.

7.1. Calculating annual average prices (temporal adjustment)

104. Prices vary during the course of a year because of seasonal variations in prices, because of structural changes and because of general inflation. There are some products whose prices may change infrequently, such as electricity or postal tariffs, but for many products it may be necessary to collect prices monthly, or at least quarterly. Provided there is no strong seasonal variation in the quantities, a simple average of the monthly or quarterly prices should be sufficient. If prices can only be collected in one or two months, it may be possible to interpolate and extrapolate prices in the remaining months using the relevant sub-index from the CPI, provided the CPI is sufficiently detailed and reliable.

105. In the case of a product subject to seasonal variations in prices, there is likely to be seasonal variation in the quantities as well as the prices. In this case, a satisfactory approximation to the weighted average of the monthly prices may be obtained by collecting prices only in the two or three months when most of the products are sold and then taking a simple average of those prices.

106. In some countries, and at certain periods of time, rates of inflation have been so high as to cause prices to double or treble during the course of the year. With such high rates of price increase it may be preferable to estimate the annual average prices by mid-year prices, at least for non-seasonal products. If there is a significant acceleration or deceleration in the rate of price increase during the course of the year, some adjustment to the mid-year price would be required. Of course, a very high rate of inflation means that the PPP itself is changing rapidly over time vis-à-vis other countries with low rates of inflation so that the PPP is inevitably somewhat unstable.

107. Some countries prefer to spread the price collection over a long period of time by collecting prices for different categories of goods and services in different months. The prices for any one group of goods and services are collected in one month only, the prices for other months being obtained by extrapolation using the movements in the relevant component of the CPI. However, the same month is not used for different categories of goods and services. This avoids bottlenecks in the collection and the processing prices. This method may achieve a very efficient use of resources, provided that the CPIs are reliable and the general rate of inflation is quite low.

108. Whatever method is used by countries for the timing of price collection periods, the ICP standard is quarterly price collection for a period of four consecutive quarters.

7.2. Calculating national average prices (spatial adjustments)

109. As prices may vary between regions as well as over time, it is necessary to calculate average national prices in which the prices in the different regions are weighted by the relative quantities consumed in the regions. The price surveys have therefore to cover the country as a whole, and not just selected areas.

110. In the case of equipment goods, many machinery prices, regardless of the actual place of collection, are in fact national prices because there are only a few distributors.

111. In some countries, however, it is customary to collect prices for the national CPI only in urban areas, or even only in the capital city -especially if the great majority of the population lives in or near the capital. However, average prices in the capital are not sufficient for ICP purposes as they are liable to be different from (and often higher than) prices in the rest of the country, especially rents and other services prices. It would be quite inappropriate to base a PPP on a comparison of capital city prices in one country and average national prices in another country. Such a PPP could be seriously biased.

112. If the CPI is confined to the capital city, it is necessary to carry out a supplementary price survey for consumer goods and services in order to estimate the ratio of the capital city prices to those in the rest of the country. This ratio may vary significantly from one product to another, and especially between goods and services.

8. CALCULATING PPPS

113. There are two quite separate phases for aggregating price data into PPPs: firstly at the Basic Heading (BH) level, which does not involve weights, and secondly at higher levels of aggregation above the BH, which does involve weights. The computation of PPPs cannot be done by individual countries (which do not have access to other countries' data). It can only be done at the international level. All the detailed descriptions are given in the ICP

Handbook. Some of the calculations and methods are quite complex, and the aim in this manual is to explain what the problems are and what strategies are used for solving them.

8.1. Basic Heading level PPPs

114. First we look at the basic stage of aggregation of price data to the BH level. For ease of explanation, we use a fictional set of data relating to 4 countries and 8 products which comprise a Basic Heading. Table 6 below displays this data tableau (which is taken from the original (1992) ICP Handbook).

Table 1.6. Example of price and price ratio

Country	Products							
	1	2	3	4	5	6	7	8
Average product prices								
A	2*	6*			10		1*	4
B	12	35	3*	5	40*			18
C	25	50	7	12*		10*		
D	150*	400*		100		70*	80	
Country/country price ratios								
B/A	6.00	5.83			4.00			4.50
C/A	12.50	8.33						
D/A	75.00	66.67					80.00	
C/B	2.08	1.43	2.33	2.40				
D/B	12.50	11.43		20.00				
D/C	6.00	8.00		8.33		7.00		

115. The asterisks (*) placed against some of the prices signify that the product is considered a representative product in that particular country. Thus product 1 is a representative product in country A. As we shall see, this has an important implication for the subsequent calculations.

116. The ratios in the lower half of Table 6 are derived simply from the prices above, e.g. the ratio of 6 for product 1 between countries B and A is 12 divided by 2.

117. It should be noted that the table has quite a lot of missing cells. This reflects the normal situation where, for whatever reason, a country has been unable to supply prices for a particular product.

118. It is the combined issues of (a) the treatment of representative and non-representative products and (b) the treatment of missing values which create problems for compiling parities at the Basic Heading level. There is no unique solution. Various methods exist, and the current ICP has made certain decisions regarding the methods to be used.

119. Consider first a simple binary parity between countries A and B. The obvious way to do this is to take the average of each of the product price ratios – using, of course, only those products which have been priced in both countries, i.e. products 1, 2, 5 and 8, whose

price ratios are shown in the top row of the lower part of the table. The average is of course unweighted – there are no weights at the product level. To minimize the problem of missing values (and for other more technical reasons) the geometric rather than the arithmetic mean is used to calculate the average. This is 5.01 – the 4th root of the product of the four ratios.

120. But it is unsatisfactory in that country A has three representative products, while country B has only two. In general, representative products are relatively cheap compared with non-representative products, so there is an imbalance in such a case as this. The star method is a simple way of mitigating this problem. It consists in using only those products which are representative in at least one of the two countries – products 1,2 and 5 above. Product 8 is not representative in either A or B. On this basis, the binary parity is 5.19 – the cube root of the product of the three ratios.

121. If we were interested in only two countries, this would be the end of the problem. But we have over 140 in the global comparison. It is a multilateral, rather than bilateral, comparison. Once we progress to more than two countries, we need to be able to satisfy the criterion of transitivity. This means that in, say, a 3-country comparison, (A, B and C) the direct parity between A and C should be the same as the product of the parities between A and B and between B and C. (This is analogous to a consumer price index, where one would expect that the price changes between January and February, and between February and March, would equal the price change between January and March).

122. The method described above, whether using stars or not, does not give transitive results in a multilateral comparison which has some missing prices.

123. The current ICP uses two methods. In the EU/OECD group the method used is known as the EKS* method. Other regions in the ICP comparison use an alternative method known as CPRD (“Country-product-representativity-dummy”). Suffice it to say here that the resulting parities, as well as being realistic, are fully transitive in a multilateral comparison with some missing prices. Full details of both methods may be found in the ICP Handbook.

8.2. PPPs for aggregations above the Basic Heading level.

124. ICP results are not restricted to PPPs alone. Perhaps the most important outputs are the international ratios of real values – GDP and its main aggregates such as household consumption expenditure. As well as the ratios, the underlying real volumes, such as GDP, are of great importance. After all, the PPPs are calculated mainly as a means to arrive at the situation where the main economic indicators of different countries can be compared in a real and meaningful way. We have already seen, in the foregoing discussion of the calculation of PPPs for a Basic Heading, how a multilateral comparison throws up problems which do not occur at a bilateral level.

125. We will not be able to go into great detail into these issues here, but let us consider some of the problems. In many international economic comparisons, one will find that the

base country – or at least the base currency – is the US dollar. We are familiar with the “dollar a day” idea as a poverty baseline: but what does a dollar a day mean in the USA compared with, say, Zimbabwe? In the ICP there is a criterion known as “base country invariance”, which means that it should make no difference to the volume ratios whichever country is chosen as the base. But this criterion does not emerge naturally from the ICP basic price data: base country invariance is closely linked with an implicit international average price system. It implies that a PPP is no longer a parity between two countries (i.e. two currencies) but a parity between a currency and the international average. On the multilateral stage, when expenditures for different countries are converted into a common currency by means of PPPs, they must be expressed in the same set of international prices. (It should be noted that the EKS method used in the EU/OECD group is unable to produce an exact set of international prices).

126. This set of average international prices however needs a numeraire: a currency in which all others can be expressed. In the EU/OECD comparison group, the numeraire is an artificial currency known as the Purchasing Power Standard (PPS): it is a type of “international euro”. In the global ICP, however, the numeraire has historically been taken as the “international dollar” – not the same thing as the US dollar.

127. The current ICP round has yet to take a final decision on the methods of aggregating national data in order to make a multilateral data set which maximizes the fulfillment of sometimes opposing criteria. This manual will be updated when further information becomes available.

128. It was mentioned in Section 2 that national accounts values are used generally as weights for the aggregation of prices collected in the ICP. Section 3.1 went on to explain that the ICP product groups (“Basic Headings”) can be aggregated into higher level groupings, and eventually into GDP, using weights which are known for each Basic Heading. These are the national accounts weights, and the use of these weights is necessary in order to ensure that all Basic Heading weights do in fact sum to the official value of GDP, via intermediate aggregations such as Household Consumption Expenditure. More detail on the compilation and validation of weights may be found in Chapter 5 of this manual.

129. Obtaining the weights does not normally require any special surveys, as the data will usually be available as part of the existing national accounts computation. However, it may be that the level of disaggregation in the ICP goes further than that used in the national accounts of a particular country. In such cases, it will be necessary to disaggregate the national accounts weights using whatever sources of data are readily available. In particular, those countries which have not yet begun to use the UN System of National Accounts (SNA) for their national accounts will have difficulties in matching the ICP classification (and thus the required weighting system) to their own national accounts classification. Part of the ancillary work of the 2003-2006 ICP round has in fact involved the use of national accounts experts to advise countries on ways of making such adaptations. As discussed in Section 9

of this chapter, one of the benefits of country participation in the ICP is the spin-off effect for improving their statistical infrastructure, especially the national accounts: conversion to SNA norms obviously brings about wider benefits in terms of international comparability.

8.3. Computing software for the ICP

130. The ICP has been described as the biggest global economic data collection exercise ever performed. Whether or not this is so, it can be confidently said that a vast quantity of data is being generated by the program, and in order to handle this data efficiently and accurately, a comprehensive and powerful suite of software programs has been specially written for worldwide use. It comprises a system that integrates and automates the full cycle of price-data collection and analysis, which underlie both the ICP and CPI.

131. This manual makes no attempt to describe the software – known as “ICP ToolPack™”: information is available on the ICP website. It can simply be said here that the software includes the following aspects of data handling in the

- Product database.
- Spatial hierarchies.
- Outlet database.
- Printing of data collection forms.
- Price data input.
- Weights data input.
- Data validation (potential error detection etc.).
- Calculation of average prices.
- Calculation of price ratios between countries within a region.
- Data validation at the regional level (detecting potential country errors etc.).
- Calculation of Basic Heading Parities for countries within a region.
- Diagnostic reports.

9. LINKING REGIONAL RESULTS TO THE GLOBAL LEVEL

9.1. Regional basis of ICP

132. As mentioned in section 1.4, the ICP is organized on a world regional basis. There are six regions, listed in Annex 2. This regionalization is necessary not only from the point of view of organization and management of the global ICP program. It is also required for technical reasons which are indeed very obvious. It has been explained that a fundamental requirement of the ICP is that international product prices must be compared on the basis of precisely-matched product specifications. With about 150 participating countries, ranging from highly advanced countries to countries at a quite low level of development, it would be impractical to expect that many of the products in a single basket of highly-specified products could be found in every country. As well as the market differences caused by countries being in different stages of economic development, tastes vary very considerably between countries, so that in many sectors, especially food and clothing, the products available in the market differ markedly between many countries. Similar kinds of products are to be found in different regions, of course, but the ICP required products to be tightly defined in order to ensure international comparability.

133. Consequently, each of the six global regions independently compiles its own product list based on the characteristics of the region, paying little attention to products that may be representative of countries in other parts of the world. The data and calculation methods described in the previous section thus refer to just a single region. But the ICP is a global program, and its aim is to be able to compare price levels and GDP aggregates between any pair of countries in the world -and, indeed, between any country groupings in the world. How can this be achieved if the six regions act independently of each other? In fact, without a special supplementary program, reliable comparisons at the world level could not be made: in an extreme case it could happen that the product list of one region was entirely different from that of another region.

134. The solution to this problem is a procedure known as the Ring Comparison. The Ring approach is an innovation in the ICP. It is a rather complex procedure, and only its main features are described here. As always, readers interested in knowing more may consult the ICP Handbook.

9.2. Ring Comparison and Fixity

135. The Ring Comparison is based on linking the various sets of within-region PPPs by calculating PPPs between the regions themselves. If there were only two regions, the simplest way of linking the two sets of within-region PPPs would be select one country from each region to act as a “bridge” country, and to calculate a binary PPP between the two bridge countries. Such a single link would be sufficient to be able to calculate PPPs between

any pair of countries in the two regions. Moreover, such a solution would enable the condition of “fixity” to be preserved.

136. “Fixity” is an important concept in the ICP. It has already been mentioned that the PPP between any two countries in a multilateral comparison depends not only on the prices reported by those two countries, but on all the prices in the multilateral group. The addition of a new country in the calculations would alter the PPPs of all the other members of the group. This is not only highly inconvenient for users, but indeed can be so confusing as to undermine confidence in the PPP method itself. It is therefore important when computing multilateral comparisons to include a procedure which preserves fixity, that is to say, a change in one country (for example) does not affect the relationships between the other countries.

137. But the ICP has six, not two, regions. A single pair of bridge countries, preserving fixity, is not an option. The ICP comprises sets of multilateral PPPs within each of the six regions, and multilateral PPPs between all of the regions. The prices in national currencies for countries within a region can be converted into a numeraire currency for the region using the within-region basic heading PPPs calculated by the region itself. The choice of country whose currency is to be used as the numeraire currency for the region is arbitrary: it does not affect the results. Once all the prices within a region are expressed in the same currency, the region can be treated as if it were a country. A calculation method such as described in Section 8 – specifically, the CPRD method) can then be applied to the prices in the different regions to estimate the between-region basic heading PPPs. One of the regions is selected to act as the global reference region, and its numeraire currency acts as the global numeraire currency.

138. An important advantage of the CPRD method used in the Ring procedure is that the comparisons are based on prices in all the countries in each region, expressed in their own numeraire currency, and not just on the prices in the two reference countries as in a simple bridge comparison. Another big advantage is that the process produces a set of transitive between-region PPPs.

139. The steps involved in constructing a complete world set of PPPs can be summarized as follows:

- Each region constructs its stage 1 PPPs for 155 Basic Heading categories of expenditures.
- The Ring countries in each region collect product prices from a specially constructed “world list” of items.
- The product prices for each Ring country in a region are converted into regional base currency units using the stage 1 PPPs constructed by the regions.

-
- The ICP Global Office uses the CPRD method for each of the Basic Headings to determine the six between-region PPPs using the adjusted Ring country price data described above for each of the Basic Headings.
 - A final set of Basic Heading PPPs for each of the participating countries can be obtained by multiplying the within-region PPPs by the appropriate between-region PPPs.

9.3. Advantages of Ring Comparison

140. For each of the Ring countries, additional price collection is carried out, using a product list which includes products that are not only representative of one or more Ring countries but which can also be priced by countries in at least two regions. The Ring product list comprises 950 well-defined goods and services. The list is not equal to the product list from any one region; rather it is a global product list specially chosen so that there is a high probability that each product on it can be found in most of the Ring Countries. Estimates of the between-region PPPs obtained from the Ring program must be affected to some degree by the choice of Ring countries, just as any sample estimate is affected by the particular sample selected. Increasing the number of Ring countries would obviously produce more robust estimates that are less sensitive to the particular choice of countries. In the 2005 ICP, the number of Ring countries ranges from 2 to 5; a world total of 18.

141. The Ring Comparison makes it possible for between-region price indices to be calculated by dividing the between-region PPPs by the corresponding exchange rates. Comparisons of price levels between regions, or more generally between any groups of countries, are frequently of interest. They can be estimated between different groups of countries within the same region (e.g. north and south). They can also be estimated, for example, between groups of countries across different regions at different levels of economic development.

10. PURCHASING POWER OF POOR HOUSEHOLDS

142. The current round of the ICP is driven not only by the traditional need for data which allows international comparisons of GDP, price levels etc to be made for general economic policy purposes, but also, and very explicitly as, a tool for determining relative levels of worldwide poverty, as part of the statistical underpinning of the international Millennium Development Goal 19 which aims to reduce by a half the global population subsisting on less than a dollar a day. There is little chance of fulfilling this commitment without a method capable of reliably measuring the purchasing power of currencies in different parts of the world.

143. PPP estimates from the ICP are a key input for the computation of global poverty estimates. A crucial step in the process of compiling such poverty estimates is the conversion of the dollar-a-day poverty line into respective national currency units. This conversion is made using PPPs for the private consumption expenditure aggregate. In recent years, various limitations of the current approach in the use of PPP data in the derivation of global and regional poverty estimates have been identified. One difficulty is that the currently available PPPs use commodity-specific weights that represent the consumption patterns of the entire population rather than just those of poor households. Another limitation results from the fact that the poor do not necessarily purchase goods from the same type of outlets as the non-poor, and that the typical size of their purchases is different as well, so that the set of prices for the poor may well be different from the set of prices for the general population. A Poverty Advisory Group, established to help the ICP Global Office to address issues regarding the PPP data currently in use for poverty measurement and monitoring, recommended that “poverty PPPs” be computed for those countries where poverty is prevalent.

144. To compute poverty PPPs, a specific set of weighting coefficients representing the consumption patterns of the poor must be derived for each country. In practice, this will involve calculating the share of various goods and services in total consumption for a defined lower ‘income’ percentile (e.g. by consumption quintile) of the population or for the population at or close to a poverty line. Where possible, these weights will also take into account regional and rural-urban variations in consumption patterns. The data needed to establish such weights can only be obtained from nationally representative household expenditure/consumption surveys.

145. The objective of the poverty PPP project is to derive, for as many ICP-participating countries as possible, the share of each ICP basic heading in total household consumption for different categories of the population (in particular by wealth level, urban/rural, others), with a view to generate poverty PPPs. The ICP framework can also be used to investigate the incidence and distribution of poverty in various regions of the same country.

146. The work will ultimately cover about 80 developing countries. In each country, a standardized dataset will be produced. These country datasets will be generated by mining existing survey data. The most recent available nationally-representative household budget survey (or any other survey with a detailed questionnaire on household expenditure) will be used. It is a complex task, involving the matching of data from two or more different classifications: from household budget surveys and the ICP expenditure classification (COICOP). It is being funded and managed separately from the main ICP, though the eventual aim is to integrate it with mainstream ICP work.

11. ICP AND NATIONAL STATISTICAL PROGRAMS

11.1. National capacity-building

147. The ICP is a global project. The absence of any countries will tend to reduce its overall accuracy. But the incentives for any particular country to join are often not obvious. There are costs involved: participation in the ICP takes up scarce statistical resources which countries may not wish to divert from other priorities. The fact that there is a record number of countries participating in the current round of the ICP shows that there are strong reasons for volunteering, and this is usually due to the expectation that ICP work will bring capacity-building effects which will have sustainable benefits for the countries' statistical infrastructure. This of course applies especially to developing countries and those in transition.

148. In fact, the potential capacity-building benefits for ICP participants are regarded as a central aim of the ICP. Participant countries sign "memoranda of understandings" with ICP regional organizations which, among other things, requires them to exploit the potential benefits of ICP membership in order to bring about sustainable improvements to their national statistical systems. For example, one of the standard regional memoranda of understandings includes the following clauses:

The potential of ICP to serve as an effective capacity building vehicle for coordinating, monitoring and evaluating statistical systems under a coherent international framework is acknowledged by the ICP Regional Executive Board. Its country-specific components include the following:

- Establish the greatest possible synergy between the ICP data collection efforts and routine national statistical programs, within an overall strategy of national statistical capacity building.
- Strengthen institutional capacity through technical and managerial training and assistance.
- Create and maintain databases and improving the quality and timeliness of the publication and dissemination of the data.
- Promote the use of data for policy making and monitoring of progress.

149. At a more concrete statistical level, the potential benefits of ICP participation in a country are linked to:

- National accounts work (consistency with SNA, classifications, calculation of expenditures at the ICP levels of aggregation, etc.).

- Consumer price index (CPI) (integrated price collection, improved product and geographic coverage (including regional CPIs), data editing procedures including software, quality adjustment and other methodological techniques, etc.).
- Producer price index (alignment with national accounts expenditure estimates for capital formation).
- Household budget surveys (improvements to scope and coverage).
- Poverty statistics (ICP data can provide a coherent basis for the assessment of poverty and the impact of structural adjustment programs).

150. The extent to which individual countries participating in the current ICP round do eventually exploit the potential capacity-building benefits of participation may be a condition for participation in the following ICP round. This requires a monitoring procedure to be put in place, as well as a working definition of “sustainable”. One way of looking at the meaning of “sustainable” would be to establish a scoring system based on certain objective criteria related to ICP. Thus, improvements to a national CPI could be measured by reference to questions such as:

Has ICP participation:

- Improved the CPI product specifications?
- Extended the CPI geographical/regional coverage?
- Improved the CPI outlet selection procedure?
- Brought about lasting improvements to the CPI computing system?

11.2. CPI-ICP integration

151. Of all of the above areas of national statistics, probably the second (CPI) is the one most amenable to improvement via participation in the ICP. This is because a great deal of the basic price collection activity is virtually identical in the CPI and ICP. Price collection is the most resource-intensive aspect of both systems, and any opportunities for bringing the two collection systems into closer alignment should be exploited to the full. Until the present ICP round, and in spite of conceptual similarities and closely related data collection requirements, there has been very little harmonization of the activities of national statistical offices involved in both CPI and PPP work. The reasons for this lack of harmonization are both managerial and technical.

152. In most countries the CPI price data are collected using standard survey methods to record the prices of products in the consumption basket. The basket is based on surveys of consumer spending. A schedule of goods and services to be priced is determined, and then

prices for these goods and services are obtained from selected retail outlets or other sources. In the ICP, the product lists are established by ICP experts at the regional level, albeit in consultation with experts from the participating countries.

153. The choice of products in the ICP reflects the principle of “identical products”. Identical products ensure that quality issues do not enter into the PPP measurement and the results provide a measure only of price differences. The choice of products in the national CPIs, on the other hand, needs to depend solely on the availability and relative importance of products on the domestic market. In CPI, items need not be the same in every outlet.

154. These differences in approaches to price data collection used in CPI and ICP can potentially limit the extent to which the two activities can be integrated. But a number of ways have been proposed for minimizing the effects of these differences without jeopardizing the results of either of the two sets of data. These are essentially concerned with (a) Including ICP products in national CPI baskets where the domestic market situation justifies such inclusion; (b) allowing slightly looser product specifications so as to permit the use in the ICP of products already included in national CPI baskets (making quality adjustments as necessary); (c) linking ICP participant countries on a more market-oriented basis, rather than computing PPPs simultaneously for an entire region (using techniques known as “chained PPPs” and “minimum spanning trees”).

Annex 1.1. Countries participating in ICP 2003-2006

Africa	Latin America	Asia/Pacific	CIS	W Asia	Eurostat-OECD
Algeria	Argentina	Bangladesh	Armenia	Bahrain	Albania
Angola	Bolivia	Bhutan	Azerbaijan	Egypt***	Australia
Benin	Brazil	Brunei Darussalam	Belarus	Jordan	Austria
Botswana	Chile	Cambodia	Georgia	Iraq	Belgium
Burkina Faso	Colombia	China, People's Rep of	Kazakhstan	Kuwait	Bosnia & Herzegovina
Cameroon	Ecuador	Hong Kong, China	Kyrgyzstan	Lebanon	Bulgaria
Cape Verde	Paraguay	India	Moldova	Oman	Canada
Central African Rep *	Peru	Indonesia	Russian Fed***	Qatar	Croatia
Chad *	Uruguay	Islamic Republic of Iran	Tajikistan	Saudi Arabia	Cyprus
Comoros	Venezuela, RB	Fiji Islands	Turkmenistan	Syria	Czech Republic
Congo		Lao People's Dem Rep	Ukraine	Yemen, Rep **	Denmark
Congo Dem. Rep *		Macao, China			Estonia
Djibouti		Malaysia			Finland
Egypt***		Maldives **			France
Equatorial Guinea		Mongolia			Germany
Ethiopia		Nepal			Greece
Gabon		Pakistan			Hungary
Gambia		Philippines			Iceland
Ghana		Singapore			Ireland
Guinea **		Sri Lanka			Israel
Guinea-Bissau *		Taipei, China			Italy
Kenya		Thailand			Japan
Lesotho **		Vietnam			Korea, Rep of
Liberia *					Latvia
Madagascar					Lithuania
Malawi					Luxembourg
Mali					Macedonia
Mauritania **					Malta
Mauritius					México
Morocco					Netherlands
Mozambique					New Zealand
Namibia					Norway
Niger **					Poland
Nigeria					Portugal
Rwanda					Russian Fed***
Sao Tome & Princ.					Romania
Senegal					Serbia & Montenegro
Seychelles					Slovak Republic
Sierra Leone					Slovenia
South Africa					Spain
Sudan **					Sweden
Swaziland					Switzerland
Tanzania					Turkey
Togo **					United Kingdom
Tunisia					United States
Uganda					
Zambia					
Zimbabwe					
TOTALS 48	10	23	11	11	45
148 participating countries in total					

* Countries participating on trial basis

** Countries participating in household consumption surveys only

*** Egypt and Russian Federation are counted in two groups

Annex 1.2. Global regions and regional implementing agencies

Africa

African Development Bank

Website: <http://www.afdb.org>

Asia and Pacific

Asian Development Bank

Website: www.adb.org/statistics/icp/icp

Commonwealth of Independent States

Bureau of Economic Analysis

Website: <http://www.beafnd.org/site/about/?fbid=31&foid=84>

Latin America and the Caribbean

Statistics Canada

Website: <http://www.eclac.cl>

Western Asia

Economic and Social Commission for Western Asia

Website: <http://www.escwa.org.lb/icp/>

European Union/OECD

Eurostat Website: <http://epp.eurostat.cec.eu.int>

OECD Website: <http://www.oecd.org/home/>

Annex 1.3. Sources for further reading

- For the first time in the history of the ICP, the internet is now available on a global scale, allowing all participating countries not only to use email to transmit data to the regional offices, but also to access all the documentation provided by the Global Office at the World Bank and by the regional offices themselves.
- The existence of this electronic facility also allows for improvements to be made in the documentation during the period of ICP2004 itself. The websites should therefore be consulted regularly to see if any new or revised documentation has appeared.
- The World Bank statistics website is: www.worldbank.org/data - then click on “ICP website”.
- As at October 2006, the relevant documentation available on this website is shown in the following list. Most of these headings themselves contain more detailed documentation.
 - **History:**
 - How are PPPs calculated?
 - PPPs for poverty management
 - PPPs vs exchange rates
 - **Governance:**
 - Organization and Governance
 - ICP Council
 - ICP Executive Board (members, meetings, minutes)
 - Technical Advisory Group (members, meetings, minutes) (includes a discussion space for members of TAG)
 - Regional Coordinators’ workshops and meetings (with papers and presentations). Includes a discussion space for participating members only.
 - **ICP software** – ToolPack
 - **Partners:** Links to websites of:
 - ADB
 - AFDB
 - ECLAC
 - ESCWA
 - Eurostat
 - IMF
 - OECD
 - UNECE
 - UNESCAP
 - WBG
 - **Methodology and Research**
 - ICP 2003-2006 Handbook (full text, downloadable)
 - ICP 2002 Handbook

- Development of Regional and Global List of Specification
 - Survey Frames and Surveys: Organization and Implementation
 - Suite of Software Tools
 - Surveys of comparison-resistant services: health, education, and general government
 - Comparison of Machinery and Equipment Goods
 - Construction Surveys
 - Development of expenditure weights for aggregating primary price data
 - Estimation of PPPs at the level of basic expenditure headings
 - Regional Linking
 - Ring Comparison for Global PPPs
 - PPP Aggregations Across and Above Basic Headings
 - Regression-based PPPs for non-benchmark countries
 - Extrapolations to produce time-series PPPs
- Note that most of the above material is downloadable in Word, Excel, PowerPoint, or in pdf format (requiring Adobe Reader).

Chapter II. What National Coordinators need to know?

1. INTRODUCTION

155. This Operational Manual is part of a range of documentation relating to ICP 2004. It is primarily intended for National Coordinators (hereafter NCs), and aims to help them by synthesizing the important elements of the large volume of background and detailed information already available. The manual is concerned essentially with management issues rather than technical detail. The aim is to provide a brief guide, showing what needs to be done in order to fulfill the responsibilities of participating countries.

156. The manual aims to provide NCs with the answers to these questions:

- What do I need to know about the ICP to help me understand the nature of the overall task, and to help me to manage the project in my own country?
- What are the key issues I need to know about in order to run effectively the ICP surveys in my country?
- What are my responsibilities as NC?
- What is the timetable for the project?

157. For ICP 2003-06, of course, the survey planning is complete. For instance, the selection of products has been made: each participating country possesses a set of Product Specifications (PSs) which give the detailed specifications for every product whose price is to be collected. So the manual does not cover any aspects relating to product specifications. In general, the manual should not be regarded as a basic source of technical or theoretical material: the ICP Handbook, available on the ICP website, is the reference source for all such material.

158. Furthermore, given that the ICP is a worldwide operation, and the precise methods of organization are bound to differ to some extent between participating countries, this manual cannot be specific in every fine detail concerning the practical operation of ICP. Instead, the manual lays down a number of explicit rules and norms which all countries should follow, and in other cases sets out guidelines which countries should follow but may adapt to local circumstances. An example of this would be regional stratification of the sample: in very small countries this would probably not be necessary. There will be already a number of separate documents available in countries which have been provided by the Regional Coordinator or distributed at training sessions. These address a range of very detailed procedures which will be specific to the country concerned.

159. Feedback on this manual is welcomed. Questions or comments should be put to the Regional Coordinator in the first place. He or she will either be able to deal with the query or,

if not, ask for assistance from the Global Office. It should be stressed that this manual is a developing tool: this is the second edition and it will continue to be updated and amended from time to time.

2. ORGANISATION OF ICP

2.1. ICP Global Office – roles, responsibilities, accountability

160. The Global Office, based in Washington DC, carries out the day-to-day management of the ICP. Its functions include:

- Creation of an overall work plan;
- Monitoring to ensure that the work plan is being carried out;
- Overall coordination and implementation of the ICP;
- Preparation of annual budgets and work programs;
- Provision of secretariat functions to the Executive Board;
- Development of ICP standards;
- Devising procedures designed to that the regional work plans are mutually consistent;
- Strategic direction and technical backstopping for the regional implementing agencies;
- Global data aggregation, analysis and dissemination;
- Convening of TAG when required;
- Liaison with OECD and Eurostat to ensure proper coordination with the ICP regions;
- Preparing and distributing quarterly progress reports to the Executive Board;
- Financial management, accounting and reporting.

161. The Global Office prepares progress reports to the Executive Board. These are normally public documents, accessible to all.

The Global Office in general does not have direct contact with individual countries. Instead, the Global Office liaises with the Regional Offices, who are themselves in close contact with participating countries.

A short description of the governance structure of the ICP is given in Annex 3.

2.2. ICP Regional Offices and Regional Committees-roles, responsibilities, accountability

162. These offices – one for each region – carry out the work required to implement the ICP at the regional level. They are directly responsible to the Global Office, and each of their member countries are responsible to them. The Regional Offices are led by a Regional Coordinator (hereafter RC), with the assistance of a Regional Committee. The latter comprise members from participating countries in the region, the donor community and regional agencies. Each Regional Office has a Memorandum of Understanding with the Global Office, setting out their entitlements and obligations. These are dealt with below.

The Regional Offices are located in the following organizations:

Africa:	African Development Bank (AfDB)
Latin America:	UN Economic Commission for Latin America and the Caribbean (ECLAC) and Statistics Canada
Asia:	Asian Development Bank (ADB)
Western Asia:	UN Economic and Social Commission for Western Asia (ESCWA)
Commonwealth of Independent States (CIS):	Statistical Committee of CIS, and Russian Goskomstat.

The countries managed by OECD and Eurostat are treated as a separate region for ICP purposes.

163. The roles of the Regional Offices include:-

- Planning and implementing regional programs, database management, standards, guidelines and procedures as agreed with the ICP Global Office;
- Maintaining a close relationship with the ICP Global Office including regular and extensive sharing of information;
- Coordinating the efforts of the participating countries in the region through the dissemination of information, training, and ensuring that ICP standards and guidelines, including the use of specialist ICP software (ToolPack™), are complied with;
- Striking a workable compromise with national participants on the list of items (goods and services) to be priced and expenditure weights to be supplied;

- Ensuring that all national participants share the same understanding about how prices for comparable and representative items ought to be collected, the circumstances of collection, the outlets from which the prices must be obtained, the standards of recording and documentation, and the overall timetable for the program;
- Ensuring that inter-regional link countries carry out their agreed duties;
- Providing technical guidance and effective leadership to participating countries to settle questions, doubts, ambiguities and inconsistencies, where necessary obtaining advice from the Technical Advisory Group through the ICP Global Manager;
- Monitoring implementation of the program in order to signal, if necessary, possible delays, budgetary overshoots or major technical flaws to take preventive or remedial action if required;
- Processing the national results to calculate PPP indices and subsequently applying them to GDP expenditure breakdowns for calculating volume measures;
- Providing an analytical underpinning for the regional results;
- Submitting quarterly progress reports and comprehensive annual reports in consultation with the Regional Committee (where one exists), to the Executive Board through the ICP Global Office;
- Keeping appropriate financial and administrative records and providing regular progress and financial reports.

164. The roles of the Regional Committees may include:

- Providing a forum for participating countries to be involved in the regional project.
- Providing a mechanism for the two way flow of information from the region to implementing countries and vice-versa.
- Providing a forum for the training of national personnel and for sharing information and expertise.

2.3. Participating countries – roles, responsibilities, accountability

165. Finally – and in fact most importantly – we arrive at the level of the participating countries. Most importantly, because it is from the participating countries that the data are collected, without which there would be no ICP.

166. Without national organizations and infrastructures there would be no ICP. But the ICP also requires that there be a National Coordinator (NC) appointed in each country. Normally the person responsible for the price statistics program or for the national accounts

will be the NC, depending on national circumstances. Where the two responsibilities reside in different institutions (e.g. the NSO for prices and the Central Bank for national accounts) it may not be practical to subordinate one of the two officers to the other. In such cases one of them will be entrusted with the task of reporting and communicating to the RC. However, both officials must assure the RC that they will work in close coordination with each other.

Whatever the NC's field of expertise or institutional base is, he or she must ensure that the people responsible for each relevant aspect of the ICP are not only consulted but fully integrated into the project at all stages.

(See also section 3.1 regarding coordination between prices and national accounts officials).

167. Many participating countries have signed a Memorandum of Understanding (MoU) with their Regional Office, setting out their entitlements and obligations, and the NC is responsible for ensuring that the countries fulfil their obligations as laid down in the MoU. In cases where not all countries within a region have signed an MOU, RCs will nonetheless ensure that all NC's are aware of the contents of a standard MOU and will strive to abide by its terms.

2.4. Memoranda of Understanding (MoUs)

168. As mentioned above, MoUs exist at two levels, first between the participating country and Regional Office, and secondly between the Regional Office and the Global Office. As well as setting out the background and general aims of the exercise, the MoU lists the various roles and responsibilities of each party concerned. The MoU is not a legal contract and it has no binding force in law. Even where a country has not signed a MoU, it should nevertheless be aware of its roles and responsibilities as regards its participation in the ICP 2003-06. For this reason, the contents of typical MoUs are described below.

169. The roles and responsibilities of the regional offices are:

(a) Foster country participation, mobilize resources, and coordinate the national programs

- Establish a regional ICP office with appropriate staff and resources to implement and monitor the program at the regional level;
- Motivate countries to take part in the ICP, and coordinate the efforts of the participating countries through information sharing, training and general assistance; and ensure that global ICP standards and timetables are met;
- Mobilize resources to finance the regional coordination component of the program and where absolutely necessary to provide financial support to countries to help cover data collection and processing costs unless the policy for the region states otherwise;

- Prepare timetables of activities and due dates for participating countries and establish monitoring criteria to signal possible delays, budget shortfalls, or technical issues requiring attention;
- Organize and conduct regional workshops;
- Provide venues, support, materials, and guides to ensure that participants are properly trained;
- Cooperate closely with participating countries to design their ICP plan of action, which will include the benchmark comparison tasks and follow-up activities deemed necessary to ensure the sustainability of the ICP;
- Ensure that national implementing agencies carry out what is required of them, assisting them and monitoring their performance where necessary.

(b) Provide mechanisms to ensure that participating countries take full ownership of the program

- Where possible, form a Regional Committee, representing all stakeholders, in order to fully involve participating countries in the management of the ICP, to ensure that effective communication takes place, to promote the use of the ICP and to guide the dissemination of the results;
- Keep appropriate financial and administrative records and provide regular progress and financial reports to the Regional Committee (where one exists) and the Global Office;
- Provide secretarial support to the Regional Committee (where one exists).

(c) Ensure countries observe standard data collection and processing guidelines established by the Global Office

- Develop a list of regional product specifications, maintaining adequate overlaps with other regions;
- Ensure uniform standards in the participating countries, regarding comparable and representative items, price collection and outlets from where they are obtained, recording and documentation, and the overall timetable for the program;
- Assist countries in the adoption of survey methods and compilation of average prices and GDP expenditure weights;
- Supervise all technical and managerial aspects of the regional program.

(d) Establish intra- and inter-regional data sharing and dissemination procedures

- Ensure that the data sharing procedures established by the Global Office are observed;
- Ensure reasonable adherence to the internationally recommended standards in the presentation of the ICP results before they are made public for their final use.

(e) Liaise with the Global Office and the other RCs

- Liaise with the Global Office and the other RCs on a continuous basis to share information and best practices, and meet at least annually to discuss any outstanding issues;
- Provide effective management and a regular exchange of technical information with the Global Office to support the project's overall management and direction;
- Inform the Global Office of technical matters requiring the attention of the TAG;
- Prepare and submit regional quarterly progress reports and a comprehensive annual status report to the Global Office with input from national agencies.

(f) Compile regional PPPs and prepare analysis of the data and reports

- Process and analyse data from each country and calculate regional PPPs and GDP volumes;
- Publish and disseminate the report;
- Promote policy-oriented uses of the data.

170. MoUs between participating countries and regional offices cover the main functions and responsibilities of each participating country, with responsibility vested in the NC. They are:

(a) Organizing National Program

- Identify a National ICP coordinator to be the focal point for communications with the Regional Implementing Agency in addition to performing the program's substantive duties;
- Participate in regional meetings relating to the design and implementation of the ICP program and assist in framing regional work plans and policies;
- Collaborate with the RC to prepare a list of products and their specifications for the ICP price collection;

- Agree with the RC on a timetable for data collection, editing, validation and submission of the price and national accounts data;
- Participate in the intra-regional reviews of the basic heading parities and assist in the analysis and explanation of apparent anomalies;
- Design a comprehensive plan of action which should cover the comparison period and the follow-up activities;
- Plan the required price surveys.

(b) Implementing the ICP 2003-06 Round of Surveys

- Carry out all price surveys;
- Submit to the ICP Regional Office the periodic (monthly etc) data collected after suitable checking for validity, as well as submitting the appropriate documentation in the agreed form and at the right time;
- Resolve queries arising from data analysis by the RC;
- Provide the necessary data on national accounts and any other supplementary information required for regional and global comparison, which will include GDP expenditure estimates for a minimum of 155 basic headings as defined in the ICP Handbook;
- Provide weekly reports to the RC on the conduct of the surveys;
- Maintain proper administrative and financial records and, where appropriate, account for all funds received from the Regional ICP Office.

(c) National Statistical Capacity Building

The potential of ICP to serve as an effective capacity-building vehicle for coordinating, monitoring and evaluating statistical systems under a coherent international framework is endorsed by the ICP Executive Board. The ICP survey should not be seen as an ad hoc exercise but as a means for longer-term general capacity building. Its country-specific components include the following:

- Make the fullest use of the ICP experience to strengthen the CPI and national accounts infrastructure and methods, within an overall strategy of national statistical capacity-building;
- New techniques learned as a result of participating in the ICP should be promulgated to CPI price collectors and supervisors, leading to more accurate identification of goods and services and generally, better compliance with agreed standards;

-
- Ensure that the expertise gained from the ICP training courses and experience are put to effective use in other ongoing statistical programs, for instance by using new statistical methods to analyze national accounts data;
 - Ensure that lessons learned on database creation and management are used in other statistical activities.

2.5. Relationship of National Coordinator with Regional Coordinator

171. The ICP is organized hierarchically. With around 150 countries participating, it is impracticable for the Global Office in Washington to have direct operational links with all the NCs. This must be done via the Regional Offices. In any case, from a technical point of view, it is desirable to organize the ICP on a regional basis: countries within a region can be more easily compared with each other, whereas between-region comparisons have to be made using the ring structure. (In each region a small number of 'ring' countries will price 'add-on' products which are representative of countries outside the region to provide a bridge for comparisons between regions to take place.)

172. Each NC therefore needs to have frequent contact with the RC and the staff at the regional office. This relationship will already have started, with the pre-survey and training work which has already taken place. It will be maintained by making regular weekly progress reports together with frequent telephone/email contact and by occasional visits to the countries by the RC. During such visits, the opportunity should be seized to allow the RC to experience some survey work in the field so that he or she can become familiar with specific local conditions.

173. What are the normal issues which will require contact with the Regional Office?

They may be summarized as follows:

- Budget questions.
- Staff resources.
- Staff training.
- Location and travel costs.
- Other administrative questions.
- Progress reports.
- Advice on substituted products and quality issues.
- Use of ToolPackTM.

- Data confidentiality.
- Data validation checks.
- Submission of data.

3. PREPARATORY WORK IN EACH COUNTRY

3.1. Co-ordination and consistency between prices and national accounts

174. This aspect of coordination will depend on the institutional organization in the country. For instance, in some countries the national accounts are compiled not by the NSO but by the central bank or the economics ministry. Where the price statistics and the national accounts are located in the same organization, it should be relatively straightforward to arrange the necessary coordination. In other instances it may be more complex. But whatever the administrative arrangements are, it is imperative that the key officials of the CPI and national accounts work in close conjunction on the ICP project. It is likely that the NC himself will occupy one of these posts (see para 3.2.) A large part of the ICP exercise is concerned with collecting the prices of consumer goods and services. This part of the work will fall to the official responsible for the national CPI - indeed there have to be very close links between the CPI and the ICP. But other parts of the ICP are more concerned with national accounts or other areas of price statistics such as those regarding capital formation. Most importantly, the weights to be used for the ICP will make use of the regular national accounts weights. Data relating to government expenditure are also more likely to be associated with national accounting work.

175. At a technical level, it is important to bear in mind that the PPPs which are calculated in the ICP program are used to “deflate” international GDP and sub-GDP comparisons (in an analogous way to the way CPIs are used to deflate GDP growth figures). The ICP data must be consistent with the national accounts data for this reason, contrasting with CPIs, which are not always necessarily consistent (e.g. in the treatment of imputed rents for owner-occupied dwellings).

176. Since the largest part of the ICP concerns the collection and processing of consumer prices, that is the area to which the largest section of the Operational Manual is devoted, and which follows next. This does not imply that other aspects are of lesser importance. In particular, it should be noted that this first version of the manual omits any discussion of procedures for collecting data on capital and government expenditure and on the calculation of weights at the Basic Heading level. This work falls later in the project and sections will be added to the manual as they become available.

3.2. Relationship between ICP and CPI

177. Although the basic data collection process for the ICP and CPI is similar, there is a fundamental difference between the two activities, which everybody involved in the project should realize. The CPI measures price trends over time (inflation) in a particular country or region, whereas the ICP measures differences at a certain point in time between different countries or locations. So the CPI measure price changes, whereas the ICP measures price levels.

Having said that, the method used for measuring price changes in the CPI is, necessarily, achieved by measuring price levels at two consecutive points in time (such as two adjacent months) and calculating the differences. Thus, both activities involve the collection of prices at particular places and at particular points in time.

178. This has a major operational implication: if a country is collecting prices regularly for its CPI, it should not duplicate the collection for the ICP. Instead, it should make maximum use of what it already has and what it already does. This means:

- Using the same towns and shopping districts.
- Using the same price collectors and management infrastructure.
- Using the same retail outlets.
- Where possible, using the same products (there will be some overlap between the CPI and ICP baskets).

179. Nevertheless, there are a number of important differences that must not be overlooked when attempting to integrate the two programs. It will sometimes be possible – even necessary - to make compromises – on regions, towns, outlets etc., because the ICP (or CPI) budget does not allow for the ideal collection. But compromises are not made on products: the product specifications in the ICP are very precise and detailed: pricing substitutes is only permitted in exceptional cases. But there may be nothing to prevent the CPI product specifications being changed to conform with the ICP specifications if it appears reasonable from the CPI perspective.

Product basket

180. The focus of the ICP is a multinational comparison of prices of an identical basket of products. Given the diversity of products which are typically consumed in different countries, it is impossible to use the national CPI baskets as they stand. However, efforts have been made in defining the regional ICP product lists to ensure that in most countries there will be a significant overlap between the two baskets. Moreover, one of the aims of ICP 2003-06 is to assist countries to develop their CPI, and one aspect is the rationalization of the product list. So some of the ICP products may well be suitable for future use in the CPI.

NCs should therefore examine the ICP product list with the national CPI staff with a view to making improvements to the CPI list for the future.

181. As far as the ICP 2003-06 is concerned, the Product Specifications (PSs) should all be compared closely with the CPI product list in order to establish which of the ICP products are identical with, or almost identical with, those in the CPI¹ greater the overlap, the more efficient will be the survey, as the price of a single product can be used for both surveys. Where products are found which are closely alike (e.g. the only difference is the package size), two questions should be asked:

- Can the CPI specification be adapted to the ICP specification?
- If not, can the CPI product be used in the ICP survey as a close substitute? (The regional office will need to be consulted on this).

182. In summary:

- Examine both ICP and CPI product lists in parallel;
- Mark those products in the ICP list which are identical to those in the CPI list and ensure that no duplication of price collection is made;
- Mark those products in the ICP list which are closely similar to those in the CPI list and decide whether one or the other can be used for both surveys, if necessary in consultation with the ICP regional office;
- Do all of the above within at most three months of the start of the first survey;
- In the light of experience gained during the ICP surveys, decide whether some of the ICP products could be used to replace or add to those used in the national CPI.

¹ Identical" products as used in this context includes being sold in establishments that cater for the same type of clientele in broadly similar conditions.

Price collection

183. An efficient use of resources requires that the ICP uses the statistical infrastructure already in place in a country to the maximum extent, and helps improve on it wherever possible. A pragmatic and practical approach is to take the outlets selected for the CPI and use them for the ICP. This does not mean that the ICP has to rely solely on prices already being collected for the CPI. On the contrary, the tightly defined PSs on the international ICP lists for which prices have to be collected will often differ from those used for the CPI. However, the ICP can use the same outlets, the same price collectors and same data transmission within the country and processing procedures, as long as they comply with ICP requirements.

The strategy, considered in more detail below, is simple:

- Define the coverage of the sampling in terms of PSs in given regions/conurbations;
- Identify which BHs and/or regions/conurbations are not covered by the CPI and cannot be priced using CPI prices, or using CPI outlets.
- For these, select outlets².
- Identify which PSs within a BH and/or regions/conurbations covered by the CPI can be priced using CPI prices, or using CPI outlets, and which cannot.
- For the latter, augment the sample with outlets found (especially for representative PSs) from lists or pre-survey visits to the area.
- For BHs (within regions/conurbations) where the existing sample is considered to be unacceptably out-of-date and/or there are a substantial number of 'new' outlets required, draw up sampling frames and select outlets for these.

184. The ICP price collection may take place simultaneously with the CPI price collection so that the price collector can collect both kinds of prices during the same visit to the same outlet. The main advantage of making use of the CPI surveys is that trained price collectors already visit outlets and while they are unlikely to be collecting prices of many of the precise ICP products, the required item is likely to be in the outlets they visit so they can collect the CPI and ICP prices at the same time. Yet this alone may not be adequate. If that is the case, the scope of the ICP price collection will need to be extended beyond that of the CPI. This is the ideal opportunity for national authorities to consider whether the scope of the CPI should be permanently extended.

² It is of course better if the selection is made on the basis of a comprehensive and up-to-date register of outlets. But not all participants may have access to such a register.

3.3. Responsibilities of the National Coordinator

185. Once the NC has been appointed, he is held responsible for fulfilling his country's obligations in respect of the ICP 2003-06, whether or not there exists a formal MoU with the Regional Office. At the technical level, the NC is responsible for ensuring that all the tasks listed in Section 5.1 are carried out successfully. Implementing ICP price surveys demands careful planning.

186. The first step is the constitution of a multi-disciplinary Project Team. The team should include staff and/or consultants skilled in the different areas and processes entailed in a survey, including:

- Survey and sampling specialists.
- Experts in questionnaire design (possible).
- Trainers for training supervisors and interviewers.
- Field operational staff.
- Systems analyst for managing ToolPack™ and supplementing it with whatever data input and editing systems are deemed necessary.
- Designing data input and processing.
- Staff with expertise in price statistics.

The exact composition of the team depends on the organizational structure of the national statistical system. In some countries, outside expertise needs to be brought in.

187. At the outset of the program, the NC, possibly with the help of the RC, should develop a detailed project plan which identifies the responsibilities and tasks of all those involved and lists the detailed actions and outputs, with key dates. It must be stressed that the success of the survey is critically dependent on the effectiveness of the team implementing the project. It is imperative to monitor the project closely and to identify bottlenecks and slippages at each stage of the project – from planning, design, training, pre-testing to data collection, data verification and processing. It is inevitable that the initial project plan will require adjustment during the entire survey calendar. Thus a degree of flexibility needs to be built into the plan right from the start.

188. All data submitted to the RC must be quality controlled. This implies the existence of written procedures ranging from visual inspection of the data to approved editing routines to which all data entered should be subjected. Additionally, random revisits to outlets by supervisors are necessary to ensure that data quality is maintained. At both the data entry and processing stages, a system of identifying “outliers” is a key element in controlling data

quality. However, the form in which these are reported will depend on what agreements between the national and the regional authorities concerning the submission of microdata.

189. As in other survey programs, NSOs should use price collectors at both Head and Regional Offices (where they exist) for the ICP surveys. NSOs may also have to engage additional price collectors to carry out the price collection of additional items and to extend the geographical coverage, and possibly extra staff to work on the ICP.

Training in basic statistics, survey methods or price collection techniques that may be required should be given by the competent staff in the NSO.

190. Timely and effective implementation, in terms of quality data collection, timely data entry and editing, achieved through following prescribed procedures, is the key to the success of the project.

191. Finally, the NC, and indeed all national staff working on the ICP project, should be aware of the need for maintaining good documentation of the national activities. This includes the keeping of technical records concerning all aspects of the price surveys, as well as the maintenance of all financial transactions, both of income and of expenditures. The ICP is scheduled to be repeated every few years, and those responsible for the work in the next round will wish to consult all the documentation of the current round. If in doubt on the detail of the documentation required, the NC should obtain a guideline from the RC.

3.4. Contingency Planning

192. The ICP 2003-06 is a special project which cannot be rehearsed: it takes place in real time. Yet serious mistakes and delays cannot be allowed to happen. That is why the whole organization and project management has been so carefully designed and planned.

193. On the other hand, we all know that problems will occur and mistakes will be made. Contingency planning is about forward thinking, so that even if a major problem arises, thought will already have been given in advance as to the appropriate response. The aim is to avoid the need for crisis management. Crises may occur, but we will know how to react to them. No country can be considered ready to participate if it cannot supply a statement of what it is prepared to do if there are unexpected disruptions to the program. Where the contingency plan requires the intervention of the Regional Office, the solution mentioned in the national plan should include the explicit agreement given by the Regional Office that it will proceed accordingly.

There is an unlimited number of potential crises, and they cannot all be foreseen, let alone discussed here. What this manual does is to describe an approach to contingency planning. It is up to the RCs and NCs to take this forward and translate it into more detailed concrete plans.

194. In cases of catastrophe, and having decided to manage as best as possible, the NC may decide to reduce the scale of the surveys (first, geographically and in the last resort in terms of item prices) - but not to the extent that the results would at best be unusable. Alternatively, the NC may decide to reschedule the surveys to a later date, while keeping within the limits set out by the overall ICP timetable. A “second-level” crisis provoked by, say, a major loss of staff resources in the middle of a survey or by a computer failure resulting in a major loss of data should be part of basic contingency planning. All ICP data held on the computer should be backed up every day. Computer file back-ups are easy and cheap to make. The timetable and the budget are too tight to permit survey repeats. The contingency plan should include the question of where to store the back-up data – they must be in a different location from the computer, in case of fire or theft.

As regards loss of staff, this can be planned for by creating a reserve list of price collectors or supervisors, who will have received some training and who can be brought into the operation at relatively short notice. Plans should also be made for the further training of such reserve staff.

195. NCs should discuss with their staff other scenarios which call for contingency planning. The RC should also disseminate throughout the region the contingency plans in each country, so that “the wheel does not have to be re-invented” everywhere.

Technical problems can also lead to crisis. Suppose, for example, that an intolerably high proportion of the reported prices fail to pass the standard edits. There could be a number of reasons for this. It may be that local price collectors have not uniformly understood the product specifications, so that different products with widely varying prices are being reported. It may be that the edit criteria are too strict. In fact, the constant monitoring of price data should be such that a crisis of this sort never occurs: problems will be “nipped in the bud”. But contingency planning is not about “shoulds” and “should nots”: we all know that mistakes will be made. So the contingency plans should assume that situations such as the above will arise, even though they should not. However careful a car driver is, he cannot assume that all other drivers will be as careful!

196. The above are just examples. There are no hard-and-fast rules on contingency planning. Each project has its own unique characteristics. Commonsense will play a large part. But the essential point about contingency planning is that it is a plan – which means that it must be drawn up in advance.

4. STAFF RECRUITMENT AND TRAINING

4.1. Staff recruitment and duties

197. The staff involved in the ICP at the country level comprise:

- National ICP coordinator (and his deputy or assistants where applicable).
- National accounts staff.
- Heads of provincial/regional statistical offices (if they exist).
- Supervisors of the price collection.
- Price surveyors (price collectors).
- Staff who input the data into the computer and edit and validate them.

198. Each category of staff has specific responsibilities as detailed below.

National Coordinator

Responsible for:

- The overall ICP program – technical and logistical, administrative (recruiting of staff, training and supervision of supervisors and price collectors) and the accounting of the funds.

National Accounts Staff

Responsible for:

- Assisting in the compilation of weights at the Basic Heading level.
- Providing data on government and capital expenditure.

Heads of Regional/Provincial Statistical Offices

Responsible for:

- Logistical support in training of price collectors and supervisors.
- Staff to conduct the price surveys.
- Transport for the supervisors and price collectors.
- Assistance to the NC in the survey design in the region, in particular by providing

a suitable list of retail outlets in the areas selected for pricing.

- Liaison between the survey team and the retail outlets.

Supervisors of the Price Collection Teams

They are ideally existing staff members of the NSO and have good experience of CPI fieldwork. They are responsible for:

- Training and supervision of price collectors.
- Liaison between the individual price collectors and the retail outlets.
- Ensuring that adequate transport is provided to the price collectors.
- Ensuring that queries arising from the collected data are verified and corrected where necessary.
- Assistance to the heads of the regional statistics offices in compiling a suitable list of retail outlets in the areas selected for pricing.

Price collectors

They should also, ideally, be members of the permanent staff of the NSO and have good experience of CPI fieldwork. Where the CPI does not have a national geographical coverage and additional staff are recruited, the basic qualification of the price collectors is that they should have completed at least secondary education; be well-endowed with common sense and be numerate. Any training or experience in statistics would be an added bonus. They are responsible for:

- Collection of prices of products from selected outlets in conformity with the instructions provided by the NC and the supervisors.
- Making all relevant comments on the data collected.
- Dealing with queries arising from the collected data.
- Suggesting replacement if the goods or services to be priced are no longer available.
- Depending on the workload, the price collectors may double up as data input, edit and validation staff.

Data Input, Edit and Validation Staff

They should also, ideally, be members of the permanent staff of the NSO and have some experience of CPI work. They should have some knowledge of statistics and computing and should have at least completed secondary education. They will be responsible for:

- Initial editing of collected data to ensure that all data fields are completed.
- Data input and running edit routines from ICP ToolPack™.
- Correction of data in conformity with instructions received from the NC.

4.2. Staff training

199. Training for the ICP should be regarded as one of the key aspects of the whole project. It should not be left to last-minute ad hoc solutions. The whole process should be thoroughly mapped out at the earliest possible stage. The goal is to ensure that at the basic level all price collectors will have completed their training before the actual surveys begin. That means that the supervisors will have completed their own training in time to train the price collectors, and, in turn, the NC will have been trained at an even earlier stage.

200. The training of the price collectors is the responsibility of the supervisors, and it is the job of the NC to ensure that the training material is accurate, comprehensive and available in the right language. He should ask the RC for approval of the training material in advance of the first sessions. He should also ensure that the rooms needed for the courses are located and booked, and that all necessary material aids (overhead projectors, notepads, handouts etc) are ordered and available in good time. The RC will coordinate this throughout the region.

Training of supervisors

201. It is expected that in most countries the supervisors will be staff already involved in the national CPI and therefore will be familiar with the CPI methodology and price collection procedures. Where the CPI's geographical coverage is confined to the capital city additional supervisors for the regional ICP surveys may need to be recruited and trained. All appointments of supervisors should be notified to the RC.

For economies in costs, it is recommended that the training of supervisors should be conducted at the Head Office or at the Regional Offices of the NSO, who in turn can train the price collectors and data input staff in the Regional Offices.

202. The following topics should be included in the training:

- Introduction to ICP.

- Survey planning and management.
- Recruitment and training of price collectors.
- CPI product lists – differentiating between representative and non-representative items.
- Procedures when specifications cannot be matched exactly.
- Method of selection of outlets.
- Procedures when outlets are closed or no longer sell a product priced in an earlier period.
- Details of the survey schedule and how each field is to be completed.
- The frequency of price collection.
- Knowledge of how to match the photos in the collectors' album to the goods they find in the outlets surveyed.
- Price data validation and submission.
- Comprehensive demonstration of the functionalities of ToolPack™.
- How to use ToolPack™ for data collection, validation and editing, and processing.

203. It is important that the training is practically oriented and equips participants to perform their functions effectively.

204. Before the supervisors begin any survey work, they should be provided with an official letter of introduction and credentials from the NSO, which may be shown to retailers in order to explain their duties and obtain permission to collect prices and take photographs of products and outlets.

Training of price collectors

205. The success of the ICP depends on the quality of the data collected. Much of this falls to the local price collectors, who must:

- Understand what the aim of the exercise is.
- Understand their role.
- Be thoroughly familiar with the products they have to price.
- Know which outlets they are to visit and collect prices.

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- Know how many prices they are supposed to collect for each product.
 - Understand the rules concerning product substitution.
 - Understand what type of comments are needed on their price collection sheets.
 - Know what reports to make and when they must make them.

206. In countries which are using their CPI infrastructure for the ICP, it is expected that much of the price collection work will be done by existing CPI price collectors. It may be necessary to extend their working hours/days and increase their remuneration to do this extra work. To the extent that the surveys cannot be entirely done by existing CPI staff – and this will be especially the case where the geographical field of the ICP goes beyond that of the CPI, extra price collectors will need to be recruited, normally through advertising in the press. In countries where staff turnover tends to be high, it would be prudent to recruit more staff than required. All staff recruited should be trained, and a reserve list created so that trained replacements can be quickly brought into action if and when existing collectors leave.

207. On appointment, each price collector should be provided with a contract. Following recruitment, the price collectors must be well trained in all of the above topics. They should spend time in the field, familiarizing themselves with the products which they will be pricing. Before they begin any survey work, each price collector should be provided with an official letter of introduction and credentials from the NSO, which the price collector may show to retailers in order to explain his duties and obtain permission to collect prices.

5. PRE-SURVEY WORK IN EACH COUNTRY

5.1. Overview of pre-survey work

208. In this section, a number of important topics relating to aspects of ICP work in each country – both preliminary organizational work and more detailed survey planning work are discussed. The following list is given in an order which roughly corresponds to the order in which they should be done - but note that decisions on many are inter-related.

Preliminary organizational work

- Establish an ICP national project team.
- Get to know the objectives and the overall organization of ICP.
- Get to know the data requirements.
- Develop a detailed national project plan.
- Make a contingency plan.

- Select the regions where surveys will be conducted.
- Select the towns within the regions and the shopping districts within the towns where surveys will be conducted.
- Establish, where necessary, regional offices with relevant facilities.
- Recruit supervisors and price collectors in each region.
- Conduct regional training of supervisors and price collectors on the techniques of price collection and, where appropriate, on the use of ToolPack™ for data processing.
- Determine the procedure to be used for estimating national and annual average prices.
- Determine the sources of data to be used for weights, both below and at the Basic Heading level.
- Organize the translation of PSs into the local language(s).
- Take and compile photographs of products and outlets.

Survey Planning

- For each product, determine the source of price data, how the prices will be collected and by whom;
- Study the list of Product Specifications (PSs) and decide, for representative PSs and non-representative PSs:
 - which PSs in which regions/conurbations require new sampling frames (because the existing price collection for the CPI is from frames which can benefit from updating, or are non-existent) and which need augmenting, and, if so, how?
- Select the outlets for price collection.
- Allocate ICP codes for each outlet and type of outlet.
- Determine which products will be priced in each district, the frequency of collection and the periods when the survey will be conducted.
- Prepare price schedules for each district for products to be priced.
- Survey execution.
- Conduct and supervise the surveys.

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- Data input, validation and editing.
 - Obtain and enter in ToolPack™, weights by region, centres, and outlets.
 - Supervise the input of data and its processing, editing and validation.
 - Calculate the average prices per product for the reference period.
 - Submission of data and reports.
 - Submit data to RC. NB In countries where ToolPack™ is not used for data collection, verification etc, countries are expected to submit data in a format agreed with the RC suitable for uploading into ToolPack™.
 - Send weekly progress reports to RC, including Early Warning Indicators.

5.2. Location and travel costs

209. As in all survey operations travel and location costs are a significant part of the budget. The planning of the ICP survey must take account not only of theoretical requirements but also of budget constraints. A pragmatic approach must be used to minimize costs. One of the major decisions which must be made at an early stage is whether or not the survey can make use of any existing CPI regional infrastructure.

210. Many CPIs are limited to the capital city. This may or may not provide a reasonable estimate of price trends over time for other cities in the country. But the ICP has to provide an estimate of the national price level, and it is often the case that price levels in regional cities differ from those in the capital and also among themselves. (See paras 5.2. et seq). Where it can be shown that a “new” region or city needs to be covered in the ICP, it will be necessary to decide if a sub-office is also needed to support the regional activity. It may be that the NSO already has a regional office for other purposes, or it may be possible to make use of the facilities of another government office in the city concerned.

211. Another aspect to consider is the desirability of having the supervisors and price collectors living in the areas selected for the price surveys, even though this may be difficult to achieve in practice. No hard and fast rule can be given on this as much depends on the size of the country and its statistical infrastructure: in small countries the distances from any Regional Office to the areas selected for the price collection may not entail long travel and in such cases the regional staff can be used for the price surveys. In some larger countries, NSOs or survey agencies may maintain panels of interviewers distributed throughout the country. In such cases, it may be possible to collect price data over wide geographical areas without much additional cost. But if not, new price collectors may have to be recruited and trained in the new sample areas, and the costs of this have to be taken into account.

5.3. Survey questionnaires – translations and photographs

212. Experience shows that it is essential that the individual price collectors thoroughly understand the product descriptions so that they can identify them even when they are displayed in shops with the local language. This is the case even when photographs of the products are provided. So it is essential for the NC to arrange translation from English (the original drafting language), or one of the other five languages (Arabic, Chinese, French, Russian, Spanish) into which the original English version has already been translated, into the appropriate local language(s).

213. This work should be planned for completion two to three months before the start of the first surveys. Comments on the translations should be requested from the national CPI staff, as many of the products are likely to be similar to those priced in the national CPI, and the words used to describe them should thus be similar.

214. Digital cameras will be used to enable photographs of products and outlets to be used as an aid to correct specification, identification, and re-pricing. Each country will compile and maintain its own photo album, containing all goods, all outlet façades covered in the survey, and certain outlet interiors such as restaurants, where the quality of the restaurant is part of the product specification. Substituted products or outlets must also be photographed. Written permission for photography must be obtained from shop managers by the NSO: photos should never be taken surreptitiously. In some cases it will be necessary to purchase items in order to photograph them, such as different cuts of meat. This must be provided for in the national ICP budgets.

215. The photographs are taken in each country using the cameras provided, and should be sent for approval to the RC, who will ensure that they correspond to the required specification on the PS form. Once the RC's approval had been obtained, the photos can then be pasted first into a comprehensive album, and subsequently into the pricing schedules using ToolPack™.

USE OF DIGITAL PHOTOGRAPHY

The ICP 2003-06 is using digital photography for the first time. This will bring several major advantages to the process of identifying goods and retail outlets.

All goods will have been photographed; initial matching of the photographs with the actual goods identifies in the shops is essential.

In cases of doubt, a new photo should be requested and the NC can then make a decision.

Price collectors should be thoroughly familiar with the photo album.

Each price collection sheet includes a photograph.

216. Finally, all of the translated price collection forms, including the photos, should be given to the local price collectors before the survey begins (preferably during training) to allow them to become familiar with the products which they are required to price and to raise any questions with the survey supervisors to avoid any misunderstandings. It is far better to spend time on this before the survey begins than to waste time during or after the survey dealing with problems which have arisen due to language misunderstandings.

217. In summary:

- Discuss translation issues with the regional office.
- Arrange translation into local language(s).
- Check translations with CPI staff.
- Take photos of products and outlets.
- Obtain approval of photos by RC.
- Paste photos into album and on to the pricing schedules.
- Allow local price collectors time to become familiar with the price collection forms in their own language.
- Complete all of these tasks in good time before the first survey.

5.4. Weights for consumption expenditure

218. The Basic Heading is defined as the level at which explicit weights are available and required. But below this level there is a need for implicit or approximate weights. For example, it would clearly be wrong to make simple averages of prices collected in, say, capital cities and provincial cities (where the price levels are likely to be different), especially in countries where a high proportion of household spending takes place in the capital. Similarly, it would be wrong to make a simple average of prices in supermarkets and those in market stalls. So efforts, such as described below, need to be made to find sources of information which will help to make reasonable estimates (“guesstimates”) of such weights. Of course, in the cases where the national ICP will follow closely the practices used for the CPI, the chances are that averaging of this kind already takes place. If it does not, it should be considered as a potential improvement to the CPI.

219. The most important of these weights are:

- Seasonal weights.
- Regional weights.

- Outlet/outlet-type weights.
- Temporal (monthly/quarterly) weights.

220. All of these weights are used to compile the national annual average prices of the various products for which prices have been collected. It must be stressed that at this level it is usually difficult to find good data to enable accurate weights to be calculated. In the absence of good data, approximations have to be made. This may require informed commonsense rather than hard facts. Assume, for example, that monthly collection of fresh food products is being made. Certain fruits will be in season only during particular months. Outside these months only imported varieties may be available – at a high price. There is likely to be a seasonal variation in the quantity sold as well as the price. It would obviously be wrong to take the simple average of 12 monthly prices to represent the annual average, if it is clear that the bulk of the fruit sales are limited to those months when the cheaper domestic varieties are available. In such a case, it is necessary to apply some sort of weight to the average monthly prices, reflecting the relative volumes of sales in each month. It may be that trade or other retail data are available, but, if not, the advice of retailers themselves may be sought; “80% of our sales of X are in May and June”, for example. In that case, the volume weights for May and June prices would be 0.4, and for all other months 0.02.

221. Seasonal weights are not all connected with climate. Services such as school fees will tend to go up at the start of each academic year and stay fixed for a year. Prices fixed or regulated by the government, such as electricity or rail fares, may similarly have a tendency to be changed on a fixed date in the year. It is necessary to average prices over the year to get an annual average: the averages must be related to the date(s) when the new prices were introduced.

222. Seasonal weights are needed to compile an annual average price. Regional weights are needed to compile a national average price. If 70% of national sales volumes are in transactions in the capital city, and only 30% in regional cities, the average prices from all the cities must be weighted accordingly. This implies the need for estimates of relative quantities sold in each of the regions or cities concerned. One frequently-used source is the Household Budget Survey (HBS) - provided it is not obsolete. It is not the absolute levels of household expenditure in each region which are needed, but only the relative levels, so even if the HBS is considered to understate total expenditure this is not necessarily a problem. Other sources of estimates may relate to proxy data, such as regional GDP estimates – or even simply populations.

223. One of the most important but also often the most difficult weights to estimate are those for outlet types. Prices of fresh produce in traditional covered markets or open markets may differ substantially from those in modern supermarkets. So the average prices from each outlet type need to be weighted to reflect the different quantities sold in the various outlet types. It is unlikely that many countries will have national statistics on this topic: the weights in any case need to be detailed enough to be applied at different levels of the

product classification. So estimates must be made at the local level. There are two approaches to this. The first aims to provide explicit estimated weights for each outlet type at a certain level of the product classification (e.g. fresh meat). The source of such estimates could be local chambers of commerce (if these exist and keep in touch with their clients), a VAT register, or – more likely for countries using the CPI framework – commonsense estimates from local price collectors who are in the best position to know the local market structure. The weights would then be applied to the average prices obtained from the local surveys.

The second approach still requires the estimates required for the first approach, but instead of applying weights to average prices, the survey would be carried out in such a way that the overall average prices would be self-weighting. Thus, if it was estimated that 25% of fresh meat was sold in supermarkets, then 25% of the fresh meat prices would be obtained from supermarkets, etc.

This topic is dealt with in further detail in paras 5.4 et seq.

224. If the price of a product such as electricity changes only once a year, it is important that the annual average price for the ICP comparison year (2005) reflects the average price of electricity in that year. If, for example, the price of electricity was collected quarterly – say, January, April, July, October – and the price was fixed until 1 November when it rose by 20%, the average price for the year would be 3.3% higher than the survey results – assuming that the quantity sold did not fall when the price rose. In such a case, an explicit adjustment needs to be made to the survey results.

225. Another example of the need for temporal weights is a non-seasonal fluctuation in prices which results in varying quantities sold. This may be the case for, say, imported clothing or hardware items. A temporary shortage on the market may result in higher prices and lower sales, offset later when a fresh consignment arrives. If the price collection is monthly this may not necessarily create a problem, but if it is less frequent some account may need to be taken of the variability of the market. The important point to remember is that the aim of the ICP is to obtain annual average prices of goods sold, so any reasonably-based estimates are likely to be better than a simple averaging of the survey data.

5.5. Selection of geographic regions, towns and shopping districts

226. As discussed in para 3.2, the CPI measures price trends over time, which may be similar in different parts of the country, even though the actual price levels may differ. For that reason – or simply because of resource constraints – the CPI price collection does not always cover every region of a country – indeed is often restricted to the capital city.

227. On the other hand, the ICP measures price levels, and it aims to measure the average price level throughout the whole country, so in principle the entire country should be included in the surveys: rural areas need to be covered in addition to urban areas. It often

happens, for example, that transport costs to remote regions result in higher retail prices. The level of some prices in capital cities may also be above the national average, as a result of the higher incomes of the population shopping there.

228. But there are budget constraints for the ICP surveys, as well as potential communications problems for the remoter districts. It is also necessary to consider the likely effect on the national average price level if certain regions or rural areas were omitted. The key factor here is the volume of retail transactions in the area concerned. If a region is sparsely populated, with relatively little retail activity, its omission from the survey is unlikely to have a significant impact on the overall national average prices.

229. The approach to the choice of geographic boundaries for ICP price collection will depend to a large extent on whether the country has decided to use its CPI infrastructure for the ICP or not. If the CPI covers more than the capital city, it would be sensible to make use of the operational infrastructure of the CPI for the ICP price collection. If not, the sampling scheme for the ICP will need to be done as a separate exercise – but always making use, where appropriate, of existing CPI surveys. The remainder of this section assumes that the ICP sample is being selected independently of the existing CPI. This in itself may throw some light on making the decision as to whether the existing CPI infrastructure is usable for the ICP. If the CPI infrastructure is used for the ICP, the methodology must be able to satisfy the requirements of the ICP in that the final result must be to provide a reasonable estimate of the national annual price level.

230. Where it is necessary to supplement the CPI infrastructure, or where there is none, it would be desirable to construct the following tables:

Table 2.1 sets out a schema for classifying the urban and rural parts of the whole country. The ICP should cover both urban and rural populations, but resource limitations will determine the extent to which the extra costs of rural price collection can be made.

Table 2.1 as structured below may need to be adapted to suit the particular administrative organization of individual countries.

Table 2.2 then sets out data which will help the NC to decide, within the envelope of available resources, which cities, towns and rural districts can be sampled, and with what sampling fractions. The NC should carefully cost his proposed scheme, and distribute the resources accordingly.

Note that the columns for Household Consumption Expenditure may be completed with data from the HBS. If no such data are available, the column should be deleted. Population figures should be drawn from the most recent Census. Some estimation may be necessary.

Table 2.1. Classification of population by region and district

Region	City/town	Urban Population		Rural district	Rural Population	
	Name	000s	%	Name	000s	%
Region 1	City 11	490	16.31	District 1001	74	1.47
	City 12	320	10.65	District 1002	32	0.63
	etc			etc		
Region 2	City 21	370	12.31	District 2001	45	0.90
	City 22	120	3.99	District 2002	21	0.42
etc				etc		
Country total		3005	100.00		5023	100.00

Table 2.2. Decision framework for geographic sampling

Country Region	Urban strata					Rural strata				
	Population stratum (thousands)	No of towns	HHC Expenditure	No of prices	% of national total	Population stratum (hundreds)	No of districts	HHC Expenditure	No of prices	% of National total
1	Over 100	3				Over 100	3			
	50-100	17				50-100	21			
	25-49	56				25-49	35			
	Less than 25	158				Less than 25	125			
2	Over 100					Over 100				
	50-100					50-100				
	25-49					25-49				
	Less than 25					Less than 25				
3 etc						etc				
Country totals		1025		200000	100.00		3045		120000	100.00

231. Once the regions for inclusion have been decided upon, the next stage of selection is the choice of cities or towns to cover within each selected region. Sometimes there may only be one town, so no choice needs to be made. In other cases, choices should be made using similar criteria to those described above for region selection: economic importance, likely differences in price levels, and affordability. Of course, where a town is already covered for the CPI, that town should also be included in the ICP survey.

232. Finally, before the selection of individual outlets can be made, a choice of shopping districts within each town must be made. If the town is already covered by the CPI sample, the same shopping districts can normally – and indeed should normally – be used. But if the town is a “new” one, then new shopping districts must be selected. As with the choice of regions, regard should be paid to the likely volume of retail trade in the various districts

available for selection. And again, regard must be paid to the costs of collection: it will be more economical to concentrate the survey over many outlets in a few districts, rather than a few outlets in many districts. Districts should be selected which allow the inclusion not only of traditional shops but also supermarkets and open or covered markets. Remember that the aim is to measure the average price of products in the town as a whole, then in the region as a whole, then in the country as a whole.

The next section describes the methods to be used in the selection of outlets.

233. In summary:

- Rough estimates should be made of regional levels of retail activity in order to be able to make a soundly based purposive selection of regions for inclusion in the surveys. Travel, communications and other administrative factors should also be part of the selection process.
- The likely degree of significant differences in price levels between regions/towns should be checked.
- In regions which are already covered by the CPI surveys, the same towns and shopping districts should be selected for the ICP.
- In regions which are not covered by the CPI, the selection of new towns and shopping districts should be based on likely volumes of retail trade in the districts available for selection, but constrained by the costs of travel and other administrative costs.
- Reliable sources of local knowledge regarding appropriate shopping districts and retail outlets should be used to help in the selection process.
- It would be a wasted opportunity not to include the new districts and outlets in the CPI sample for the future.

6. CONDUCT OF RETAIL PRICE SURVEYS

6.1. Sources of price data and methods of collection

234. It is easy to imagine that the prices of items of household consumption can all be obtained by walking round shops and noting down the prices on the tags fixed to the products. To be sure, this is the standard method for the majority of products – but there are many exceptions. This section examines the various sources of price data, and the implication for the methods of price collection.

235. Not all prices are best collected from outlets. Within any given country, the potential sources of price information for the ICP are likely to be the same as those for the CPI. CPI experts familiar with the various possible sources should not merely be consulted but directly involved in the ICP program in any case. It may also be appropriate to consult other kinds of expert as well, such as market research or consumer organizations.

236. The prices of most of the products on the ICP list are likely to be obtained by price collectors visiting a sample of outlets located in specific areas. Outlets do not only consist of conventional retail shops selling goods such as food and clothing but also service providers such as clinics or schools (selling health and education services), hairdressing and beauty salons, law firms, electricians, plumbers, etc. They also include stalls in street markets, which operate continually or periodically such as one or two days a week or month, as well as itinerant traders and service providers.

237. Many local shops form part of a regional or national chain that are owned and managed centrally. The prices in such shops may also be fixed centrally, although this does not mean that the prices in all of them will be the same. When prices are fixed centrally, they could be collected directly from the central office without sampling and visiting them, although it needs to be checked periodically that the prices in the local shops are in fact the same as those provided by the head office. Of course, if a central office supplies a price, which holds for a large number of local outlets, it must be given an appropriately high weight which reflects the importance of national/regional sales in the chain (see para 5.4.) when estimating the national average price. Information is needed about the share of the chain in the total national sales of that product or group of products. One advantage of collecting prices directly from the central office of some large chain is that the office may be able to provide several of the required ICP prices at the same time.

238. Apart from observing prices in local outlets or consulting central offices, information about prices may be obtained from the various sources listed below:

Mail order catalogues: Prices may be obtained from up-to-date catalogues for certain kinds of product, especially clothing and durables, supplied by regional or national chains of retail outlets, or from discount warehouses operating a uniform pricing policy. Such prices may change frequently so that there must be some mechanism to ensure that new catalogues are obtained when they become available.

Telephone/fax: Prices of services may be obtained over the telephone or by fax if the product being priced is standard and the contractor will quote a standard price or charge. For example, electricians or plumbers may be telephoned for charges for providing a new electricity socket or other standard jobs or repairs. This may be less expensive than requiring collectors to visit such contractors.

Government: Prices may be obtained from government agencies or regulatory authorities who can act as intermediaries in the price collection process (e.g. in some countries this would be the case for electricity prices).

Internet: Prices may be obtained over the internet when major stores advertise their prices on the internet, possibly also offering home deliveries. Some types of goods and services are increasingly, and sometimes exclusively, sold over the internet, e.g. books, computers and air tickets, so that the internet has to be treated as a different type of outlet and included in the sample. When home deliveries are made, the purchaser's price must include all delivery charges.

Secondary sources: In some cases, secondary sources including consumer organizations can provide data on the prices of specific goods such as air fares or used vehicles.

239. When using sources such as catalogues or the internet for prices, special care must be taken to ensure that the products priced match the precise specifications required for ICP purposes (the goods will not be actually visible) and that their prices are correctly recorded including any sales taxes and delivery charges. It is important to remember that all the usual price collection principles are still relevant for prices collected from the internet, including the need for detailed descriptions, immediate availability of the item for purchase, treatment of special offers, etc.

240. While there may be savings to be achieved by collecting prices from the kinds of sources listed above instead of sending price collectors out into the field, several of these sources are likely to be more useful in developed than developing countries. In rural areas of developing countries, most of the prices can only be obtained by taking samples of outlets and sending price collectors to visit those outlets.

241. Most sellers display the prices at which they are prepared to sell. The prices may be listed in the shop or advertised in magazines or elsewhere. These prices should be treated as 'offer' prices. They are not necessarily the prices at which the actual transactions take place. In many cases, the transaction prices are lower. The transaction price is the list price less any discounts that may be obtained. In every case, the purchaser's price needed for ICP purposes is the price actually payable by the purchaser, irrespective of the price at which the good or service may have been previously listed or offered for sale. This is the price at which the purchase should be recorded in the expenditure data of the national accounts. Given that the prices recorded for the ICP should match the implicit prices underlying household expenditure in the national accounts, the ICP price surveys should also include goods offered in seasonal or other sales, as well as other generally available discounts.

242. In the case of services, the purchaser's price includes any service charge payable in restaurants or hotels. Similarly, if a tip is normally expected, it should be included in the purchaser's price even if not shown on the bill presented to the customer.

6.2. Selection of retail outlet types and outlets

243. The same point needs to be made here as was made in para 5.5. concerning the selection of regions and towns, concerning the relationship between the ICP and the CPI. The approach to the choice of retail outlet types and specific retail outlets for ICP price collection will depend to a large extent on whether the country has decided to use its CPI infrastructure for the ICP or not. If the CPI covers more than the capital city, it would be sensible to make use of the operational infrastructure of the CPI for the ICP price collection. If not, the sampling scheme for the ICP will need to be done as a separate exercise – but always making use, where appropriate, of existing CPI surveys. The remainder of this section assumes that the ICP sample is being selected independently of the existing CPI. This in itself may throw some light on making the decision as to whether the existing CPI infrastructure is usable for the ICP. If the CPI infrastructure is used for the ICP, the methodology must be able to satisfy the requirements of the ICP in that the final result must be to provide a reasonable estimate of the national annual price level.

244. The selection of outlets within a town should be made with both the whole town in mind as well as the selected shopping districts. It may be that open markets may only be found in certain districts, while the modern supermarkets may be found in others. The actual collection will be made district-by-district, however, so the outlets will need to be listed on that basis.

245. The selection of outlets is at the same time both difficult and yet critical to the accuracy of the ICP results. If one country reported most of its prices from open markets, while another reported them from traditional shops, the resulting price level comparison would be very inaccurate. Every country should aim to report prices which, when aggregated, will give a fair representation of the national annual average price level for each product.

246. Outlet selection is difficult because there is usually little or no statistical basis available for selection, which must therefore be made on the basis of informed and intelligent guesswork. Local knowledge plays a vital part. This manual cannot lay down precise procedures because they would not apply in all the different cities covered worldwide by the ICP. Instead, rules of thumb are described which should help NCs and local supervisors to make sensible judgments on outlet selection.

247. The starting point should consist of drawing up a table along the following lines:

Table 2.3. Estimated proportions of sales values of broad product groups sold in different outlet types

Broad Product Groups (examples)	Outlet type				TOTAL %
	Markets	Traditional Shops	Supermarkets	Others	
Fresh Meat	60	20	20	0	100
Fresh Vegetables	70	15	10	5	100
Processed Food	5	25	65	5	100
Ladies Clothing	30	40	20	10	100
Furniture	10	60	10	20	100
Cooking Utensils	40	40	10	10	100

248. Such a table will help to focus minds on the relative importance of particular outlet types according to broad product group. In this illustrative example, fresh meat prices should clearly be drawn primarily from markets, but to a lesser extent prices should also be collected from traditional outlets and supermarkets – in the approximate proportions 6:2. The source of information on the proportions of sales in each outlet-type could be based on suggestions from the local statistical office (if one exists), or from well-informed local residents. It is possible that the local chamber of commerce may also be able to provide some helpful estimates, as also the local municipality. But it must be emphasized that a table such as this is intended only as a rough guide. There is often no hard information available: proxies such as estimated numbers of employees or customers in the various outlets may give an indication of the value of sales. Failing any such information, proportions may simply be used from cities of a similar type where some information does exist.

249. The next step is to draw up a list of actual outlets which in total will meet these selection criteria. At its simplest, this could comprise (in the above example) the names (or locations) of 6 market stallholders, 2 traditional shops and 2 supermarkets. Again, local knowledge is likely to provide the best information, though Yellow Pages may also be useful where it exists. Other potential sources of information on outlets (unlikely to be available in many countries however) include:

- Economic census (if up-to-date).
- Retail sales surveys.
- VAT records.
- Business registers.
- Local government administrations.
- Local chambers of commerce.

-
- Social insurance files.
 - Employers' organizations.

Of course these records deal primarily with the organized sector and cannot replace direct surveys of open air and traditional covered markets, street hawkers etc. These outlets can only be surveyed through an area file.

250. As mentioned previously, there should be as much overlap as possible between the CPI and ICP surveys. The existing list of outlets should normally form the basis for the ICP survey – supplemented where necessary by extra outlets in order to cover products or regions not covered by the CPI.

251. Finally, all outlets must be allocated an ICP code, together with the code for the outlet type.

6.3. Survey period and frequency

252. The aim of the ICP is to calculate the annual average national price for each product. So price collection for most products has to be made several times during a one-year survey reference period. The norm will be to measure prices once per quarter. But detailed decisions must be taken on the frequency of surveys according to the product. As stated earlier, the prices of seasonal products which cannot be found permanently on the shelves can only be collected when they are available. Some products, e.g. rail fares, may change their prices only once a year on a fixed date. It is therefore unnecessary and wasteful to collect such prices more frequently. But the prices of many products are liable to change at any time. For those products which are identical to those in the CPI basket, prices will probably be collected monthly anyway. Decisions have to be taken on other products (the majority) for which prices could be collected monthly or less frequently. Regard must be had to the general rate of inflation - and the rate of inflation for the BH concerned. The faster prices are rising, the more frequent should be the price collection. If annual inflation is more than, say, 25%, the case for monthly rather than quarterly collection of most products becomes stronger. This is particularly so when the rate of inflation is both high and erratic.

253. Where ICP products differ from those in the national CPI, it may be that a reasonable proxy for price changes can be made by extrapolations from the CPI sub-indices, or even from the price changes observed in the CPI for very similar products. The RC should be consulted on this.

254. Points for planning:

- Look through all items and select those which are likely to be seasonal.
- Allocate approximate collection dates for seasonal products.

- Decide on collection frequency for other product.
- For non-CPI products, consider whether any of the CPI product indices or sub-indices can be used to extrapolate prices for ICP products.

6.4. Survey timing

255. Timing refers to the point, or points, of time within the month or quarter in question when the prices are actually collected.

This is another aspect of price collection where there may be necessary differences between the CPI and ICP approaches. The CPI aims to measure price changes from one period to the next. That makes it often important to collect prices on the same day of the week, each month – regardless of whether the price on that day is typical of the price over the whole month. The point is to be consistent from month to month. For the ICP, the goal is to estimate the average annual price level. This may perhaps call for a variety of different collection days or times, in order to sample potentially differing price levels.

256. Since the price of a particular product may vary according to the day of the week (e.g. weekend special offers) or the time of the month, or even the time of the day in markets, account must be taken of these variables in selecting the timing of the surveys. The monthly or quarterly price is intended to be an average of all the transaction prices within the month or quarter. In practice, this means that when most transactions are made on one day a week at a weekly market or bazaar, the prices should be collected at the times when most transactions are known, or believed, to take place. (But note that if the goods sold off at the end of a market day are deteriorating and of lower quality than the PS requires, their prices are not acceptable.) In any case, it is desirable that the price collection procedures should follow the same timetable or pattern from one period to the next. A similar issue arises with fashion goods, such as clothing and footwear, whose prices tend to fall at the end of the fashion season.

257. Price collection dates (and sometimes times of day) need to be set in advance, taking account of:

- Price variations during the day, week, month or quarter.
- Relative volume of sales at these different price levels (estimated).
- Possible quality changes of goods at different times.
- Fashion and other seasonal factors.

6.5. Preparation of pricing schedules

258. In order to ensure uniformity of format and content of the sheets to be used for the price survey, the price schedules will be prepared, printed, and dispatched to the countries in sufficient numbers by the RC. This procedure will also eliminate the need for each country to print its own survey schedules locally. The survey schedule will contain on each page the description of the product and its specifications, including the reference unit (e.g. 1 Kg) to which all observed prices will be converted to obtain the average prices. The contents of a typical pricing sheet is shown below:

Basic Heading:	1.01.1.01.1: Rice	Cluster: Rice
Product number:	013	Product name: Long-grained rice
Outlet types:	Supermarket	Product presentation: Plastic bag
Quantity:	1 Kg	Origin of the product: Imported
Type:	Long grain	Variety: White
Share of broken rice: Very low (<3%)		

259. The columns beneath the specification of the product will be completed by the price collectors during the price surveys. The explanation of each of the columns is as follows:

- R: Region code.
- Z: Zone and centre code.
- T: Outlet type code.
- C: Outlet code (for physically identifying the product during the editing checks).
- P: Observed price.
- OQ: Observed quantity (numeric only, e.g. 500).
- UQ: Unit of quantity (e.g. Kg for kilogram, gr for gram, m for meter).
- M: Make or brand observed.
- O: Observations of price collector.

260. The characteristics of the product should have been specified in sufficient detail for there to be no doubt about whether a product does, or does not, meet the specification. Usually the questionnaire contains a photograph of the product, this being an essential part of the specification for most goods. Thus, each country is provided not only with a list of products to be priced but also with a set of questionnaires. Of course, each individual NSO has to enter a certain amount of information on the questionnaire such as the name of the price collector and the names and addresses of the outlets to be visited, together with instructions (if needed) as to how to find the outlets, including a map and a photo of the outlet if needed.

6.6. Day-to-day survey work

261. Having made the decisions on regions, towns, shopping districts, retail outlets and other sources of price data to be sampled; having decided on the frequency and timing of the surveys; and having trained the local price collectors and supervisors, the surveys themselves may begin, using the price collection forms translated into the local language(s) provided earlier. Before beginning work, the go-ahead should be finally obtained from the RC.

The organization of price collection will depend heavily on whether the CPI infrastructure is being used for the ICP surveys or not. The ICP preference is that the CPI survey infrastructure should be used wherever possible for the ICP, both in order to minimize costs and also to maximize the possibilities of improving the CPI as a result of ICP participation and generally to improve the quality of the data gathered. The following section describes how prices should be collected and processed in such countries. See also section 3.2 regarding the relationship between CPI and ICP more generally.

General rules

Collection of ICP prices should take place at the same time as the CPI collection.

For those items which are common to both CPI and ICP, prices should be entered just once - in the CPI forms.

CPI collection forms should be amended to include an asterisk (*) or some other appropriate sign in all cases where items prices are common to both CPI and ICP.

The prices for all items marked with an asterisk should be processed in such a way as to enter both the CPI and the IPC files. The decision on when to split the processing into two streams can be taken nationally.

Whatever CPI editing rules are in place, ICP prices should be subject to the editing rules in ToolPack™. If there is a change in the specifications of an ICP item, or in the selected outlet, the asterisk should be removed until such time as a decision is taken in respect of both the CPI and the ICP. The way this is done will vary from country to country but will always reflect an agreement reached between the NC and RC.

Exceptions

ICP requirements may demand the inclusion of items which are not on a country's CPI list. Where there are such items, they should normally be priced at the outlets used for the CPI.

The prices of "ICP only" items should be entered on a separate sheet, clearly marked as the ICP list.

"ICP only" prices should be processed outside the CPI stream, subjected to agreed edits and merged with the "overlap" prices before submission to the RC.

ICP requirements may also demand that an item be priced at an outlet outside the CPI circuit. The CPI price collector routes should be adjusted to take in the additional outlets.

"ICP only" items in new outlets should be priced on a separate occasion from that used for CPI purposes but preferably during the same week. The modalities of such pricing will be subject to prior agreement with the RC.

262. In the early stages especially, it will be necessary to make frequent and careful checks on the data supplied. The NC should make visits to observe the fieldwork in operation for himself, and the survey supervisors should exercise daily rigorous control over all of the price collectors for whom they are responsible. It is inevitable that there will be some misunderstandings, and it is important that these should be identified and corrected at the earliest opportunity.

263. What sort of checks need to be made on the data during these early days of the survey?

- Do the products which have been priced correspond exactly with those on the PS?
- In cases of substitution, are the substituted products acceptable? (They should be photographed and replaced in the photo album and pricing schedule after approval by the RC).
- Are the price collectors taking enough time – or too much time – to find the target products?
- Is there much variation between the price collectors in respect of:
 - Average prices collected?
 - Variability of prices collected?
 - Numbers of prices collected?
 - Numbers of products priced?
- Have the price collectors reported the prices and comments clearly and legibly?
- Have there been any problems of non-cooperation with outlets?
- Is the number of price observations according to plan?

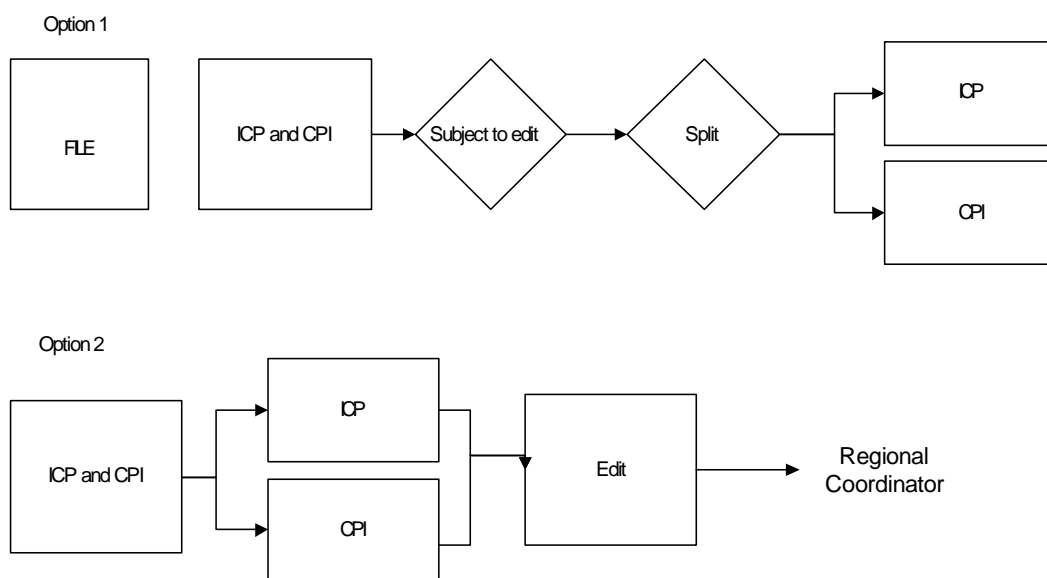
264. Of course, all of these checks must be made throughout the course of the survey, on a regular basis. But it is especially important to make them frequently and with great care during the early days of the survey.

7. PRICES DATA INPUT, VALIDATION AND EDITING

265. The flow of data input and validation into the computer system will depend on the extent to which the national CPI data are treated.

The diagram below illustrates two main variants. Option 1 refers to the situation where the basic price data for CPI and ICP are grouped in a single file which is then edited using similar rules for both datasets. After editing, the file is split into its CPI and ICP parts for subsequent processing.

Option 2 refers to the situation where the two datasets are separated and subject to separate editing procedures.



Regional Coordinator agree with the National Coordinator

266. No statistical data should be accepted into the computer system without careful checking to ensure that the data are reasonable and fulfill certain validity tests.

The NC is responsible for delivering reliable and accurate data to the regional office. As such, he has final authority over the data to be submitted. He is also responsible for the scrutiny of prices submitted by local price collectors.

267. The processes to be carried out are as follows:

- Initial non-computerised checks on data collected.
- Data entry.
- First-stage verification:
 - Errors in product identification;
 - Numbers of observations;

-
- Checks for obvious outliers;
 - Missing values;
 - Incorrect units;
 - Price variability.

268. To enable the above and other checks to be made, the ToolPack™ PAM module generates a summary report for each item, which must be carefully examined. The summary report contains the following indicators:

- Total number of individual price quotations;
- Number of price quotations for representative items;
- Average price of respective individual quotations;
- Minimum and maximum prices per item;
- Coefficient of variation;
- Exchange rate price (converted to a reference currency);
- T-value;
- Ratio of individual price quotation to average price.

269. An outlier is a price which is markedly differently (lower or higher) than the majority of prices for a particular product/city/outlet type. Outliers occur for various reasons. It may be that the price collector or data input clerk has omitted a decimal point, for instance. In some cases, it may be possible to identify and correct the error: this is known as “editing”. In other cases, the price may seem to be correct, even after checking, but is still a long way outside the expected range. A decision has to be made on whether to include it as a valid entry, knowing that it may affect the average price, or to reject it as atypical. Such a rejection is also a form of editing.

270. There are three basic methods of dealing with outliers, following a check that the recorded price has been apparently correctly entered. These are: simple cut-off; trimming; and winsorisation. Each method is discussed in some detail in Chapter 7 of the ICP Handbook. They are described only briefly here.

Simple cut-off involves the elimination of all observations whose prices fall outside a pre-determined range. A good starting point in determining the appropriate range is +/-30-40% beyond the mean.

Trimming consists of discarding the n observations which have the $n/2$ highest and $n/2$ lowest prices.

Winsorisation is a variant of trimming: instead of discarding the extreme prices, those prices are replaced by the remaining extreme prices.

271. Of the three methods, all are acceptable, but simple cut-off is theoretically the least desirable. The only method available in the current edition of ToolPack™ is trimming. A future update to ToolPack™ is likely to include winsorisation.

272. NCs should note that even if outliers are discarded by one or other of these methods, the original observations will still remain in the database, even if they are not used in the calculations. This allows for re-calculation if it is later decided to change the acceptable ranges.

8. REPORTING

8.1. Level of aggregation

273. Before any price data are submitted to the RC, a decision needs to be taken on the level of aggregation which is provided. The RC would prefer to have data at the most basic level of raw prices, as this enables inter-country comparisons and checks to be made more effectively. But the statistics laws in some countries may permit only the submission of average prices relating to some higher level of aggregation. Legal advice may need to be sought to determine whether raw prices may be transmitted in the case of ICP data. Legal advisers should be told that even if raw prices are sent, they will not be published: the lowest level of publication is likely to be price-level ratios at the BH level.

8.2. Validity testing

274. Following the submission of prices (whether raw or aggregated) to the RC, the latter is able to make further validity tests as he has the advantage of being able to compare the results from all the countries in the region – a facility not available to the countries individually. Again, ToolPack™ is used: the multilateral diagnostic table (MDT or Quaranta table) is generated at the regional level. This table is sent immediately to all the NCs who should independently start checking their data in relation to the multilateral results. Certain national data are automatically highlighted by ToolPack™ if they appear to be out of line with data from other countries in the region. These highlighted data should be a priority for further checking by the NC.

275. In parallel with the examination of the MDT by the NCs, the regional office experts will also be examining the data submitted by the participating countries. The regional office will subsequently prepare a list of questions for each NC concerning problematic data.

After receiving replies from the countries, the RC will re-run the analysis, produce a new MDT, and, if necessary, repeat the cycle again. It is an iterative process.

276. The above steps are summarized in Table 4.

Table 2.4. Intra-and inter-country validation process

Step	Action	Month	Persons responsible and involved	ToolPack™ tables used
1	Price surveys and price collection	t	NC & price collectors	
2	Entering the price observations	t + 1	NC and NSO staff	Price Input Sheet
3	Pre-check of the preliminary data	t + 1	NC, NSO staff & price collectors	Price Input and Output Sheets including diagnostics
4	First transmission of Price Input and Output Sheets to the RC and first reactions by the RC	t + 1 t + 2	NC, NSO staff & RC	Same as above
5	Revision of Price Input and Output Sheets and their second transmission to the RC	t + 2 t + 3	NC, NSO staff & RC	Same as above
6	Possible splitting by the RC and further revision of the Price Input and Output Sheets and their re-submission to the RC	t + 2 t + 3	NC, NSO staff & RC	Same as above
7	Calculation of the first MDTs	t + 3	RC	MDTs including diagnostics
8	Distribution of the first MDTs to NSOs	t + 3	RC, NCs & NSO staff	Same as above
9	Analysis of the MDTs by NCs and the RC: questions to NCs	t + 3 t + 4	RC, NCs & NSO staff	Same as above
10	Checks by NCs on price data and revisions to Price Input and Output Sheets, as necessary	t + 4 t + 5	RC, NCs & NSO staff	Price Input and Output Sheets
11	Transmission by NCs of revised data to RC and calculation of second MDTs	t + 5	RC, NCs & NSO staff	MDTs including diagnostics
12	Distribution of revised MDTs to NSOs	t + 6	RC, NCs & NSO staff	Same as above
13	Continuing analysis of the MDTs; questions to NCs and revisions and replies by NCs and NSOs	t + 6	RC, NCs & NSO staff	Price Input and Output Sheets and MDTs
14	Repeat steps 7 to 12 as many times as necessary until price data are agreed by NCs and the RC	t + 6 →	RC, NCs & NSO staff	Price Input and Output Sheets and MDTs

8.3. Progress reports to Regional Coordinator (RC).

277. The RC has a pivotal role in the ICP. He has to coordinate all of the work of the countries in his region, which means he must be fully aware of what each country is doing and how well they are performing. At the same time, he must be able to synthesise the work of his region in order to be able to make up-to-date progress reports to the Global Office. To

do this job effectively, the RC must have at his disposal regular weekly reports from each National Coordinator (NC) covering the range of current work. In addition, these reports must be combined with “early warning indicators”, which are pre-agreed lists of key issues for which any sign of approaching difficulties must be signaled in good time by the NC. For example, it is not enough for the RC to be told in a weekly report that the price collection is on schedule if the NC knows that next week there is going to be a major crisis due to the resignation of several price collectors. The important point for NCs to remember is that they should never need to surprise the RCs.

278. The onus is therefore on the NC to keep the RC as well-informed as possible throughout the entire project. The RC will provide each of the NCs in his region with a set. The design of these forms is likely to vary from one region to another, but it is important that they cover the same points and be consistently presented in any one region. It should be expected that a weekly progress report will be required, especially during the price collection periods.

279. The indicators are not standardized because in the end they are the result of national choices and there is not much sense in imposing them from above. But they are essentially concerned with throughput. Thus, hours worked is a poor indicator but the number of prices collected is a good one. An indicator that relates the expected number of prices collected during a week to those actually collected is useful. Better still is an indicator that shows the minimum required for there to be recovery without additional resources (number of staff or hours worked etc).

280. To facilitate comparisons of progress between the countries in a region, the RC will find it useful to provide each NC with a template for regular reporting. This may be in the form of an Excel workbook with all of the various activities coded for convenience. Different spreadsheets within the workbook will relate to major aspects of the project such as: survey progress; data editing progress; human resources; budgetary matters. They will be designed to keep the RC in touch with the way the ICP is being implemented in each country; to keep a running score of progress; and to be able to take corrective measures where the condition of any one country requires them.

281. The format of progress reports should not only be harmonized at the regional level, but they should link in with agreed detailed plans related to the coming period – month, quarter, or year, as necessary. Early-warning indicators should be integrated with the weekly progress reports. The NC is in a better position than the RC to spot coming problems. He is in frequent contact with the survey supervisors and should be able to discuss issues as they arise. A set of early warning indicators must be agreed as early as possible between the RC and the NCs. The indicators should be kept under review throughout the project, as new problems may come to light during the course of the surveys.

282. The exact content and layout of the progress reports is for bilateral agreements between the RC and the NCs. Here, some suggestions are provided as to possible designs.

This is divided into sections which may be reported each on a spreadsheet within a workbook.

Survey Progress

283. The NC needs to be concerned with the progress of the price survey at the level of individual price collectors, or at least at the level of groups overseen by a Supervisor. The RC will not be concerned with micro-management at this level. He will be concerned with the progress of the survey at the national level. Thus, the spreadsheet should include statistics on such matters as:

- a Target number of prices collected in period.
- b Actual number of prices collected in period.
- c Percentage b/a .
- d Brief explanation of reason(s) for low percentage.
- e Number of missing prices.
- f Percentage e/b .
- g Number of substituted items.
- h Percentage g/b .

284. Such statistics may be grouped by different product groups, enabling both NC and RC to see quickly in which product sectors different problems are occurring.

Data input, editing and validation

285. Again, the choice of data to be covered in the regular progress reports should be set out by the RC. They may cover, for example:

- i Cumulative number of prices input into ToolPack™
- j Percentage i/b (to show possible bottlenecks at data entry stage).
- k Number of rejected substitute items.
- l Percentage k/g .
- m Number of rejected outliers.
- n Percentage m/b

Human resources

286. Under this heading the RC is likely to want regular reports of recruitment, training, staff turnover etc. Possible reporting indicators might include:

- p Staffing targets by category (supervisors, price collectors, data input staff).
- q Staff actually recruited by category.
- r Percentages (q/r).
- s Training indicators according to staff category (e.g. days of training).
- t Staff turnover statistics (gains and losses by category).

Budgetary matters

287. It is important that strict control is exercised over the financial resources devoted to ICP 2003-06. The NC is responsible for the use of funds received from the Regional Office and must account for their expenditure. Of course, expenditure on the ICP in cash or kind, derived from national sources should also be included, so that the total allocation of financial resources for the ICP may be compared between countries. Possible reporting figures might include:

- u Funds received from the Regional Office, both during the report period and cumulatively.
- v Ditto, from national resources with a clear separation between cash and kind.
- w Expenditure data for agreed headings, classified according to ICP and national resources; for the report period and cumulatively.
- x Indicators of overspend or underspend on the various agreed categories, according to the initial or adjusted financial plan agreed with the RC.
- y Forecasts of all of the above figures for the next report period and for the rest of the planning year.

288. These and other indicators could be consolidated into an Excel workbook which would be shuttled by email each week between the NC and RC. Separate spreadsheets could be set up covering various aspects of ICP management as suggested in Table 2.5.

Table 2.5. Progress reporting spreadsheet layout

Title	Content	Responsibility level	Approval level
1 Program timetable (3 years)	Project activities coded at the one digit level e.g. data collection; data aggregation; recruitment of price collectors etc.	Regional coordinator	Global manager
2 Annual Work Program – monthly progress	Project activities coded at the two digit level e.g. collection of food retail prices; specification of types of residential structures etc.	National coordinator	Regional coordinator
3 Current activities (2 months)	List of last month's performed activities coded at the three digit level	National coordinator's subordinates	National coordinator
4 Cash flow forecast (annual)	Expected dates and amounts of income and outgoings, classified by budget sources	National coordinator	Regional coordinator
5 Current cash flow	List of disbursements and receipts by purpose and source of financing	National coordinator	National coordinator's supervisor

289. This schedule requires an agreed structured list of project activities which should be developed by the regional office in consultation with the participating countries. An example is shown in Table 6 below.

Table 2.6. Structured list of project activities

One digit	Two digits	Three digits
1 Data collection	11 Collection of prices for the estimation of household consumption 12 Collection of prices of residential construction	111 Collection of prices of foodstuffs 112 Collection of prices of clothing and footwear

8.4. Early warning indicators

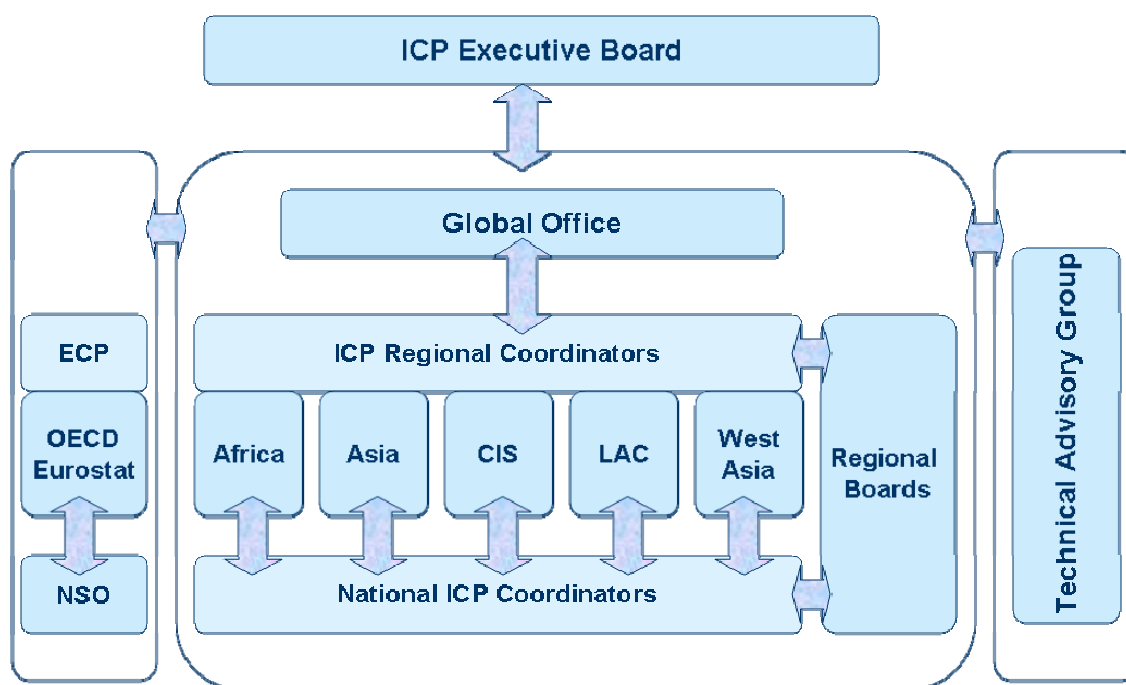
290. Early-warning indicators can (and should) cover all aspects of the ICP work. For example, in good time before a survey can begin, all the printed data collection forms must be available, translated into the local language(s). If the survey start date is, say, 10th October, it is not acceptable to have to rely on a promise that the material will be ready by, say, 6th October. This leaves too little room for margin. The material all needs to be carefully checked for errors and omissions before it is given to the supervisors and price collectors, for which several days must be allowed – and more time allowed for any corrections to be made in case of errors. All these dates need to be thought about in advance and placed in the planning diary. The diary should also show an early-warning date for each task. So in this example the RC should be warned if the data collection forms have not been received by $t-x$, where t is the planned survey start date and x is the number of days which has been decided to be the last acceptable delivery date for the forms.

291. Another example: if there is a steady loss of price collectors during the course of the survey, without sufficient replacement, the day will come when the survey will be jeopardized if no action is taken. Net losses of staff will be shown in the weekly reports, but a special early warning indicator needs to be signaled to the RC if the remedial action taken by the NC seems insufficient. The appropriate action may then be discussed between the RC and NC.

Annex 2.1. Glossary of abbreviations

ADB	Asian Development Bank
AfDB	African Development Bank
BH	Basic Heading
CIS	Commonwealth of Independent States
CPI	Consumer Price Index
ECLAC	UN Economic Commission for Latin America and the Caribbean
ESCWA	UN Economic and Social Commission for Western Asia
ESCAP	UN Economic Commission for Asia and the Pacific
EU	European Union
FAO	Food and Agriculture Organisation (UN)
GDP	Gross Domestic Product
HBS	Household Budget Survey
ICP	International Comparison Program (formerly Project)
IMF	International Monetary Fund
MDT	Multilateral Diagnostic Table
MOU	Memorandum of Understanding
NC	National Coordinator
NPISH	Non-profit Institution Serving Households
NSO	National Statistical Office
OECD	Organisation for Economic Cooperation and Development
PPP	Purchasing Power Parity
PS	Product Specification
RC	Regional Coordinator
RO	Regional Office
SNA	System of National Accounts (UN 1993)
SPD	Structured Product Description
TAG	Technical Advisory Group
UNECE	UN Economic Commission for Europe
UNSC	United Nations Statistical Commission
VAT	Value Added Tax
WB(G)	World Bank (Group)

Annex 2.2. Governance of ICP



There are three levels of organization in the ICP:

World

Regional (i.e. world regions such as Africa)

Country

At each level, structures have been set up to ensure adequate co-ordination, information flow, and agreements on responsibilities and accountabilities.

World-level Management

The overall management of the ICP is conducted in a dedicated unit which has been established in the World Bank in Washington DC.

The day-to-day management of the project is carried out by the Global Office, at the head of which is the Global Manager, Mr. Fred Vogel. The office is staffed by a group of experts and support staff. It reports to the Executive Board (see below) and prepares annual work programs and budgets for the approval of the Executive Board.

The global governance structure is assured by a group of committees, each with their own functions and inter-related responsibilities. The structure is shown in Annex 1. The top-level

committee is the ICP Council. This is a group of generally non-expert stakeholders, including donors and interested users, such as researchers, organizations and individuals engaged in the global economy, and the media. Its function is to have a general oversight over such matters as funding, timetabling, use of results and so on.

At a more technical level the ICP Executive Board is responsible for the successful implementation of the Program. It is in fact the principal decision-making and strategic body of the ICP. It is responsible for ensuring that the Program:

- Is completed on time.
- Is within budget.
- Provides high-quality PPP data for dissemination.

The Executive Board comprises about 15 members drawn to a large extent from senior officials of national statistical offices and international organizations.

The Executive Board and the Global Office are assisted by the Technical Advisory Group (TAG). This comprises a group of international experts on price indices and national accounts. It acts only on the basis of requests from the bodies mentioned and has no executive powers. The TAG will also provide an independent assessment of the ICP technical program and advise the Global Office on issues affecting the integrity of the program. It comprises nine members who meet from time to time but also have discussions via the internet.

Regional-level management

With as many as 150 participating countries, it is neither possible nor even desirable for the Global Office to deal directly with each country. Instead, the ICP is managed on a regional basis. The regions broadly correspond to the UN world regions. In addition, there is a “region” comprising those countries which regularly produce PPPs under the auspices of the joint OECD-EU program.

The regions, and their approximate country participation in ICP 2003-6, are as follows:

- Africa (51).
- Latin America (10).
- Asia (23).
- Commonwealth of Independent States (12).
- Western Asia (13).

- OECD/EU (42).

(NB: Some countries are included in more than one region).

The work of each region is managed by an ICP Regional Implementing Agency (referred to henceforth as the Regional Office), led by a Regional Coordinator. In addition, each region has a Regional Committee, which acts in a consultative or executive capacity.

Annex 2.3. Brief history of ICP

The ICP first began in 1968 under the auspices of the United Nations and the University of Pennsylvania. Its first report was published in 1975, and covered just 10 countries. This first phase was in fact a pilot exercise.

A second phase took place in 1970 and 1973, covering 16 countries. Following this, the ICP took shape as a regular exercise, planned to be quinquennial. Phase III in 1975 covered 34 countries; Phase IV (1980) covered 60 countries, Phase V (1985) 64 countries.

By this time the ICP was well established and in recognition of this the “P” of the title was changed from “Project” to “Program”. However, the Program ran into funding difficulties, and no further phases were conducted until 1993. As time went by, it seemed possible that the ICP would not be revived, despite the anxieties of its main users, especially international development agencies.

Weaknesses of previous ICP rounds

In 1998, at the request of the UN Statistical Commission, an evaluation report on the ICP was made by Jacob Ryten, formerly of Statistics Canada. His report identified a range of weaknesses in the ICP up to that time, and proposed ways of improving the ICP for the future. Chief among the criticisms were:

- Poor management and control, both as regards the overall coordination of the project and also the quality of basic data collection and editing.
- Unenthusiastic participation by countries and uneven regional performance and results.
- Lack of resources available for the global project.
- Limited credibility of results, having regard to timeliness, data quality and doubts on theoretical basis.
- Ineffective dissemination, particularly as regards accessibility and explanations.

The report introduced the concept of “data breeding”: the value of the ICP results depends on their “breeding”, that is to say having confidence in the processes used to obtain the results and in those responsible for their production.

Subsequently, the United Nations Statistical Commission, in March 2002, considered a proposal by the World Bank to proceed to a further ICP round under a greatly reorganized funding and governance system. The proposal took account of the criticisms in the Ryten report, and included in its implementation plan:

- An effective management structure at the global, regional and national levels.

- Adequate incentives at the national level for all countries to participate and to take data quality seriously.
- The mobilization of adequate resources on a continuing basis.
- Rebuilding confidence in the ICP and promoting wider acceptance and use of PPP data both at the national and international levels.
- Improving the cost effectiveness of the program, in particular by integrating ICP price collection with national price data systems, especially the collection of consumer prices.

The World Bank strategic framework was subsequently discussed and adopted by the UN Statistical Commission. The ICP 2003-2006 round is the result of that decision. It will have by far the largest country coverage to date: about 150 countries will participate.

ICP 2003-2006

As mentioned above, the latest ICP round is the result of a decision by the United Nations Statistical Commission. Unlike previous phases, however, the ICP 2003-06 is coordinated and managed by an international secretariat housed in the World Bank, in Washington DC, under the auspices of a consortium of national, regional and international agencies. Funding has been (and is still being) obtained from a variety of international sources, including the World Bank itself.

Earlier phases of the ICP have come under criticism for insufficient planning, management and co-ordination, as well as a lack of attention to the quality of the basic data, partly resulting from a lack of uniformity of processes worldwide. The ICP 2003-06 addresses these problems in a fundamental way. Great attention has been paid to the management of the program at all levels from the Global Office in Washington to the conduct of price surveys at the local level in the participating countries. Standard software (ICP ToolPack™) has been developed by the Global Office, for setting up and managing surveys, data collection, verification and data processing at the country and regional levels by the Regional Coordinators. Multi-level training courses are being carried out across the globe. A strong system of data verification has been planned. In most cases, “Memoranda of Understanding” have been signed between the World Bank and the regional implementing agencies, and between the latter and the participating countries.

Chapter III. Manual for price collectors

1. INTRODUCTION: ABOUT THE ICP

292. The International Comparison Program (ICP) is a worldwide project which will enable economists to compare the average wealth of all the 150 participating countries.

This is not an easy task, as most countries have their own national currency and it is therefore necessary to convert them into a common currency (like the US dollar) to make comparisons. The ordinary exchange rates don't take account of the fact that countries also have widely differing price levels. If you visit a foreign country you will probably notice that prices are generally higher (or lower) than in your own country. That just means that the exchange rate you get doesn't reflect the actual price levels.

The ICP calculates a special type of exchange rate known as the Purchasing Power Parity (PPP) – which is the exchange rate you would need to have in order to equalize price levels between two countries. The ICP allows us to calculate PPPs between every pair of countries in the project.

293. The ICP is a major project managed centrally by the World Bank, but with a regional structure. Your country is part of a large region (Africa, Latin America, etc). There is also a management structure in each country – but your job as a price collector is probably the most important job in the whole project, because without your work there would be no prices collected and no international comparisons.

294. What are the ICP results used for? There are many purposes, but one of the most important is for assessing the relative wealth of countries for the purposes of a fair allocation of development aid. Using ordinary exchange rates gives a distorted picture; PPPs are much more realistic.

2. COLLECTORS AND SUPERVISORS

2.1. Your role as a price collector

295. We have already stressed the fact that without prices there can be no price comparisons. Your job is to collect prices.

You may already be an experienced price collector for your country's Consumer Price Index (CPI). Or you may have been specially recruited for the ICP project. Some of this manual will be familiar to experienced CPI price collectors – but you should be aware that there are some very significant differences between the CPI and ICP price collection processes and attitudes. The manual will draw your attention to these differences in boxes in all of the relevant sections.

296. As an ICP price collector, you will mainly be doing fieldwork, noting the prices of a large number of items on sale in shops and markets. You may also be asked to collect the prices of some services (such as plumbers) by making telephone calls to them instead of visiting their premises.

297. Collecting prices is not as easy as you might think. For the ICP there is a long list of very carefully selected products, each of them very precisely defined and described. It is important to find these exact items in the shops that you will be visiting. Just imagine if you collected the price of a 250 gram jar of instant coffee but your opposite number in the next country was collecting the price of a 500 gram jar of the same coffee. It might make it look as if the price of your coffee was only half the price in the next country, whereas in reality it might be very similar.

Note for CPI price collectors: In your country you may be given some discretion in selecting the precise specifications of a product within a given range of options. This is not the case for the ICP, where very tight specifications are given and must be followed.

298. The prices you collect will of course only be a small sample of all the possible prices in the market. Your prices will represent many others. So if there is a mistake in the prices you report, that mistake may be applied not just to that single price – it will be treated as representative of all the other prices of that particular product, and could damage the accuracy of the results.

299. So it is very important to do this work carefully and accurately. You will meet with problems, for sure. But you will not be alone: all price collectors work under the guidance of a local supervisor, who will be well trained in all aspects of the ICP price collection. The supervisor is there to help you do your job well and to deal with any problems and difficulties that arise.

2.2. Requirements of a price collector

300. Let's say at the start that you do not need to be an economist or a statistician to be a good price collector! Most of all, you need to have good commonsense, a strong sense of responsibility, and be experienced in shopping. You need to have some basic arithmetic, as you will need to be able to recognize when a certain price seems to be out of line with the others, and you may need to make some small calculations, such as converting the price of

a 120 gram packet of butter to the equivalent price for 100 gram. Your handwriting should be clear enough for others to read without any doubts about what you have written.

301. The ICP rules require certain built-in methods of checking. This might, for example, mean your supervisor will sometimes return to one of your shops to confirm that the prices you reported were correct and related to the relevant products. You should not see this as casting any doubts on your conduct or ability: it is an important part of the quality-assurance process of any good survey. In addition, after the prices have been input to the computer, it will be possible for the prices which you have reported to be compared with the prices reported by other collectors. If there are some big differences for a certain product, this could mean that you – or another price collector – has mistakenly priced the wrong product, or has not fully understood the detailed specifications. These type of mistakes often occur in price collection and you will probably find that it happens to you occasionally. It is nothing to be worried about – as long as you realize what went wrong and you do what you can to ensure that it is not repeated.

302. As a price collector you will be meeting members of the public all the time. So you should act in a professional way, observing the appropriate dress code for your country and generally behaving in a way that will be courteous, polite, but firm when necessary.

303. Your contract will have made it clear that the information you collect in the course of your job must be treated as confidential. That may seem strange at first, as there is nothing secret about shop prices: anyone can walk into a shop and look at the prices. But shopkeepers are sometimes rather suspicious of official price collectors: they may be “spies” from another shop, or they may be government inspectors checking controlled prices. Shopkeepers are not legally bound to allow you to collect prices for the ICP in their shops, so you need their cooperation. It is important to let them understand that you are not going to pass their prices on to anyone else: all shops are anonymous in the ICP. Your supervisor should already have obtained permission from retailers to collect prices from their shops. In addition, you yourself will be carrying an official piece of identification and credentials from your national statistics institute. These should always be shown to the retailer, especially if they seem doubtful.

304. At the end of each working day you may be required to report back to the office with your daily results, or it may be that you will be working from home. If the latter, you must be especially careful to keep your supply of forms and your price collection reports in a safe place, so they will not be seen by anyone not entitled to see them, and safe from damage from heat, water, pets etc. Of course, accidents can always happen. If you lose some forms or they are damaged in some way, do not try to conceal this: your supervisor will be understanding and will give you advice on what to do: you may need to return to some of the shops to repeat the survey for the day concerned.

2.3. Your supervisor

305. As a price collector you will belong to a team which is organized by an ICP supervisor. Normally the supervisor is a member of the CPI team in your country/region, but there will sometimes be exceptions to this. The sizes of the teams will vary, but in every case the supervisor's job is to ensure that the ICP price collection work under his or her control is properly planned and carried out. **You should therefore expect to have close contact with your supervisor at all stages of the survey work.**

306. It will be your supervisor's job to make sure you receive all the necessary training for the work; that you receive in good time before the start of the surveys the documentation and price collection sheets; the list of retail outlets which you will be visiting to collect prices; and other aspects of the survey work.

307. Your supervisor is there to assist you and answer your questions. If you run into difficulties you should obtain advice or assistance from your supervisor. You should aim to be within reasonable telephone contact of your supervisor at all times.

308. Part of your supervisor's job is to ensure that you and the other price collectors in the team are doing the survey work in full accordance with the ICP rules, and to make whatever checks he or she thinks is necessary to be satisfied with the quality and accuracy of your work. As previously mentioned, this will from time to time involve making return visits to retail outlets to be sure that the prices you have reported relate to the target products and have been correctly identified and priced. You are not being singled out for these checks: every price collector in the world will also be subject to similar checks. It is an essential part of the quality control of the ICP results.

3. THE PRODUCT SPECIFICATION

309. The ICP is designed to compare the general price levels between all the participating countries. In every country there are many thousands, even millions, of different items on the market. It obviously isn't practicable to measure the prices of all of them, so samples must be taken. Examples of particular types of goods and services have been selected in each country. Most of them are items which are frequently sold in the country itself, but it is also necessary to price items which may not be popular in your country but which are popular in some other countries. This is because prices of the same item must be priced in several countries in order to get a full comparison between all the countries.

310. To select the items, all goods and services are divided into a number of broad categories following accepted international classifications. An example of such a category (known as a "Basic Heading") is "Fresh or chilled fruit". But this is too vague a description to be useful in pricing: we have to define a specific fruit. It would be no good if one country priced bananas and another country pineapple.

311. The final list to be priced is the result of many discussions around the world. Each item is very carefully and precisely defined, so that you and all the other price collectors will have as little difficulty as possible in identifying the required item in the shops. Each item is described on a separate sheet, which will usually contain a color photograph of the item to assist you in identifying it. An example of one of the pricing sheets is given in Annex 1. The next section provides some more information about the pricing sheet.

Note for CPI price collectors: The ICP product list will almost certainly have some products in common with the existing CPI list. Indeed, the CPI list may have had some changes made to it so as to bring the two lists more into line. But the majority of the ICP products are likely to be different from the CPI products. On the other hand, the outlets are likely to be the same, though the geographic coverage of the ICP may be wider than that of the CPI.

Where the products in the two surveys are identical, it is not of course necessary to make a second visit to the outlet: the price collected for the CPI can be used on the ICP price collection sheet.

If the products in the two surveys are only slightly different, do not be tempted to use the CPI definition for the ICP product: you must always stick to the description unless the item is unavailable (see section 5.4). On the other hand, it may be possible for you to use the ICP definition in the CPI – you should discuss this with your supervisor.

312. Chapter 4 of this Manual is a detailed collectors' field guide to the identification and pricing of products.

4. PREPARATORY WORK BEFORE THE SURVEY BEGINS

4.1. The price collection sheet

313. Each product (whether a good or a service) is precisely defined on a separate pricing sheet, together with a photograph (see Annex 1). **You should spend as much time as possible before the survey work begins familiarizing yourself with all of these pricing sheets.** Once you are out on the streets and in the shops you will not have much time for reading the forms and understanding them. You will be busy enough finding the items and noting their prices.

Later on in this manual (section 5.2) you will find detailed instructions on how to complete the price collection sheet.

4.2. Survey timetable

314. The ICP aims to compare price levels of countries all over the world. To choose just a single day – or even week – in the year would not be a good idea, as the selected day

might just happen to be a day where some countries have big sales at low prices, but not others. The resulting comparison would be false. In fact the comparison aims to use an annual average price. This means that prices must be measured at various points throughout the year. It would be too expensive to collect prices on every day in the year, so in practice the collection will be divided into four quarterly periods. Each product will be surveyed once every three months. (This is a general rule, and there are likely to be many exceptions).

315. This is one of the reasons why the products have to be so carefully defined: you will have to price the same item not just once but several times throughout the year. And it must be the same product each time. This is also one of the reasons why the retail outlets are carefully specified: the same shops or market stalls have to be re-visited at each stage of the survey.

Note for CPI price collectors: The ICP surveys aim to measure the average price level over a full year. Where the same items are being priced in the ICP and the CPI, a full set of monthly CPI prices will be used to calculate the ICP average price for the year. But for products which are on the ICP list but not the CPI list, it is too expensive to carry out monthly price surveys, and normally only quarterly surveys will be made.

316. You may be wondering what happens when a product which you have priced in one survey is no longer available in the next survey. Or when a retail outlet shuts down. These problems are discussed later on in the manual (see section 5.4).

317. Your supervisor will be discussing with you the details of the survey timetable. You should make a careful note of the days and weeks when you will be required to work: the work is done on a team basis, and all the collectors should be available during the chosen survey periods. If you will be unable to work on a survey day or week, you should let your supervisor know well in advance so that a replacement collector can be found.

4.3. Work timesheet

318. Each country may make its own arrangements for supervising the work schedule of its price collectors. So this manual does not deal with this in any detail. But you will be required to keep a record of the days on which you have worked (the date of collection will in any case be shown on the price collection sheets) – and also the hours which you have worked each day. Your supervisor may provide you with a pre-printed timesheet. If not, you should keep your own records and give them to your supervisor on request.

4.4. Retail outlets

319. Your supervisor will provide you with a list of the names and (where possible) the addresses of all the retail outlets (just called “outlets” in the rest of the manual) which you will

need to visit (or in some cases to telephone) during the surveys. You may indeed have played a part in drawing up the list.

320. There are several types of outlet. Here are just some of them:

- Hypermarket.
- Supermarket.
- Department store.
- Traditional small shop.
- Permanent market stall.
- Temporary market stall.
- Cafe, hotel, restaurant.
- Cinema, sports stadium.
- The internet.
- Mail order catalogue.

321. The choice of outlets is not random. Like the products themselves, the outlets have been carefully selected with a view to being as representative as possible of the outlets which are typical in the locality – and in the country as a whole. In many developed countries, for example, a large proportion of food is sold in big supermarkets, and it is therefore essential to collect prices in these supermarkets in order to get a true picture of prices in the country. In other countries the biggest proportion of food may be sold in market stalls, so in these countries it is more important to collect prices in the markets than in supermarkets.

322. It is also necessary to sample just a selection of all the possible outlets. If there are just one or two supermarkets in a town, which have a large turnover of food sales, then one or both of them will normally be included in the survey. But if there are several hundred markets stalls selling fresh food, it is only necessary to sample a few of them.

323. It may be that during the course of the survey year new outlets within your collection area will open and may become popular with shoppers. If they had existed at the time when the outlets were originally being chosen, they might have been included in the sample list. If you notice such new outlets – and you should keep an eye open for them – tell your supervisor, who may decide that they should join the list of selected outlets for the rest of the survey year.

324. In addition to the outlets listed above, there are a number of other sources of price data, especially those related to services. Usually these do not have a shop but operate from an office, special establishment, or from home. The type of services to consider here include:

- Electricity and gas companies.
- Transport authorities.
- Water, sewerage, refuse collection agencies.
- Schools.
- Hospitals.
- Doctors and dentists.
- Plumbers, electricians, painters etc.

325. Often it will be possible to contact such “outlets” by telephone, either from home or from the statistical office. (This is often referred to as “central collection”.) As a price collector, you may be asked to make some of these telephone surveys. But as a general rule this is likely to be done by permanent staff in the CPI section of the national or regional statistical office. So this manual does not say any more on the issue.

4.5. Preliminary visits to retail outlets

326. When you have the list of retail outlets and the detailed product specifications, you should – with the agreement of your supervisor – begin to locate them and make contact with the owners or managers. Your national statistical office will have written to all the selected outlets informing them about the ICP survey and obtaining their permission to have their prices collected. Before you make any preliminary contact with the outlet managers, you should check with your supervisor that the permission has been received. It may be that you will be given a copy of the letter and the reply from the outlet so that you can show it to the manager when you arrive.

327. You will also be given a letter of credentials, saying who you are and what you are doing. This should be with you at all times when visiting outlets, whether on a preliminary visit or for later price collection visits.

328. In your preliminary visit to the outlets, you should take with you the price collection sheets, and, if you have them, the photographs of the outlet itself. Sometimes there will be a photograph of the outside of the outlet, allowing you to identify it with certainty, and sometimes also of the interior – this will usually apply to service outlets such as restaurants

or beauty salons, where it is possible for the ICP organizers to get some idea of the general quality of the outlet.

329. Once inside an outlet, you should find the manager and introduce yourself to him, showing him the correspondence described above. Make a careful note of his name. Find out if there is another person in the outlet who the manager would like to designate as your normal contact, and, if so, try to meet this person and introduce yourself again. In a large department store you may need to introduce yourself to the manager of each separate department. Your initial impressions on the outlet staff is important, and you should pay special attention to the way in which you introduce yourself. You are not a government inspector – you are carrying out the ICP survey on behalf of the government but not for the government. The outlets have no legal obligation to cooperate with the ICP, so it is important not to annoy the outlet staff in any way. Of course, very often the same outlet will also be on the regular list of outlets surveyed for the national CPI, and a good relationship with the statistics office and the CPI collector will already have been established. It should not be difficult to maintain this relationship and cooperation for the ICP work as well. So always remember to behave in a professional way and to look presentable when you are visiting outlets. Don't smoke, eat or drink on the premises.

330. After you have introduced yourself and explained your role, you should ask the manager if you can stay and begin to identify the items in your list. Depending on the outlet and the product, there may be many items on your list which are on sale in the outlet, but it may also be the case that only one listed item is regularly sold in the outlet. Or possibly none at all. In these cases, you should first speak to the outlet manager to confirm that he does not indeed stock the items which you had hoped to find there. It may be that they are normally in stock but are temporarily out of stock. But if the items are not stocked, you should as soon as possible report the facts to your supervisor. It may be that the outlet has been incorrectly chosen, and a replacement can be made before the surveys begin.

331. You should in any case write down (either on a price collection sheet or on a separate piece of paper) the products which are sold by each outlet as you visit them for the first time. Then when you start the actual price collection, you will have a very good idea of what you expect to be able to find in the outlet and what not to spend time looking for.

332. Normally you can expect to find at least some of the listed items in the outlet, and you should take this opportunity to study them, get to recognize them so you can find them easily in other outlets, touch them, look at the labeling, and so on. You should make your own notes, adding to the description which will be on the official price collection form. You can write anything which you think will be helpful to you when you start the survey work. It could even be something like ("Normally kept on the top shelf on the left of the door"). Or it may be "The green packet is closer to the ICP specification than the red packet". Remember also that there could always be a possibility that you might have to be replaced during the survey period by another collector, for example if you are unavoidably absent at the time of

the survey. The replacement collector would need such information even more than you, if consistency is to be obtained. So, when you are making your personal notes, write them as if you were writing them for somebody else – including legible handwriting.

333. Before you leave the outlet, make a note of their opening hours so that when you start to collect prices you won't arrive at the wrong time and waste valuable time by having to return later.

Note for CPI price collectors: The instructions given above will already be familiar to you. Where possible, the same outlets will be visited for the ICP surveys as for the existing CPI surveys, so the contacts will normally have already been established, and there will be less preliminary work to do on this aspect of the ICP. There will, however, be some new products for you to price, and it may be necessary to discuss these with the outlet manager.

334. You will learn a great deal about the products on the list as you make your way round the outlets. You will learn to distinguish between products which do not conform to the ICP specifications and those which do. There will be some products which leave you in doubt about whether or not they correspond with the specifications. Don't make your own decision if you are not absolutely certain that you are right. Instead, talk to your supervisor about these cases. It is much better to take time before the surveys start to get things right than to need to correct mistakes after the survey has begun.

335. After you have been round the whole district, and you know where all the outlets are situated, you should make a route plan. Discuss this first with your supervisor, and decide how many days it is likely to take you to visit all the outlets and collect all the necessary prices. Make sure you fully understand how many prices you are expected to collect on an average day. You should organize your route sensibly to minimize the time needed for collection. Then work out a reasonable set of daily routes. If your whole district can be covered on foot or bicycle, so much the better. Otherwise, you may need to think about bus routes, bus timetables, or other methods of transport.

Draw a rough map (maybe one for each day), and mark on it the situation of every outlet which you will be visiting, and the order in which you intend to visit them. Take account of their opening hours: some may close for lunch and your route should allow for this. You could also show bus stop positions or other relevant details.

Note for CPI price collectors: The route needed to visit all the ICP outlets will often be similar or identical to the existing route which you use for the CPI. In that case, you may not need to do anything extra in respect of route maps.

336. If you have done everything in the manual so far described, you will be in a very good position to begin the price collection itself.

5. PRICE COLLECTION

5.1. Start of day

337. Before you leave your home or the office, have a checklist prepared of all the items you should take with you on the survey. The checklist may include the following items:

- Price collection sheets.
- Pocket calculator.
- Portable weighing scale (for fresh produce).
- Letters of permission and your credentials.
- (Maybe) an identity card.
- Your route plan for the day.
- Pencil (and sharpener!).
- Notepad.
- Umbrella?

5.2. Filling in the price collection sheets

338. For most products, prices vary according to where they are sold and according to several other factors. You already know that the ICP records prices from different outlet types (shops, market stalls etc) and from different outlets within the various types. Average prices have to be collected for each combination of town/outlet-type/product. For example, in the city of Erewhon, the average price of the specified pork chop will be calculated for supermarkets, butchers' shops, and market stalls. This implies that for each of these groups, several prices must be collected in order for an average to be calculated. In your own collection area, you may have two butchers' shops and three market stalls in your outlet list. You will visit each of these and obtain the price of a pork chop in each of the five outlets. When your reports have been input to the computer system, they will be combined with other collectors' reports, so that eventually there can be calculated an average supermarket price in Erewhon of pork chops, an average market stall price in Erewhon of pork chops, and so on. At a later stage, the results from Erewhon will be combined with those from the other towns in the country, and national average prices will be calculated. Finally, the results from all of the national outlet types will be averaged, giving the national average price of pork across the whole country.

This process is repeated for each period of the survey (normally four quarters in the survey year) enabling the calculation of a national average price for pork chops.

339. There is a single price collection sheet format which is being used all over the world for the ICP surveys. A specimen is shown in Annex 1, completed with fictional data.

340. **You will complete one of these forms for every price that you collect.** There will normally be several forms per outlet and several forms per product, but of course only one form for a particular product in a particular outlet.

341. Several boxes on the form are pre-printed, and do not have to be filled in. But most of the boxes have to be completed by you. You should do this in the outlet as soon as you have located the target product. It is not just the price that you record, but other identifying details as well.

342. These forms all have to be transcribed for input to the computer system (this is usually done in your national or regional statistics office). So you will need to write very clearly and legibly so that transcription errors are not made. You will be given a list by your supervisor what abbreviations you should use (such as “kg” for kilogram).

343. Decimal points are a common cause for error. Where your prices often need a decimal point (as in \$3.45) it is important to show the point very clearly. Otherwise a price of 3.45 may be entered into the computer as 345. If this happens, you will probably have more work to do yourself, as the form may come back to you for checking. Better to get it right in the first place!

344. Now to detail. Here are the explanations of what you should write in the various boxes on the price collection form.

Price Collector ID (box 111)	You will have been allocated an ID.
Outlet code (box 112)	Each outlet has been allocated a code. You should have a list of these.
Collector name	Your own name.
Outlet name	Write in the shop name or the name of the owner of a market stall.
Outlet address	Address as normally written.
Outlet type	Write in one of the standard outlet types which you have been given (supermarket, market stall etc).
Product code (box 113)	This will be pre-printed with the identifying code for each product.
Product name	Also pre-printed.
Observation date (box 114)	Write in the date when you observed the price.
Price type (Box 115)	Write in R, D, C or S as in the explanatory note

Observed Quantity (box 116)	This refers to the weight, size, number etc of the observed product (e.g. apples in kg; cigarettes by number in the packet (say 20); clothing material in m ²).
Observed UoM (box 117)	UoM is Unit of Measurement (kg, gm, litre etc). Check with supervisor for list of standard abbreviations.
Observed price (box 118)	This is the box where you write in the price of the item – using the quantity and UoM which you have declared.
Representative (box 119)	Write in Y or N. Blank indicates “don’t know”. This box is optional.
Product characteristics	These will vary according to the type of product. The specimen in Annex 1 refers to an article of clothing.
Preferred quantity	This is pre-printed. It might, for example, be 20 for cigarettes. But this particular outlet may only sell in smaller units.
Preferred UoM	This is also pre-printed. It might, for example, be kg for apples. But in your country apples may be priced in lb (pounds).
Remarks	This box is for you to write in any relevant comments. These will often refer to an unusual aspect of the price or product.

345. The form also contains space for the full product description, which will be pre-printed, and a photograph, also pre-printed.

Note to price collectors: The ICP uses a special form, different from the one you use for your national CPI. The CPI is focused on measuring price changes over time, whereas the ICP is looking at absolute price levels. So even where the products in the two surveys are identical, you will still need to fill in the ICP sheet as well as your normal CPI sheet.

5.3. How many price observations to make?

346. It is impossible to lay down a specific figure for the desirable number of price observations for products generally. The number of observations required will depend on the variability of prices for each product. Some products have a unique price regulated by the state. These vary from country to country, but, for example, many countries have a single regulated price for petrol or for electricity charges. In such cases, there is no point in collecting more than one price, since they will all be the same.

347. For products whose prices are not fixed, the general rule is that the wider the variability of prices, the more observations should be made. Price variation may occur nationally, regionally or locally. For products which are sold frequently, such as fresh food, and where there are likely to be many outlets, perhaps in close proximity, such as a market, competition will normally ensure that prices are not widely spread. Price variability may be

more due to product condition such as freshness, and price collectors should be aiming to collect the prices of the most comparable products (such as early-morning price collection for fresh fruit and vegetables). In conditions of low price variability, fewer observations will normally be needed.

348. In other cases, for example when there is less local competition, it may be found that prices of identical products may vary quite considerably. In such cases, you should aim to collect a larger number of prices, even though this may involve a geographically wider search for the appropriate outlets. However, it may be said that as a general guide, a minimum of 10 observations should be made. In large cities more observations will usually need to be made so that a reasonable coverage of the outlets is obtained. The objective is to be able to reach an average price for the product across the city as a whole.

349. It is of course highly desirable that all of the products on the ICP list should be priced in every country and in every price survey location within each country. But it has to be accepted that, particularly in the smaller locations, it may simply be impossible to find all of the required products. And in the larger locations, there may be insufficient resources (numbers of price collectors and available time) to locate and make several price observations of every product on the list. There is a trade-off between the number of products to be priced and the number of price observations for each product priced. This trade-off is related to the number of products within the Basic Heading. For example, there are 12 products within the basic Heading “Other Cereals”. Rather than pricing all 12 products with, say, only 5 observations per product, it would be better to make a judicious selection of, say, two-thirds of the 12 products and to obtain an adequate number of observations for each of them.

350. The general strategy to be adopted is a matter for discussion and agreement between the local supervisor and each price collector. Throughout the period of the survey, and especially in the early days, the supervisor should check to ensure that each collector is following the above guidelines correctly.

5.4. Some typical problems in price collection

351. What you have learned so far in this manual will get you most of the way in successfully collecting the prices of the products on your list. Most, but not all of the way. There are some situations which will leave you wondering what to do, and this section covers most of these typical problem situations.

Note to CPI price collectors: the instructions given in this section may differ from those which you follow for the CPI. Please make sure you understand and respect these differences.

Outlet is closed

352. If you have planned your route and your timetable well, you should be able to avoid having to return to an outlet if it is just closed for lunch or at the end of the day. But suppose an outlet has closed for a week's holiday, or even permanently closed? These are two different situations and need to be dealt with differently.

Temporary closure

353. In the case of an outlet being closed for a short period, such as a day, a week, or even (unusually) a month, you should retain it on your list of outlets, as you will be able to return to it when it re-opens. The general principle is that you should always try to visit the outlet during the current survey, if at all possible. If the closure is just for a day, you should return the next day. If closed for, say, a week, you should still aim to return to it if at all possible. For a longer closure, a return visit may not be practicable, especially if the outlet is in a city distant from where you live or work. In such a case (and it should be rare) you should discuss the situation with your supervisor. You may be advised to return after a few weeks; if you do so, and successfully obtain the usual prices, you should note on the price collection sheet that the date of collection was delayed by x weeks.

Permanent closure

354. If there is advance warning of this, (e.g. a notice in a shop window announcing that the shop will close in a month), you should alert your supervisor, who will decide if a new outlet should replace the old one. This would usually be a similar type of outlet not too far away from the one which is closing down. If prices have already been collected from the old outlet, it will be useful to make a special visit to both the old and the replacement outlet on the same day to see how their prices compare. Price collection forms can be completed in the usual way, and a note should be made in Box 120 explaining the circumstances.

If an overlap report such as described above cannot be done, the price collection form(s) at the time of the next survey should still have an explanatory note saying that this is a replacement outlet.

Missing products

355. A very frequent problem is for a price collector to discover that a product on the list – maybe one that has already been priced in an earlier survey – is no longer available. There are three main variants of this situation: (a) the product may be temporarily unavailable in one or more outlets (for example, because of a delayed delivery from the supplier); (b) the product becomes permanently unavailable; (c) the product has been replaced with a similar, but not identical, product.

These three cases are dealt with separately.

Product temporarily unavailable

356. This situation may be similar to the case described above where the outlet is temporarily closed. The outlet manager should be asked if he can say when the product is likely to be back in stock, and you should try to return to the outlet after that date to collect the price. If the product is still unavailable you should look for a close substitute (see next paragraph).

Product permanently unavailable

357. If it appears that the missing product is likely to be, or is definitely, no longer available, you should first check to see if the product has just been discontinued in that particular outlet but is still available in other outlets of the same type. If that is the case, just collect the price of the product in the other outlets, and make sure your supervisor is informed. But if the product seems to have become generally unavailable, you should look in the outlets to see if there are any acceptable substitute products.

358. Remembering that the ICP is all about comparing the prices of identical products in different countries, we have to be extremely careful about substituting different products for those on the target list. They must be very similar indeed. It isn't possible to give rules which will cover every individual product, but what follows are some guidelines which will help you to decide whether an alternative product is an acceptable substitute. You should **never** price a substitute without marking it clearly as such on the price collection form, both in Box 115 and in Box 120, and without consulting your supervisor.

Do not replace a representative item with a non-representative item, or vice-versa (see paragraphs 59-60).

Do not replace a branded item with a non-branded item, or an international brand with a local brand (eg do not replace a Carlsberg beer with a local beer).

Substitutes must not possess different characteristics from the target product which are likely to have a serious effect on the price. Thus, a package containing double the quantity of the target package would be unacceptable as the price is likely to be around double that of the target product. But a package size close to that of the target product would be acceptable, especially as the price can be converted pro rata to the target package size (see paragraph 53). But an oak door could not be considered as a substitute for a pine door: the effect on the price is likely to be large. On the other hand, a green pen may be a perfectly acceptable substitute for a red pen, especially if there is no difference in price.

Product replaced by similar product

359. This often happens with clothing and with durable goods where models often have only a short commercial life. A ladies' blouse may have its material changed from 90% cotton/10% rayon to 80% cotton/20% rayon, for example. Or a washing machine may have

its spin speed increased from 1000 rpm to 1100 rpm. Such changes in specification are familiar to CPI price collectors: they are usually associated with a price increase. As mentioned above, for the ICP, products should not be accepted as substitutes if their different specifications have a significant effect on the price. The problem is that on an ICP survey you may not have yet priced the target product, so you may not know what its price ever was; you are thus unable to say whether the proposed substitute item has a significantly different price from the target item. The outlet manager may be able to offer you some advice on this. Advice may also be sought – via your supervisor – from the CPI staff.

Whenever you price a substitute product, you must always check with your supervisor who will tell you if it is likely to be acceptable. The final decision will be made by your national coordinator, or even at a higher regional level.

360. If you are unsure about any of these or any other type of discount, consult your supervisor.

Uncooperative retailers

361. You are almost certain to meet some retailers (stallholders, shop managers etc) who refuse to cooperate with the survey. You should try to explain to them that you are not a “spy” from another retailer, you are not a government inspector checking the quality of their products or the prices they are charging, that their names will not appear in any publications, nor will their prices. You should tell them that their names, addresses, and all details about their products, are entirely confidential. Their only use is to aggregate them with similar data from other retailers so as to be able to compile averages. You should also, of course, show them your letter of credentials, and explain that permission to collect prices in their outlet has already been requested by the head of the national statistics office – and may, indeed, have been given.

If, after all this, the retailer still refuses to cooperate, you should not try and prolong the discussion or get into an argument. Retire gracefully, and make a full report to your supervisor. He will decide what to do.

6. PRICE COLLECTION: END OF DAY

362. At the end of each price-collecting day, there are a number of things which you should do. Just as at the start of the day, you should have a prepared checklist so you can tick off the various things as they are done. A typical checklist is likely to include:

- Have I visited all the outlets which I expected to today?
- If not, what percentage have I missed – and what were the reasons for missing them?

- Have I priced all of the products I was expecting to price?
- If not, what percentage have I missed – and what were the reasons for missing them?
- How many prices did I collect today?
- Did I fully complete all the price collection sheets (check them again)
- What were the problems which came up today? Did I find the answers myself, or should I talk to my supervisor? (Make a list of the things you need to talk to the supervisor about. When are you due to meet your supervisor next?)
- Was my route map efficient? Should I change it for the next time?
- Was I too ambitious/not ambitious enough in my daily plan? (If so, look again at tomorrow's plans and adjust it accordingly).
- Did I bring back everything I set out with? (see morning checklist).
- Have I completed my daily worksheet?
- Have I prepared tomorrow's checklist and are all tomorrow's price collection forms ready?
- Have I put all of my completed forms in a safe place/delivered them as instructed? (Make sure that all your completed forms are delivered on time).

7. AND FINALLY...

As we said at the start of this manual, your job as a price collector is absolutely essential to the whole ICP project. The work you do and the prices you collect are the raw material of the international price comparison work. We, the international organizers of the ICP, would like to thank you for participating in this very important survey, and we wish you the very best of success. If you follow the guidance in this booklet and the further advice and instructions from your supervisor, you will not go far wrong.

Good luck!

Annex 3.1. Price collection sheet

Survey Code	<code>	Survey Name	PPP	Price Scale	<units>
Price Collector ID	111	NM12	Collector Name	John Smith	
Outlet Code	112	A8CD	Outlet Name	XY STORES	
			Outlet Address	1 HIGH STREET, ANYTOWN, R-126	Outlet Type Specialist clothing shop
Product Code	113	XXXX	Product Name	Ladies' blouse	
Observation Date	114	16/11/04	<Date format text picked up from the settings is displayed here>		
Price Type	115	S	R=Regular Price, D=Discount Price, C = Coupon Price, S - Substitute Price		
Observed Quantity	116	1			
Observed UoM	117	piece	<List of allowed UOMS in uom code - uom name format>		
Observed Price	118	72			
Representative	119	y	Optional field . Allowed values are -> Y=Yes, N=No, Blank=don't know		
Product Characteristics					
Characteristic Name	Specified Value	Observed Value			
Source	Domestic	Dom. Cloth Com.	Preferred Quantity	one	
closure	zipper	Zipper	Preferred UoM	piece	
style	blouse	Blouse	product description to be pasted in		
brand	brand imitation	Chanel imitation			
fabric	woven	woven			
fiber content	cotton	Cotton 90%, viscose 10%			
lining	full lining	Full silk lining	image to be pasted in		
Remarks	120	Blouse not 100% cotton, though appearance seemed like it; it is a close st			

Annex 3.2. Glossary of terms

Basic Heading	A group of products which have similar functions (e.g. all fresh fruit)
Branded item	A product with a commercial name rather than a general name (e.g. Uncle Ben's rice, rather than just "rice")
CPI	Consumer price Index
Good	A product which has a physical form (e.g. table) (see also Service)
ICP	International Comparison Program
Multipack	A package on sale which includes several items of the same product
Outlet	A retail establishment such as a shop, supermarket, department store, mail order catalogue etc.
PPP	Purchasing Power Parity
Product	Term describing either a good or a service
Representative	Used to describe a product which is frequently purchased in a given country
Retail outlet	See "Outlet"
Sample	A selection of a group of items which is assumed to be typical of the whole population of such items
Service	A product which has no physical form (e.g. a haircut) (See also Good)
Specifications	A list of characteristics of a product which as a whole provide a complete description of it.
Substitution	Replacing a target product with another product which is very similar to the target product
UoM	Unit of Measurement (e.g. pound, kilogram, meter)
VAT	Value Added Tax

Chapter IV. The identification and pricing of products, a field guide for price collectors

1. INTRODUCTION

Chapter 3 of this manual describes the general work of price collectors. It focuses on the preparatory work which you, as a collector, need to do before the survey begins. It goes on to list the duties of the price collector during the period of the survey, including such matters as dealing with missing products or closed outlets.

This chapter focuses on the identification and pricing of products, a matter not covered in Chapter 3. It is in three sections.

- **Section 1** is concerned with the identification of products, in other words ensuring that the products which you price are the ones which are required by the ICP and which are being priced in other countries. The accuracy of the ICP depends on pricing identical or almost identical products – whether goods or services – in all countries.
- **Section 2** is concerned with various aspects of pricing of the correctly identified products, such as the treatment of taxes, discounts, tips and gratuities, delivery charges, branded and unbranded products, models, and so on.
- **Section 3** looks at issues relating to a number of particular products which tend to give rise to queries from price collectors.

One essential point is worth repeating here. Your job as a price collector is the most important job in the entire ICP project, because without your work there would be no prices collected and no international comparisons.

Note to CPI price collectors: the instructions given in this chapter may differ from those which you follow for the CPI. Please make sure you understand and respect these differences.

2. THE CORRECT IDENTIFICATION OF PRODUCTS FOR PRICING

2.1. General points

363. The price collection forms which you use for ICP price collection contain a good deal of information about each product. This is necessary for two reasons. Firstly, a lot of effort has gone into the task of selecting all the products to be included in the ICP “basket”, and each one has to be carefully described so that every country knows exactly what has to be priced. Secondly, every price collector needs to be given as much information as possible

about the products so that he or she can be sure of pricing the correct product – or, if the product cannot be found, of finding a replacement which matches the required specifications as closely as possible. Annex 1 of Chapter 3 shows a typical price collection sheet (not all countries use exactly the same layout of form, but all price collection forms contain a minimum set of information that all countries should capture. Data collection forms in some regions may contain more information than the minimum requirement established by the ICP Global Office, though the contents are broadly the same.) **You will find it useful to have a copy of one of your own price collection forms in front of you while you are reading this chapter. You will probably find that it will be useful to make some notes on your copy.**

364. If you are using the ICP ToolPack™ software you have two alternative data collection forms. You can print one page for each product. In this case the data collection form includes a detailed description of the product and a picture to help you identify the product. The other option is to print a number of products on one page. This will contain the name of the product, its code, and some of the critical information, for example, observed and preferred unit of measurement. In this case you will have to consult the ICP product catalogue for your region, which contains product images and detailed descriptions. Sometimes, the picture will be of a generic, indicative product (such as a cut of beef). Other times the picture will show a unique, tightly-specified brand or model. But in every case, the picture is intended to be an aid to identification. It does not replace the written specification, and no product should be priced only on the basis of the picture without first reading the product definition.

365. You will sometimes have difficulties in finding the exact product which is described on the list. You are encouraged to record a price even when you are not absolutely certain that the product is the correct one. It is important to carefully record the description of the product you have priced.

In some cases, you may find more than one product matching the stated specifications, and they vary in price. When this happens, you should record the prices of at least three of the matching items and note down their characteristics. (The regional data validation process will determine whether all, part, or an average of these prices will be used.)

In general, you are asked to record additional information for many of the products being priced. It is always better to provide as many comments as you can, as this will help in validating the prices reported.

366. Box 119 on the price collection sheet (which is optional) asks you to say whether the product is representative or not. **You are not asked to make your own decision on this.** Unless you have already been given a list of representative items, or the form has already been printed with this box filled in, you will not usually know whether a particular item is representative or not.

367. But what does “representative” actually mean? The answer is quite straightforward. Take fruit as an example. All countries in the world grow and eat fruit. But some types of fruit are particularly popular in certain countries, and other types in other countries. Mangoes, bananas and papayas may be very widely eaten in tropical countries, but much less so in cool countries: they are more likely to eat apples, pears and strawberries. It is easy to compare fruit prices between two neighbouring countries. But how can we compare prices between cool countries and tropical countries? The answer is that each tropical country must decide which of its fruits are typical. Since these fruits are typical, and grown domestically, they will usually be relatively cheap. Apples and pears, on the other hand, may be available in some supermarkets, but they are likely to be imported and rather expensive.

What happens in the ICP is that a tropical country prices its typical (or “representative”) tropical fruits, and also some of the “non-representative” imported fruits. Similarly, the cooler-climate countries will price their own (relatively cheap) representative fruit, and also some non-representative ones, including some of the (relatively expensive) tropical varieties. The complex formulas used in the ICP are able to deal with these situations and calculate reasonable average price comparisons between all countries.

2.2. Product quantities

368. An important part of the specification of a product is the quantity. It is obvious that for comparing international price levels it is necessary to compare the prices of the same quantities of the same products. It would clearly be misleading to price a 200g jar of coffee in one country and a 100g jar in another. So the price collection sheets will always show a “Preferred Quantity”, such as 200g. However, products sold even by the same manufacturer often have different weights according to the country of sale. A particular brand of instant coffee may be sold widely in a 200g jar, but in some countries only in a 100g jar. The “preferred quantity” is part of the product specification and if this specifies a 200g jar of instant coffee then that is the size which should be priced – if it is available in the outlets in your country. But if you can find only a 100g jar, then this should be priced – making sure that the quantity is shown clearly on the price collection form. You should never adjust the price so as to calculate a fictitious price for a 200g jar. In other words, if you cannot find the requested 200g jar, and the 100g jar costs 95 currency units, do not be tempted to show this as a price of 190 currency units for a 200g jar. Simply report the price and the quantity which you have priced. Any adjustments which need to be made will be done further up the ICP line. Your job is to collect prices which match as closely as possible the required specifications; it is not your job to make calculations or conversions (except in the case of return road transport fares – see section 4.)

369. Sometimes the price collections forms will show a range of acceptable quantities rather than a single one such as the 200g example mentioned above. For instance, a range of 175-225g may be requested. In these cases, try to find the product which falls within this preferred range. If it is a jar with 200g, then you can price this: but, as before, you must

always show the quantity as well as the price. The reason why the acceptable range is quite narrow is that a jar of 200g is regarded as a different product from a jar of, say, 500g. You will have noticed that many products become cheaper (per unit) the more you buy. So it would be wrong to convert the price of a 500g jar of coffee into the price per 200g, as it will probably give too low a figure and understate the real price. If you cannot find the product within the preferred quantity range, you can price the same product in a different weight – but, as always, showing both the quantity as well as the price.

370. A special instance of quantity problems concerns the “multipack”. This is a product which has been packed in groups of two or more, such as batteries, razor blades, light bulbs, soap etc. If the preferred quantity is a single item, but you can only find it being sold in a multipack, you should price the multipack but state clearly on the form how many of the items are included in the multipack. Do not divide the multipack price by the number of items within it, to arrive at a price for a single item: this is a job that will be done further up the ICP line. If a retailer is prepared to split open a multipack and sell the contents singly (at, say, half the price of a double pack) then it is acceptable to use the price charged for the single item.

But sometimes the stated specification is in fact a multipack, such as a pack of four batteries. It may happen that you cannot find such a pack in your outlets, but the product is sold singly or in packs of, say, six. In such a case, you should record the price of the product which most closely resembles the specification, i.e the price of a pack of six batteries. But, as always, you should state the fact that the price is for a pack of six, not four, on the price form. If you cannot find any multipacks at all, you may price the single item, but ensure that this is noted clearly on the form.

371. Fresh produce such as meat and vegetables are often sold in markets by the piece or by the box or container rather than by measured weight. However, the ICP specifications will always require a price per unit quantity such as a kilogram. For this reason, CPI price collectors frequently carry with them a small portable weighing scale so that they can actually weigh the produce and calculate a price per unit of weight required. This will probably also be necessary in the ICP surveys in many places. If you do not know the weight, do not be tempted just to guess it: you must obtain a precise measurement.

2.3. Packaging

372. As a general rule, the specification in the product description should be followed. But if only different types of packaging are available, for example paper bags or boxes instead of plastic bags specified in the description, a substitute product can be priced. In this case, you must record the packaging type on the price collection form. However, glass and tins are not generally regarded as equivalent to paper or plastic packaging, and substitution should not be made.

2.4. Branded and unbranded products

373. A brand name can refer to the name of the manufacturer or to the name given by the manufacturer to the product. An example of the first might be “Sony”, the name of a leading electronics manufacturer. An example of the second may be “Persil”, the name of a well-known brand of detergent given by its manufacturer, whose name may often not be known by the consumer (though it will usually be shown on the packaging – in this example Unilever, which, despite being a very large company, does not use the company name as a brand).

374. For the purposes of this chapter, and the ICP generally, we do not need to distinguish between these two types of branding. Both are intended to have the same effect on the consumer: the clear association of the name with an implied product quality.

375. Some brands are marketed internationally, even globally. Coca-Cola and Ford are examples of well-known international brands. Others are marketed less widely, often just within a single country, where they may be very well known by consumers in that country but hardly at all by foreign consumers.

376. But not all products have a brand associated with them. We may refer to these as “unbranded”. Unbranded products fall into two groups. In the first group are products which are sold “loose”, i.e. without any packaging to denote their manufacturer or origin. Fresh food items such as potatoes or chickens fall into this category. But there are many other “loose” products, such as nails and screws sold from a bin.

In the second group are products which are packaged but not sold with a brand name. The manufacturer’s name will usually be shown on the package, and it may even be a recognized name, but the point is that the product is not being marketed as a product of that manufacturer. It is not highlighted. Many products fall into this group, including items of clothing, hardware, and packaged food.

377. In the ICP, branded products are popular because they are relatively easy to specify (try specifying Coca-cola by reference only to the technical content of the beverage itself – and without risking any confusion with Pepsi-cola!). Internationally marketed brands are particularly popular because the identical product can then be priced in most countries. However, there are dangers in relying too much on branded products. Establishing and maintaining brand value is a costly business, and consequently well-known branded products may be more expensive than unbranded products with otherwise similar specifications. They may not always be representative of the product group to which they belong.

378. For these reasons, some ICP product specifications include branded items, while others refer to unbranded items. The name of a brand on a specification is part of the specification – but it is not the complete specification: the product must also be identified by

the characteristics in the product description. Other brands, or unbranded equivalents, are not acceptable substitutes. Only when the specified brand is unavailable may an alternative be priced, and in such cases the full description of the product, and its brand name (if any), must be recorded on the collection form.

379. Some product specifications show just a single brand. Others specify several alternative brands – usually international brands. Any of the listed brands may be priced, but the brand name should be shown on the price collection form.

380. If a product is not specified by a brand name or names, its specification is called “generic”. The product can, in principle, be any brand or unbranded, just as long as the product specifications are met. The specifications sometimes request “a well known brand”. In such cases, you should price one of the most commonly bought brands which meet the stated specifications of the product. It could be an international brand, a national brand, or a local brand.

381. Finally, the specification sometimes requests “Brand X or an equivalent brand”. If you cannot find the stated brand (“X”), you should identify a brand which appears to be of similar reputation. Brand X (unavailable) may be well-known internationally and also of high quality, but the alternative which is available may be well-known internationally but of a lower quality. This may not always be easy to judge, and you may need to seek advice on this.

382. Note that branded products are frequently faked. This tends to occur in more expensive items such as perfumes, watches etc, but also in high-volume goods such as CDs, videotapes – and even washing powder. If you find any item on sale at a price which appears to be well below the normal price, be on your guard. It may be a fake. Fakes should not be priced in the ICP, as their inclusion may distort the international price comparisons.

2.5. Model variations

383. It often happens, especially with durable goods, that the product is specified as not only a particular brand but a particular model (such as a Sony TV model 1234XYZ). Just as branded products in general tend to be easier to compare internationally, branded products with a model number may be even easier, provided that (a) the products can actually be found in many countries, and (b) the model numbers are the same regardless of the country. Often it happens that one or other of these conditions is not fulfilled.

384. One of the difficulties is that the rate of change of models in the so-called “fast-moving consumer goods” market, such as electrical and electronic items, is so fast that even in a single country it can be difficult to keep up with the changes. In the international context of the ICP, the chances of locating the same model simultaneously in many countries are small.

385. It is for these reasons that the ICP specifications never rely solely on the brand name and model number. Full technical specifications are always included as well. The brand name should always be sought, but the model number may just be a guide. In these circumstances, you will often need to consult the shopkeeper, as he or she may be able to advise you that the specified model was withdrawn from sale recently but has been replaced by a new model which is virtually identical to the specified model. In such a case, you should report the price of the new model, making sure that the specified characteristics are identical or very close to the specified ones. Any differences should be noted on the form, as well as the model number which you have priced.

386. The product specifications sometimes request the price of an “indicative” model, i.e. a particular brand and model is named, but only as a guide. Here, the important thing is to focus on the detailed specifications, and to find a product that has similar specifications. The model and brand should be recorded on the form.

2.6. Seasonal products

387. The prices of many fresh products, especially fruit and vegetables, change according to the season. Some products are available all the year round, but are more expensive when they are out of season within the country, and the market has to rely on imports. Other products are simply not available in the shops and markets when they are out of season. You should always record on the price collection form whether the product is in or out of season.

388. The prices of other products also vary according to the season. Even the costs of hotel rooms are likely to change according to whether there are more or less tourists, for example. In this case, the specifications state that the price should relate to the month of April. This is the month when in many countries the prices are likely to fall between the peak and low levels.

3. WHAT PRICE SHOULD BE RECORDED?

In Section 1 we looked at the question of identifying which products should be priced. Having made those decisions, the price collector must then face the question of what price to record on the price collection form. In many cases, the answer is obvious. Ordinary items on display on supermarket shelves or in the market stalls have just one unique price and there is no possibility of confusion. But in many cases, there are additional factors to be considered. In this section we look at the most common problems. They are: sales taxes, discounts and special offers, delivery charges, tips and gratuities.

3.1. Sales taxes

389. The general rule for ICP prices is that the price recorded should be the price actually paid or payable by the purchaser.

390. Many countries levy taxes at the point of sale, such as VAT, sales taxes and excise duties. They may be national rates, local rates, or a combination of the two. The taxes may be included in the displayed prices, or they may be added at the point of purchase, e.g. the checkout desk. As a price collector, you will be aware of the national practice, and you will be able to ensure that the price you record is the total price including all taxes.

391. If in your country or state the taxes are not included in the displayed price, you may need to carry a calculator with you to calculate the tax-inclusive price. Alternatively, you may prefer to note the tax-exclusive prices provisionally on your price collection form, and to correct them at home or at the office later, when the task may be quicker and easier. But do not forget to make these corrections.

3.2. Discounts and special offers

392. The ICP aims to compare real price levels between countries. Many goods are sold in seasonal or other sales, and the lower prices may affect the annual average price of the products concerned. So proper account must be taken of sales prices. (This may be different from your national CPI treatment, where sale prices are often ignored for the sake of continuity).

Note to CPI price collectors: Your national CPI may ignore sales and discounted prices. This is because you are looking at price trends over time. For the ICP we are interested in the actual prices which shoppers pay. So please understand and respect these different approaches.

When you note a price which has been reduced in a sale, you should mark Box 115 on the price collection form accordingly. It would be helpful if the previous price was also noted in the Comments box, if you know what this was (it is often marked on the label).

393. You will need to be careful when you note down sales prices, as it often happens that items reduced in a sale have been specially bought-in for the sale, or are slightly shop-soiled, or are close to the sell-by date, or are the end of a line. The quality of the product may not therefore match the required specification on the price collection sheet. If you consider that the sale item is significantly different from the specifications of the target item (and maybe this is why the price has been cut) you should treat the situation as if it were a missing product (see para. 5.4.5. of Chapter 3).

394. Separate from annual sales are the various types of discount which are often available to shoppers. These are often to be found more in supermarkets than other outlet

types, but they seem to be on the increase. The ways of dealing with these types of discount are as follows:

- Regular rebates should only be taken into account when they apply to the purchase of an individual product rather than all products.
- Deposits for 'money-back-bottles' should be deducted from the price.
- Loyalty rebates, i.e. accumulated points or coupons rewarded for the purchase of a certain product which can be used to purchase the same or other products at a reduced price should be disregarded.
- Discounts available for restricted groups, such as pensioners or members of an organized group such as a trade union, should be disregarded.
- "3 for the price of 2" (and similar offers) should be disregarded or treated according to the rules applied in the context of substitution (see para. 5.4.11 of Chapter 3)
- "Free x provided with each purchase of y": if this is a temporary offer, you should treat it as a sale price (see 2.2.1. and 2.2.2. above). But if you are aware that this is a more or less permanent offer, you should treat it as the first example of a multipack as described in 1.2.3. above, i.e. if the preferred quantity is a single item, but you can only find it being sold in a "three for the price of two" offer, you should price the package offer but state clearly on the form how many of the items are included in the offer.
- "Money-off" coupons attached to a certain product should be disregarded unless offered to all customers at the moment of purchase.

395. If you are unsure about any of these, or about any other type of discount, consult your supervisor.

3.3. Delivery and installation charges

396. Large and/or heavy items such as kitchen appliances, furniture, computers etc may be delivered by the retailer (or by a delivery company acting on behalf of the retailer) to the purchaser's address. The available options are:

- (a) The cost of delivery is included in the price (whether or not the purchaser requests delivery).
- (b) The cost of delivery is in addition to the price of the product.
- (c) The cost of delivery is an optional extra.
- (d) No delivery is possible by the store.

397. **The price which you record on the form should exclude delivery charges.** The exception to this rule is (a) above, where delivery is regarded as an intrinsic part of the price. In cases (b) and (c) delivery charges should be ignored.

398. As far as installation costs are concerned, these will generally be such services as the connection of washing machines to the water and drainage, the erection of dismantled furniture items, the fitting of carpets, the set-up of home computers, and so on. In most cases, these will be charged as (optional) extras. They should all be excluded from the recorded price of the product itself, since they are additional services and not part of the product specification.

3.4. Tips and gratuities

399. In the ICP product list, the bulk of items potentially subject to tips or gratuities are catering services, i.e. restaurant meals or drinks in bars. They may also cover personal services such as hairdressing and manicure, as well as transport items such as taxis.

If it is the custom to include a tip with a restaurant meal or a taxi ride, then it should be included as part of the price at the going rate of 10% or whatever the normal amount is. If tips are generally regarded as completely optional, they should be disregarded in the price.

4. SOME SPECIFIC PRODUCT PROBLEMS

400. This section looks at a number of particular products – often services – which often give rise to queries from price collectors. It is far from comprehensive, but you may find it contains some useful advice. **Always remember that if you are in doubt on any particular point, you should make a note to discuss it with your supervisor.**

401. The products covered in this section are:

- Organic food products.
- Luxury and handmade goods.
- Repair costs.
- Fish.
- Wine.
- Clothing materials.
- Water supply.
- Sewerage charges.

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- Electricity supply.
 - Gas supply.
 - Domestic heating.
 - Furniture.
 - Carpets.
 - Motor cars.
 - Motor cycles.
 - Road transport.
 - Air transport.
 - Postal services.
 - Telecommunications services.
 - Electronics items in general.
 - Computer hardware.
 - Computer software.
 - Cultural services.
 - Catering services.
 - Accommodation services.

ORGANIC FOOD PRODUCTS: In the ICP 2003-06, it has been decided to exclude all specially-labelled organic products.

LUXURY AND HANDMADE GOODS: All luxury brands and handmade products are excluded from the ICP survey. This applies not only to footwear and clothing but to all items, including furniture.

REPAIR COSTS: The specifications for all services relating to maintenance and repairs include only the cost of the labor involved. The cost of any materials is excluded – with the sole exceptions of maintenance and repair of Personal Transport Equipment and of Replacement of Wristwatch Battery.

Whenever the cost of materials is included in the price of the service, you should estimate this cost (usually with advice from the supplier) and exclude it from the price which you record on the price collection form.

FISH: Fish are notoriously difficult to identify in different countries. Hence, the price collection forms always provide the biological Latin name. Try to use this information, as well as the photograph, to identify the correct fish.

WINE: The expressions “DOC” and “AOC” are national certificates of origin in Italy and France respectively, and should indicate a certain level of quality. Many other wine-producing countries have similar quality labels. Note that the term “vintage” denotes the year in which the grapes are harvested. The existence of a stated vintage on a label is often also an indication of quality, in that cheaper and lower-quality wines will rarely display a vintage. Older vintages are frequently - but not necessarily - another indicator of quality.

CLOTHING MATERIALS: In many product specifications, the composition of the material is given as an approximate figure. An example is *“Women’s jacket/blazer – Composition: approximately 65% polyester, 35% cotton”*. The term “approximately” should be interpreted to allow a flexibility of 10% around the indicated figures. In the above example, 60% polyester/40% cotton, and 70% polyester/30% cotton would both be acceptable. However, given a choice, you should price the requested composition.

WATER SUPPLY: Prices should include the monthly charge for meter hire (where such a charge is made) and all taxes and other charges. In the Comments box you should show how the calculation is made to obtain the price of 1 cubic meter.

SEWERAGE CHARGES: Note that in order to deal with different practices in different countries, there are three specifications here. In one, Sewerage Charges are included in Water Supply (reflecting the fact that in some countries they are billed together). In the second, the Water Supply specification excludes Sewerage Charges. In the third, the Water Supply specification does not indicate whether the Sewerage Charges are included or not. You should price just one of these specifications.

ELECTRICITY SUPPLY: Prices should include the monthly charge for meter hire (where such a charge is made) and all taxes and other charges. For pricing the annual average consumption, all costs should refer to annual average consumption over the survey year. You should try to obtain the average annual price of electricity (per 1 KWH) sold to residents from utility companies directly. If that is impossible, you should price the specified annual consumption as listed in the description. For example, if the specification is for 1,200 KWH, that annual consumption should be priced. However, as the price and consumption vary from season to season, the price can be estimated as the sum of the cost of each month of the year (applying monthly consumption patterns to 1,200 annual total) divided by 1,200 to obtain the price per KWH. Only typical levels of consumption for your country should be priced.

You should specify the method of calculation used to obtain the price of 1 KWH (the pricing unit) in the Comments section of the price collection form.

GAS SUPPLY: The reference quantity for comparison is the Gigajoule (1 GJ), because gas varies in quality in different places and over time. The quality parameter is the calorific value of 1 m³, expressed in either Joule or KWH (1000 KWH = 3.6 GJ). Information about the calorific value of the locally used gas can usually be obtained from the gas provider.

The gas supply cost should refer to an annual average consumption in the survey year. You should attempt obtaining average annual price of gas (per 1 KWt or GJoule) sold to residents from utility companies directly. If that is impossible, you should price the specified annual consumption as listed in the description. For example, if the specification is for 12 GJ, that annual consumption should be priced. However, as the price and consumption vary from season to season, the price can be estimated as the sum of the cost of each month of the survey year (applying monthly consumption patterns to 12 GJ annual total) divided by 12 to obtain the price per GJ. Only typical levels of consumption for your country should be priced.

You should specify the method of calculation used to obtain the price of 1 GJ (the pricing unit) in the Comments section of the price collection form.

DOMESTIC HEATING: The price should include the basic price for energy, the cost of the meter and all other taxes and charges. All costs should refer to the annual average consumption. You should specify the method of calculation used to obtain the price of 1 MWH (the pricing unit) in the Comments section of the price collection form.

FURNITURE:

A glossary of terms for structure materials and coverings is shown below:

Furniture Boards – Structure Materials	
1. PRESS BOARD/CHIPBOARD	
<ul style="list-style-type: none"> Board of wooden chips glued together. Cheapest material, frequently used. Not easy to be profiled, mostly used for plain structures. Always coated either with artificial surfaces (melamine), or with wooden veneer. Only rarely painted or lacquered. Mostly used for bodies of kitchen, wardrobes, bookshelves, simple furniture. Also for doors, table tops, etc. 	
2. MDF (Medium Density Fibre board)	
<ul style="list-style-type: none"> Pressured wood fibre board. Same principle as press board, but finer material, higher pressure, more homogeneous, heavier. MDF board is easy to profile (bows etc.). Coated with plastic foil (melamine) or painted or stained. Used in kitchen doors, bookshelves, tables etc. 	

3. PLYWOOD
<ul style="list-style-type: none"> Manufactured board composed of a number of thin sheets of wood. Glued together under pressure with grains of the successive layers at right angles. As a result, the board can stand bending. Does not appear in the survey.
4. SOLID WOOD
<ul style="list-style-type: none"> Massive wood, naturally grown. Normally the most expensive price range. Stained, painted, oiled, waxed or lacquered. Type of wood makes price differences. Softwood such as pine or spruce comes from fast-growing trees. Hence, it is soft and is the cheapest type within this category. Hardwood examples are beech, cherry, and oak. These are slower-growing trees that offer better durability, stability and finer grain.
Surfaces, Coatings, Coverings
1. MELAMINE
<ul style="list-style-type: none"> Melamine coating normally on press board (or MDF-board). Melamine is hot-pressed on the surface of the board. Represents the cheapest price range. Melamine is used in base structures (body, corpus). It is available uni-coloured or with wood imitation surfaces (beech, oak etc.).
2. LAMINATE
<ul style="list-style-type: none"> Press board covered with laminate. Laminate is pressed on press board by high-pressure technique. Flanged rim (turned edge) possible. Different surface patterns e.g. wood imitation, marble. Different colours available. Very good moisture resistance and durability. Easy to clean.
3. WOOD VENEER
<ul style="list-style-type: none"> Thin leaf of real wood applied with glue to a furniture board. Surface is stained and lacquered. Typically hardwood like beech, oak, maple, cherry, etc.

CARPETS AND RUGS:

A glossary of terms is shown below:

1. CARPET
<ul style="list-style-type: none"> Refers to a wall-to-wall carpet, cut according to the shape of room. It covers the total floor surface. Sold in rolls per running metre. Prices are usually given in either per running metre or per m².
2. RUG
<ul style="list-style-type: none"> A rug does not cover the total floor. It has a certain size and is traded per piece. Rug classifications would include styles such as Oriental, European, etc. The quality of a rug depends on the materials used and the number of knots per square metre of surface, which may vary from 60,000 to 1,500,000. Hand-woven and oriental rugs are NOT priced in the ICP survey, as they are rather unique pieces. All item descriptions are for machine-made rugs.

MOTOR CARS: The price for cars includes the manufacturer's suggested retail price, delivery charges from factory to garage (if applicable), and taxes. If a delivery charge is not included in the car price, it should be added.

Standard Edition & Options: If all or some of the equipment specified is not included in the price for the standard edition of the car, you should price the equipment separately and enter the price on the price collection form. For example, suppose that the specification requires the price of a car with ABS, power steering, driver's air-bag and front passenger's air-bag. You find that ABS, driver's air-bag and power steering are included in the list price for the basic edition of the car - but the front passenger's air-bag is not included. In this case, you should ask for the price of the optional passenger air-bag, record it separately on the price collection form, and make a note of this in the Comments section of the form.

Glossary: Terms for Cars

Displacement (cc)	Engine displacement is defined as the total volume of air/fuel mixture that an engine can draw in during one complete engine cycle. It is normally stated in cubic centimetres (cc).
Kw	Kilowatt is a unit of power equal to 1000 watts.
Horsepower (hp)	The horsepower is used to measure the power of engines. To convert from horsepower to: Btu/min, multiply by 42.44; to foot-lbs/min, multiply by 33000; to foot-lbs/sec, multiply by 550; to kg-calories/min, multiply by 10.68; to kilowatts, multiply by .7457; to watts, multiply by 745.7.
ABS Brakes	ABS is an anti-lock braking system which prevents the wheels from locking while braking.
Power Steering	Power steering is a system for reducing the steering effort on cars by using an external power source to assist in turning the wheels.
Airbag	A passive restraint consisting of a bag that is designed to inflate upon collision and prevent passengers from pitching forward.
Air Conditioning	A device for cooling (or heating) to adjust the temperature (manually) in both directions.
Automatic Climate Control	A system where a pre-selected internal temperature is automatically maintained, regardless of the external temperature.

Car Body Types: There are five kinds of references to car body types:

- Saloon (Sedan, Limousine, Berlina): A car seating four or more with a fixed roof that is full-height up to the rear window. Normally a 4-door vehicle. Sometimes, models are sold as "saloon with hatchback" = 5 doors, but still a saloon.
- Estate Car (Station Wagon/Break): A car body style similar to a saloon car but with an extended rear cargo area, i.e. a car that is closed, has front and rear seats, and 2 or 4 doors and a separate boot (trunk).
- Hatchback: Identified by a rear door, including the rear window that opens vertically

to access a storage area not separated from the rest of the passenger compartment.

- Sports Utility Vehicle (SUV): Derivative of off-road or four-wheel drive vehicles but with car-like levels of interior comfort and drivability. These vehicles are often abbreviated as "4WD" or "4x4". Also known as "soft-roaders."
- Multi Purpose Vehicle (MPV), Compact Van: a large car or a small bus designed to be easy convertible whether to facilitate loading of goods or facilitating carrying people.

MOTORCYCLES: The price for motor cycles includes the manufacturer's suggested retail price, delivery charge from factory to shop if applicable, and taxes. If a delivery charge is not included in the car price, it should be added.

Standard Edition and Options: If all or some of the equipment specified in the description is not included in the price for the standard edition of the motorcycle, you should price the equipment separately and enter the price on the price collection form. For example, the specification asks for the price of a motorcycle with ABS brakes. You find that ABS brakes are not standard in your country. In this case, you should ask for the price of the optional ABS, record it separately on the price collection form, and make a note of this in the Comments section of the form.

ROAD TRANSPORT: All items refer to 'full price' tickets. Do not include reduced or discounted prices such as discounts for students or senior citizens.

If return tickets are not available when return fares are specified in the description, you should multiply the fare for a single one-way ticket by two, and report that price in the price collection form.

AIR TRANSPORT:

International Flights: A specific destination is not mentioned in the specification for an international flight (because the price will vary according to the geographical situation). However, at least two of the most popular international destinations from your country, which match the specification, should be priced. If there is any price differential between residents and non-residents, the price for residents should be collected. The price should be for tickets issued within the national boundary.

Lowest Fares: Flight tickets should be priced only for the lowest offered fare, including all taxes. Exclude last-minute tickets.

Booking Conditions: The booking conditions for prices for air transport are as follows:

- Tickets priced should not be "open". In other words, definite dates for both departure and return must apply.

- Airport taxes should be included.
- Either E-tickets or paper tickets may be priced, unless otherwise specified.

POSTAL SERVICES: “Express” or “Priority” refers to extra-fast delivery, which is more expensive and requires special handling. Exclude such services from the survey.

Select either a private or the nationalized postal service, whichever is the most common postal service used in your country.

TELECOMMUNICATIONS SERVICES:

The price must be collected only for the duration shown in the specification.

Glossary: Telecommunications terms

ADSL	Asymmetric Digital Subscriber Line. ADSL is a method of transmitting data over ordinary telephone lines at very high speeds. Other common acronyms are: SDSL, HDSL, VDSL or subsumed as xDSL, dependent on connection speed.
Bit, bps, Kbps, kBit/s	The computer term "bit" comes from the phrase "Binary DigIT". One bit is a single digit number (0 or 1) and is the smallest unit of computer data. It is important not to confuse bits with bytes. Both are used to measure amounts of data, but it takes eight bits to make one byte. The most common area where bits are used instead of bytes is in measuring <u>bandwidth</u> – in (kilo) bits per second.
Bit Rate, Bandwidth	This refers to how much data can be sent via a network or <u>modem</u> connection. It is usually measured in bits per second (<u>Bit/s</u> , <u>bps</u>). The greater the bandwidth, the more information that can be transferred at one time and the faster the speed of the connection.
Download	This is the process in which data are sent to a computer from another computer or server. Users get access and save or simply "pull down" data to their own computers. The opposite of this process, sending information to another computer, is called <i>uploading</i> .
GSM	Global System for Mobile communications. It is the second generation of digital technology originally developed for Europe but which now has a high share of the world market.
ISDN	Integrated Services Digital Network. Provides end-to-end digital connectivity for simultaneous transmission of voice and/or data over multiple multiplexed communications channels. ISDN services include: telephone, data, electronic mail and facsimile.
MMS	Multimedia Messaging Service; an evolution of SMS, MMS goes beyond text messaging offering various kinds of multimedia content (including images, audio and video clips).
Modem	A communication device that can be either internal or external to a computer. It allows one computer to connect to another and transfer data over telephone or cable TV lines. The original analogue dial-up modems are becoming obsolete because of their slow bit rates and are being replaced by the much faster (A)DSL and cable modems.
Off-Peak Time	Commonly: On workdays: Monday to Friday: ~ 8 p.m to 6 a.m; all of Saturdays, Sundays and public holidays (besides, some providers offer special tariffs for weekends and holidays).
Peak Time	Commonly: On workdays: Monday to Friday: ~ 6 a.m to 8 p.m.
Pre-paid Telephone Cards	Alternative method for mobile telephony: no monthly fixed costs (hence, no subscription), transparency of costs, no required period of subscription; on the other hand, higher charges for active calls; usually hardware (mobile) is not subsidized by the mobile operators; no personal registration necessary.

Provider (Internet Access)	An access provider is the remote computer system to which a PC is connected, and through which connections to the internet are made. It is a company that provides Internet access. Also called: ISP (Internet Service Provider).
Registration Fees	Fees to be paid only once, e.g. registration, first connection, etc.
SIM (card)	Subscriber Identity Module; a "smart" card containing the telephone number of the subscriber, encoded network identification details, the PIN (Personal Identification Number) and other user data such as the phone book. It can be moved from phone to phone as it contains all the key information required to activate the mobile phone.
SMS	Short Message Service; a service available on most mobile phones which permits the sending of short messages (~ 160 characters) between mobile phones, other handheld devices and, even, fixed-line phones. SMS was originally designed as part of the GSM standard, but is now available on a wide range of networks (Europe, 2003: 16 billion SMS per month; worldwide, 2004: 500 billion p.a.).

Source: Eurostat

ELECTRONIC ITEMS IN GENERAL

The following is a glossary of terms used in the electronics field generally:

Aspect Ratio	The width-to-height ratio of a television picture. Traditionally, TV pictures have an aspect ratio of 4:3. The effect is that the picture is wider than it is tall. HDTV pictures have an aspect ratio of 16:9, similar to movie pictures.
AC/DC Adaptor	A transformer that converts AC power from a wall outlet into the DC power required by an electronic device.
Bit Depth	The number of bits used to represent each pixel in an image, determining its color or tonal range. Greater bit depth allows more colors to be used in the color palette for the image. 8-bits per pixel will allow 256 colors.
CPU	The Central Processing Unit, the main processing chip in a computer. This is a programmable logic device that controls the computer's operation, and performs all instruction, logic, and mathematical processing.
Digital Zoom	Not a true zoom, in the strictest definition of the term. The digital zoom creates a "zoom" effect by electronically enlarging the middle of an image, and discarding pixels at the edge. Image quality is degraded in the process.
Dpi	Dots per inch. A measure of the image resolution of a printer, scanner, or monitor. It refers to the number of dots contained on a linear one-inch space. More dots per inch translate into higher resolution, and thus sharper images and text.
FireWire	A type of cabling technology that can move large amounts of data to and from digital devices at high speed. Some professional digital cameras and memory card readers connect to the computer over FireWire.
Flat Screen	A thin lightweight video display used in television, laptop and notebook computers. It uses liquid crystals, electroluminescence, or a similar alternative to cathode-ray tubes.
Inkjet	A printing process that produces text and images by "spraying" the paper with electrically charged droplets of ink (e.g. bubble jet). Inkjet printers are a cheaper alternative to laser printers.
LCD	Liquid Crystal Display. A display technology in which liquid crystals are activated by electric fields to produce the display image.
Long Play	A video recorder system that cuts the tape speed by half, thus doubling the playing time of cassettes.

Mini DV	Mini DV is the new preferred format for camcorder recording, highly regarded for its high audio and image quality. With up to 540 lines of horizontal resolution and minimum colour noise, Mini DV delivers a 20-percent clearer picture than analogue camcorder formats. This is all delivered on a cassette that is “mini” - 1/12th the size of a standard VHS tape.
Mono	Sound transmission or recording is performed on one channel only, rather than splitting it into two, as with “stereo” or stereophonic systems.
MP3	(MPEG Audio Layer 3) An audio compression technology that condenses CD-quality sound by a factor of 12 into a very small file, while preserving almost the original fidelity. MP3 music files are played via software or a physical player that cables to the PC for transfer. MP3 has revolutionized music distribution, since an hour of near CD-quality audio can be downloaded in five minutes from the Internet.
NTSC	National Television Standards Committee. This is the US standard for scanning television signals that has been adopted by many countries. Frames are displayed at 30 frames per second and 525 horizontal scan lines. (Other standards are PAL (Europe) and SECAM (France/former USSR).
NTSC Playback	National Television Standards Committee. Standard broadcast signal received by televisions in the United States and many other countries. If a device is designed for NTSC, it is unlikely to work with other television standards such as PAL (Europe). However, certain equipment supports both NTSC and PAL systems.
PAL	Phase Alternating Line. A colour TV standard which broadcasts 25 interlaced frames per second at 625 lines of resolution. PAL is used throughout Europe and China, and also various African, South American and Middle Eastern countries.
Pixel	Pixel is short for PIX (picture) and Element. The pixel is the smallest part of a digitized or digital image on a screen. It is essentially a dot with a certain colour and brightness value. The more pixels, the higher the picture resolution.
Pixel Pitch	The distance from the centre of one pixel to the centre of an adjacent pixel on a colour monitor. On CRTs, the dot pitch is typically from 0.28 to 0.51mm, while large presentation monitors may go up to 1.0mm. On LCD monitors, the dot pitch is typically from 0.16 to 0.29mm. The smaller the dot pitch, the crisper the image. A 0.28 dot pitch means dots are 28/100ths of a millimetre apart. A dot pitch of 0.31 or less provides a sharp image, especially on text.
RAM	Random Access Memory. This is a type of computer memory or storage whose contents can be accessed in any order. It is used for the operating system, application programs, and data.
Resolution	Refers to the image sharpness on a television screen, photographic film, etc. It can also refer to the print clarity of a document that is scanned, for instance. On screen, resolution is expressed as a matrix of dots. For example, the VGA resolution of 640x480 means 640 dots (pixels) across each of the 480 lines. Sometimes the number of colours is added to the specifications; for example, 640x480x16 or 640x480x256. The same resolution looks sharper on a small screen than a larger one.
ROM	Read Only Memory. A memory chip that permanently stores instructions and data. The contents can be accessed and read but not changed.
SCART	An audio/video connector used in consumer electronics, especially in Europe. The rectangular 21-pin SCART connector carry audio & video signals on one convenient cable. The device interconnects satellite receivers, television sets and other audiovisual equipment.
SECAM	A colour TV standard which broadcasts 25 interlaced frames per second at 625 lines of resolution. SECAM signals are similar in resolution and frequency to PAL signals. The primary difference between the two standards is in the way colour information is encoded. SECAM is used in France and Russia, plus many countries in Africa, Eastern Europe and the Middle East.

Show View	A video recorder method for recording a chosen TV program.
Stereo	A system for reproducing or broadcasting sound. The stereo or stereophonic system uses two or more independent sound channels leading to separate loudspeakers, to simulate the depth and physical separation of different sounds that would be experienced at a live performance.
TFT	Thin Film Transistor. This is an expensive technology that delivers the highest-quality liquid crystal display on laptops and digital cameras. It typically refers to active matrix screens on laptop computers. Active matrix LCD provides a sharper screen display and broader viewing angle than passive matrix.
Upgrade	To replace existing software with a newer and more powerful version.
USB	Universal Serial Bus. An interface that enables communication between a computer and low-speed external peripherals such as the keyboard, mouse, joystick, scanner, printer and telephony devices. Also, many digital cameras and memory card readers connect to the USB port on a computer. The communication is via a cable using bi-serial transmission.
WMA	Windows Media Audio. Microsoft's proprietary audio compression format, designed to compete with MP3.

COMPUTER HARDWARE: The price for desktop personal computers, as with other large items, should exclude any costs for delivery and installation. If these costs are included in the price, but detailed separately, they should be recorded separately in the price collection form. If these costs are included in the price but details are not recorded separately, this fact should be documented in the Comments section of the price collection form.

Computer retailers often offer **hardware packages** to consumers, including scanners, printers and other accessories. These packages may be continually available, and not just be structured as short-term promotional offers (which are ignored in the ICP survey). Where such peripherals and accessories are included in the price, but costs are detailed separately, these should be recorded separately. If they are included but costs are not recorded separately, details should be recorded in the Comments section of the price collection form.

COMPUTER SOFTWARE: Software included in the purchase of a computer would generally relate only to the **operating system** (e.g. Microsoft Windows XP). However, the vendor may often “bundle” additional software programs, either pre-installed or not. Where the costs of any such additional software are detailed separately, these should be recorded separately. If they are included but costs are not recorded separately, details should be recorded in the Comments section of the price collection form.

Prices should relate to sales to **consumers**, not businesses. Prices should be collected from visits to retail outlets, and not purchases from direct suppliers – except for “assembly-to-order” computer packages such as Dell.

CULTURAL SERVICES:

Tickets for a musical theatre vary according to the seat position. The price required is the average price for a particular theatre, weighted according to the number of seats available in each price category.

An example of how to calculate such an average price is shown below:

Theatre	Price of ticket	No. of seats per category	Total price per category	Weighted average price (total ticket prices / total no. of seats)
Ticket - Category 1	100	50	5000	(5000+8000+12000+10000+1000) = 36000 divided by (50+100+200+200+50)= 600
Ticket - Category 2	80	100	8000	
Ticket - Category 3	60	200	12000	
Ticket - Category 4	50	200	10000	
Ticket - Category 5	20	50	1000	

Source: Eurostat

CATERING SERVICES:

Product Types: Two types of products are specified:

Meals served at establishments such as restaurants, coffee houseS, self- service restaurants, fast-food chains and street food stalls.

Drinks consumed in bars, pubs, restaurants, etc.

Restaurant Meals: These meals are considered as a service rather than a good. Therefore, small differences in the size of portions are not important. Names of the dishes and pictures provided in the catalogue are indicative only. The main ingredients are more important in identifying the product.

Restaurant Categories: For detailed descriptions of categories of restaurants used in the description, refer to the table below:

	Basic	Modest	Middle Class
Setting/ Ambience	Very basic with limited dining area and very basic eating utensils.	Ordinary décor, basic glassware and cutlery, often small tables close together; no fresh table cloth for each guest.	Special effort on design, can be casual or even sophisticated; fresh table cloth; comfortable seats; quality cutlery set out on table for each person; climate controlled room.
Type of Food	Little variety available.	Mainly plain and "every-day" (home-kitchen) dishes; simple menus; popular food; local eatery.	Menu with delicate (creative/tasteful/savoury) dishes; "a la carte" available; availability of a variety of freshly prepared desserts.
Beverages (alcoholic drinks if typically consumed)	Little variety available.	Alcoholic drinks served; limited wine list if any (e.g. table wine from jugs).	Good selection of beverages; assortment of alcoholic drinks; balanced wine list, including higher quality wines.
Service	No service provided.	No personalized service expected or limited waiter services.	Personalized service expected.

Drinks: In some countries, there is a price difference between drinks served at a bar counter and at a table. Therefore the description specifies where the drink is served. “Service: Table” means the drink is served at the table by a waiter. Where price differences do not exist, the same prices should be recorded for both items.

ACCOMMODATION SERVICES:

Location: Central. This means that the accommodation is located at or in the vicinity of the centre of a city. The price to be collected is for a room for 1 night.

The following table shows the types of service to be expected from hotels in 5 different categories. Note that the number of “stars” accorded to a hotel may not adequately reflect the categorization below, as each country or hotel classifier has its own standards.

Table 4.1. Hotel categories

Hotel Categories	Category 1	Category 2	Category 3	Category 4	Category 5
Category	First Class (excludes Luxury)	Middle Class	Limited Service: Upper Level	Limited Services: Lower Level	"Bed & Breakfast"
Nature of Accommodation	Hotel	Hotel	Hotel	Hotel (Guestho/ Pension)	In private home
In-Room Facilities					
Air conditioning	X	(X)	(X)		
Toilet	X	X	X	(X)	(X)*
Bathroom	X	X	X	(X)	(X)*
Hairdryer	X	X	(X)		
Minibar	X	(X)			
Satellite/cable television	X	X	(X)		(X)*
Telephone	X	X	(X)	(X)	(X)
Services					
Reception/information 24/24	X	limited	limited	limited	
Laundry (within 24h)	X				
Babysitting service	X				
E-mail/fax facilities	X	(X)			
Private meeting room	X				
Lift to all floors	X	X	(X)	(X)	
Private car parking	X	(X)	(X)		(X)
Room service	X	X			
Bell boy	X				
Transportation	(X)				
Other Facilities					
A la carte breakfast (in the room)	X				
Buffet breakfast	X	X	X		(X)
Continental breakfast		(X)	(X)	(X)**	X
Bar	X	X			
Lounge	X	X	X		
High-class restaurant	X				
Restaurant	X	X			
Gym/swimming pool/sauna	X				

Source: Eurostat

X Indicates when a service is provided

(X) Indicates when a service is optional

(X)* Indicates when a service is optional, and not always for exclusive use

(X)** Indicates when a service is optional, and includes modest breakfast

CHAPITRE V. GUIDELINES ON THE ESTIMATION OF expenditure weights

1. INTRODUCTION

402. The calculation of purchasing power parities (PPP) requires two sets of data: (1) national annual averages of prices of comparable products and (2) national GDP expenditures broken down into about 155 detailed components called Basic Headings (BH). PPPs are first computed for the basic headings and these are then aggregated using expenditure weights. GDP expenditure weights reflect national preferences: they show how a nation chooses to spend its resources. In fact, in ICP, PPP is a means to an end; the main goal is to calculate GDP and its main aggregates, converted to a common “currency” by PPP.

403. It is therefore extremely important that the weights accurately reflect the expenditure patterns of every country. It is understood that not all countries are equipped to make accurate estimates of expenditure for all 155 basic headings. The ICP results will be published only at the level of a much smaller number of aggregates. The weights should be reliable at this level, while some degree of approximation can be expected at the more detailed levels.

404. Since PPPs are computed for groups of countries, and ultimately all 150 or so global participants, any weakness of data in one country will have a corrupting effect on the results of all countries. Therefore, all participating countries must ensure, individually and collectively, that international standards and practices are meticulously followed. These guidelines are designed to assist countries in achieving this objective.

405. Country experts may wish to consult other related documents such as Chapter 3 of the ICP Handbook (see ICP website), and recently issued questionnaire on metadata.

406. The process of obtaining all of the necessary expenditure weights for the ICP may be described as three stages:

Make a thorough review of your national GDP coverage in terms of its consistency with SNA-93.

Check that the methods of valuation of all the main categories of expenditure conform with the methods required in SNA-93.

Ensure that, as far as practicable, your country's GDP data can be allocated to all of the headings in the ICP expenditure classification.

In brief: you will need to check for: coverage, valuation and classification.

407. In the course of this review, most, if not all, countries will realize that there are some areas where their existing methods do not conform to the SNA or ICP standards. Be assured that the ICP does not seek to alter any country's existing official GDP estimates. However, if in the course of following these guidelines it becomes apparent that certain entries are suspect and need to be revised, it is expected that countries will take steps to incorporate these revisions in subsequent published versions. In order to do this in a consistent and orderly manner, you should maintain a list of all of the sources of errors and omissions and make a rough estimate of the magnitude of the error or omission (plus or minus) against each heading.

408. This chapter is structured in line with the three stages described above. The section on valuation methods is divided into the seven main aggregates which form the backbone of the ICP classification:

- Individual consumption expenditure by households.
- Individual consumption expenditure by NPISHs (non-profit institutions serving households).
- Individual consumption expenditure by government.
- Collective consumption expenditure by government.
- Gross fixed capital formation.
- Changes in inventories and net acquisitions of valuables.
- Balance of exports and imports.

409. Readers seeking to know more about the definition of these aggregates should consult the SNA-93 and the ICP Handbook Chapter 3.

The chapter also includes a section covering the checks that need to be made on your weights data before submitting the results to the regional coordinator.

Annex 5.2. is a "Metadata Questionnaire" which provides a useful checklist for national coordinators to summarize all of the major points concerning GDP coverage, classification and methodological issues which are mentioned in this chapter. You are strongly encouraged to complete this questionnaire. It will be useful not only for the current round but for reference at the start of the next ICP round. It will be a valuable reference for your Regional Office too.

2. CHECKING THE COVERAGE OF GDP

2.1. General issues

410. If your GDP methodology conforms generally to SNA-93 standards, you are not likely to have many difficulties regarding coverage and valuation, since the ICP is also based on SNA-93. But if your country is in the process of adapting to SNA-93 – or has not yet begun such adaptation – you will need to check carefully under each of the headings discussed in this chapter to see what extra work will be necessary to make such changes as are practicable for the purposes of conforming with ICP requirements.

411. The following checklist covers the main general issues on coverage matters.

Do your GDP estimates distinguish between:

- Individual consumption expenditure by government (mainly in health and education but also in housing, recreation and culture, and social protection), and
- Collective consumption expenditure by government (mainly in general public services, defense, public order and safety, economic and social affairs and environment protection).

How is household consumption estimated?:

- As a residual.
- Direct estimation.

Do your estimates of total GDP cover:

- Crops and livestock for own consumption?
- Legal underground activities?
 - Open market and street vendors.
 - Cooked food and drink sold by street vendors.
 - Plumbers, builders, electricians etc working informally.
 - Taxi/rickshaw/tuk-tuk, moto-taxi, minibuses etc.
 - Repairs of cars, motor bikes, bicycles.
 - Repairs of other goods.
 - Health and personal services provided informally.
- Significant illegal activities?
 - Prostitution, drugs, stolen goods.

All types of Government expenditure? – including:

- Defense expenditures.

-
- Expenditures on behalf of the Head of State (security, accommodation, transport etc.).
 - State, regional and local governments.

Within capital formation:

- Software development?
- Mineral exploration?

Within changes in inventories:

- Work in progress, construction, shipbuilding, etc.
- Stocks of raw material, finished products, goods for resale, goods stored by government for strategic reserves such as food, fuel.

Within non-profit institutions serving households (NPISHs):

- Religious organizations, mosques, churches, etc.
- Trade unions, political parties.
- International charitable organizations, such as Red Cross/Crescent, OXFAM.

Within international trade:

- Smuggled goods?
- Shuttle trade?

412. Note that it is common practice to make approximations based on whatever information may be available for the following headings:

- Valuables, patented entities.
- NPISHs.
- Work in progress in agriculture.
- Financial services indirectly measured (FISIM).
- Illegal activities.

413. Note also that for changes in inventories estimates may not be comprehensive but should cover important items such as food and fuel stocks, stocks of mining companies, large retailers, etc.

3. THE SOURCES AND VALUATION OF EXPENDITURES

3.1. Basic data sources used to estimate the published figures

414. Determine the methods used in making your national GDP estimates. In most developing countries, household consumption is estimated as a residual. GDP total is obtained by estimating value added by industry of origin. From the total thus obtained, government consumption, gross fixed capital formation, changes in inventory, and net exports are deducted. What is left is taken as the estimate of household consumption. Some countries may compile it directly. Whatever the method used, you will need the original data source to breakdown the total into details.

415. Note that under SNA-93, household consumption consists of three components:

- Individual consumption expenditure by households,
- Individual consumption expenditure by non-profit institutions serving households (NPISH), and
- Individual consumption expenditure by government.

416. This classification distinguishes between who incur the expenditure and those who benefit from it. The entire expenditure of NPISHs, by definition, benefits households. Parts of government expenditure also go directly to households. Thus we need to separate individual consumption expenditure by government from total government expenditure; what remains is treated as collective consumption expenditure by government.

417. The approach advised is to start with individual consumption expenditure by households. It is by far the largest component of GDP expenditure comprising 110 out of the total of 155 Basic Headings. It is also likely to be the easiest main aggregate to break down, since most countries have well defined data sources to help in the process.

418. In general, if you are having difficulty finding reliable sources of weights, you still have to make the estimates; the regional coordinator's office cannot and will not do it for you. You may wish to make intelligent guesses in cooperation with your colleagues. You may call experts to help you make the estimates. You may even use the distribution of another country in the region which has a similar market structure to your own. Always remember that every Basic Heading should have a weight (except when it is genuinely zero, for instance alcohol consumption in some Islamic countries). Bear in mind also that not all data will be published at the Basic Heading level, so you have a little latitude in estimating the detail.

419. If you make a catalogue of your problems and possible solutions, it may help you shop for technical assistance to fix the problems and be ready for the next round of ICP surveys.

3.2. Individual consumption expenditure by households

420. The main points to note here are the following:

Valuation should be at purchasers' prices, i.e. prices actually paid on the open market. They should therefore include any retail or sales taxes (such as VAT) and be net of discounts.

Goods produced for own consumption – such as items of food and drink – should be valued at realistic market prices, less any sales taxes which would be levied on them if they were actually sold.

Goods and services provided by an employer as income-in-kind should be valued at purchasers' prices if they were purchased by the employer or at producer prices if the employer produced them.

For owner-occupied housing, equivalent rents should be imputed, either at market prices or at cost of production, plus the cost of regular maintenance and insurance.

The coverage may be based on either the “national” basis (i.e. expenditures by resident households both in the domestic territory and abroad) or on the “domestic” basis (i.e. expenditures on the domestic territory by both residents and non-residents). You should make it clear when reporting your results which principle is used.

The use of Household Budget Survey (HBS) data

The source most commonly used for household consumption weights are the weights obtained from the Household Budget Survey (often referred to as household (or family) expenditure surveys). These are occasional or regular surveys among a sample of private households aimed at finding out the proportions of households' total expenditure on various groupings of expenditure items. They are usually combined with more detailed information on food consumption, and generally include information on household composition and household income.

421. Most countries have a program of making these surveys every 5 years or so. More recent surveys are based on a UN classification system, COICOP (Classification of Individual Consumption according to Purpose). Since the ICP classification of household consumption is also based on COICOP, the survey data are easily mapped into ICP basic headings.

422. HBS results underpin most countries' national accounts estimates of final household consumption. However, it is usually necessary for adjustments to be made to the raw results of the HBS surveys, as it is common for certain headings of expenditure to be poorly estimated or biased upwards or downwards. HBS estimates of alcohol and tobacco consumption, for example, are frequently underestimated. A general problem is that the response rate tends to vary according to household income, so that the higher income

households (together with their typical expenditure patterns) tend to be under-represented. This may have the effect of underestimating expenditure on such as items as durable, motor cars etc.

423. You will therefore need to check that the national accounts estimates of household consumption, when based on HBS data, have been adjusted to take account of likely errors such as those mentioned above.

In detail, the following steps are needed in order for you to be able to use household expenditure data:

Use the most recent survey. If it is more than 10 years old, you will need to make it up-to-date by adjustments to survey data reflecting changes in demography (if there is redistribution of population between groups with distinct consumption patterns) or expenditure patterns (such as increased expenditures on computers, cell phones, etc.)

Ensure that the survey covers all expenditures of the entire population. If the questionnaire omits certain expenditures, for instance housing, it has to be dealt with separately. If it covers only a part of the country, such as the capital city or an income group such as factory workers, you would need to adjust survey data to reflect the entire nation. If the coverage (and/or response) excludes or underestimates segments of the population such as urban or wealthier households, corrections should be made where possible.

Check for consistency of survey and official estimates. Find out the sample size of the survey. Compute a ratio of total population to the sample population. Multiply total expenditure in the sample by this ratio to obtain total national expenditure. For instance, if the survey covers 5% of the population, then multiply the total expenditure reported in the survey by 20 to obtain total national expenditure. Compare this total with the household consumption expenditure reported in the official national accounts for the survey year. The survey total should come reasonably close to the national accounts total, say 80% or more (if the survey encompasses all expenditures). If it is less than 80 percent or more than 100 percent of the corresponding national accounts total, alert the national accounts department to the possibility of an error in their estimates.

Map the survey data into the ICP expenditure classification table. You may need to add up expenditures of individual items to obtain totals for ICP Basic Headings. Consult the items list for your region to find out which item goes into which Basic Heading. Conversely, you may need to break up a survey entry and assign parts to different basic headings. For instance, the HBS results may provide a figure for expenditure on “meat”, whereas you need to enter values for beef, pork, lamb, poultry and other meat. Be aware that the list of items or groups of items in the survey may not exactly follow the order of the ICP list; you may have to go back and forth to complete the mapping. Every entry in the survey must find a place in the ICP list.

Set up a concordance table. If the HBS is not based on COICOP, or if the order of presentation in the survey does not match the ICP order, you will need to set up a concordance table showing to which Basic Heading each item goes. The concordance table can then be sorted by Basic Headings.

Compute weights. Add up the expenditures entered in the ICP table to make sure the total matches the survey total. Then divide each entry by the total to obtain percentage weights. These weights should be used until the results of a newer survey become available.

Obtain basic heading level estimates. Multiply the weights by the total household consumption figure from the national accounts of the appropriate year to obtain the estimates of the basic heading weights within household consumption.

Other data sources for household consumption weights.

424. If household expenditure surveys are not available or not usable, then the process becomes more complicated. You have to build up the weights item by item, for instance by food and non-food, and non-food by clothing, housing, household goods and services, health, education, transportation, etc. You may need several iterations to come to a satisfactory solution. So it is recommended to start early and have the estimates reviewed by knowledgeable colleagues. The following possible sources of weights data are suggested:

- Consumer price index (CPI) weights.
- Nutrition surveys.
- FAO data on food balances.
- Retail trade statistics.
- Production statistics of agriculture and industry.
- Import and export statistics.
- VAT or sales tax statistics.
- Excise data.
- Information on sales of tobacco, alcohol, narcotics.
- Motor vehicles registration data.
- Sales by utility companies.

The weights used in your country's consumer price index (CPI) may be a good alternative to HBS weights. Although these weights are usually also derived from HBS data they may be out-of-date and limited in scope, such as referring to a capital city, or urban workers. But you may use these if nothing better is available.

For food, you may find information in retail trade statistics, production statistics, value added tax (VAT) statistics, or UN Food and Agriculture Organization (FAO) food balance sheets. For major agricultural products these show total supply as opening stock plus total production and imports. From this can be deducted: feed, seed, waste, exports and additions to stocks. What remains is “apparent consumption”, which can be valued at appropriate prices. Nutrition surveys may provide proportions spent on more detailed components.

425. For non-food consumption, you may need to consult a wider range of sources, including sales data of tobacco, alcohol and narcotics, information from the government department responsible for the registration of motor vehicles, sales by utility companies (gas, electricity, telephone, water etc), production and trade statistics, export/import data, as well as retail sales and tax statistics. If your country has a supply and use table or an input-output table, you may be able to use them to check for consistency of the estimates.

3.3. Individual consumption expenditure by non-profit institutions serving households (NPISHs)

426. NPISHs are institutional units set up by a group of households to provide services (occasionally goods) on a non-profit basis. They include such organizations as political parties, religious organizations, charities, sporting clubs, etc. Since they are for the benefit of their members, their expenditures are defined as individual consumption expenditure. NPISHs may be domestically funded (e.g. sports clubs) or foreign funded (e.g. Oxfam). If externally funded NPISHs are expected to operate in a country for more than a year, they become resident NPISHs for national accounts (and ICP) purposes.

427. As far as valuation is concerned, NPISH expenditures are valued at the cost of production, less any payments received from household for their services. For example, a sports club will have expenditures of many different kinds, but is likely to be financed by subscriptions from members, receipts from tickets for any events it may stage, and so on.

428. For sources of weights, The Ministry of Social Welfare or a similar type of government department should have a list of the institutions concerned. They usually publish audited accounts. Consider all their expenditures, less what they charge households for their services, as individual consumption expenditure. There is a good chance that your national accounts department already has this information, which you should be able to use as it stands.

3.4. Individual consumption expenditure by government.

429. Individual consumption expenditure by government is expenditure which is made for the benefit of individual households, such as expenditure on primary schools, which benefits those children who attend them but not the population in general.

430. As to valuation, goods and services purchased by government and then passed on to households should be valued at purchasers' prices (i.e. market prices including non-deductible taxes such as VAT). The provision to households of medicines and medical services for outpatients are examples of such expenditure.

431. Government budgets are the source of this information. Treat government expenditures in housing, health, recreation and culture, education and social welfare as individual consumption. Be sure to include all levels of government, regional and local as well as national.

3.5. Collective consumption expenditure by government

432. Collective consumption expenditure by government is expenditure which is made for the benefit of the community at large, such as expenditure on police services, which is not aimed at individual households but the public in general.

433. Valuation should be the cost of production of the goods and services concerned.

434. From total government consumption expenditure, deduct that part which is allocated to individual consumption expenditure (3.3 above). What remains, such as expenditure on defence, police, administration of justice, external affairs, etc., is collective consumption expenditure of government. Again, the sources are budgets and your national accounts department should have the data.

3.6. Gross Fixed Capital Formation (GFCF)

435. GFCF is valued at purchasers' prices, except for own-account production of fixed capital, which should be valued at the cost of production.

436. As far as data sources are concerned, it may well be that your national accounts show only the total figure for capital formation. If this is the case, you will need to split the total into: equipment goods, construction and other products. The national accounts department may have a commodity use table which can yield helpful data. Data on GFCF may be obtained also from investment surveys of enterprises. Data on imported machinery can be obtained from import statistics.

Equipment goods

437. Fortunately, from the point of view of data collection, these items are mostly imported or produced by large-scale manufacturers. In most developing countries where equipment goods are imported, foreign trade statistics are the best source of information. In the more developed countries, which produce these items, production statistics should have the information required.

Your national accounts department may well have used a survey of enterprises or the “commodity flow” method to compile the information for private, non-governmental investment activity. The commodity flow method estimates total supply of investment goods, domestically produced or imported. For government investment, the usual source is government accounts.

438. From these sources, it should be possible to classify items by various basic headings such as fabricated metal products, general and special purpose machinery, electrical and optical equipment, motor vehicles and other transport equipment, etc. In order to identify which item is allocated to which basic heading, consult the product list for your region.

Construction

439. The best source of construction data is usually the public authority that grants licences for construction. Data for civil engineering works should be available from the government public works department. Where only square footage/meterage of construction is indicated, you can estimate value by applying a per-square-foot/meter cost by types of construction. Engineering firms (or their trade associations) and government authorities should have the information.

440. In countries, where owner-occupied dwellings are constructed by owners without license, it may be necessary to estimate construction by the quantity of construction materials used, such as bricks, cement or timber, and applying to them technological factors established by the industry for different types of construction. In any event, your national accounts department is likely to have used the available information to compile construction data. The same materials should help you break the total down to the underlying basic headings.

441. Again, you may need several iterations before the results can be considered satisfactory.

3.7. Changes in inventories (stocks) and net acquisitions of valuables

442. Bear in mind that it is only physical changes, and not changes in values caused by price changes, that are covered under changes in inventories. This is done by valuing the physical quantities of inventories at the beginning and end of the relevant year using a single set of prices. The prices should be either the annual average prices, or failing that, the mid-year average prices.

443. You should be able to use the data as shown in the national accounts. Enquire from your national accounts department if net acquisitions of valuables are included or not. If not, it may be that the item is insignificant and can be disregarded. Make sure that this is recorded for future use.

3.8. Net balance of trade (exports less imports)

Exports

444. Exports should be valued at the frontier of the exporting country, i.e. at free-on-board (f.o.b.) prices.

Imports

445. Imports should be valued at the frontier of the importing country at cost, insurance and freight (c.i.f.) prices.

4. CLASSIFICATION OF EXPENDITURES AND ALLOCATION TO

HEADINGS

446. The expenditure classification for the ICP is structured by type of final expenditure, with GDP broken down into 7 Main Aggregates. These Main Aggregates are subsequently divided into 26 Analytical Categories, which are then split into 61 Groups. The Groups are broken down into 126 Classes and 155 Basic Headings as shown in Table 5.1 below. (See Annex 5.1. for a complete list of the Basic Headings and their various levels of aggregation.)

Table 5.1. Main Aggregates, Categories, Groups, Classes and Basic Headings by Main Aggregates.

	Cate- gories	Groups	Clas ses	Basic Hea- dings
11.00 Individual consumption expenditure by households	13	43	90	110
- .01 Food and non-alcoholic beverages		2	11	29
- .02 Alcoholic beverages, tobacco and narcotics		3	5	5
- .03 Clothing and footwear		2	5	5
- .04 Housing, water, electricity, gas and other fuels		4	7	7
- .05 Furnishings, household equipment and maintenance		6	12	13
- .06 Health		3	7	7
- .07 Transport		3	13	13
- .08 Communication		3	3	3
- .09 Recreation and culture		6	13	13
- .10 Education		1	1	1
- .11 Restaurants and hotels		2	2	2
- .12 Miscellaneous goods and services		7	10	10
- .13 Net purchases abroad		1	1	2
12.00 Individual consumption expenditure by NPISHs	1	1	1	1
13.00 Individual consumption expenditure by government	5	7	16	21
- .01 Housing		1	1	1
- .02 Health		2	7	12
- .03 Recreation and culture		1	1	1
- .04 Education		2	6	6
- .05 Social protection		1	1	1
14.00 Collective consumption expenditure by government	1	1	5	5
15.00 Gross fixed capital formation	3	6	11	12
- .01 Machinery and equipment		2	7	8
- .02 Construction		3	3	3
- .03 Other products		1	1	1
16.00 Change in inventories and acquisitions less disposals of valuables	2	2	2	4
- .01 Change of inventories		1	1	2
- .02 Acquisitions less disposals of valuables		1	1	2
18.00 Balance of exports and imports	1	1	1	2
GDP	26	61	126	155

Source: ICP Handbook, Ch.3.

447. Most countries publish GDP by expenditure under a handful of major headings. You need to ensure that the published figures are as good as they can be because in ICP, the strategy to obtain 155 Basic Headings of expenditure is to accept these as control totals and to break them down into Main Aggregates, Categories, Groups, Classes and Basic Headings under each of these major headings.

448. For each control total, you will use all available information to compute percentage shares of the basic headings comprising the total, and apply these shares to the control total to obtain estimates of expenditures for the basic headings.

5. REVIEW OF DATA PRIOR TO SUBMISSION TO REGIONAL OFFICE

449. Before the weights data are finally submitted to the Regional Office, a number of general checks need to be made. These are summarized below.

Do the overall estimates and major distributions conform to SNA-93, in coverage, concept and valuation?

If not, identify the areas which do not conform and decide if any adjustment is necessary or feasible.

If necessary and feasible, make the adjustments to make the current data as good as they can be. Keep notes of all adjustments made.

Note those topics in need of permanent solutions. Develop a program of capacity-building so as to resolve all problems ahead of the next round of ICP. If necessary, seek technical assistance.

Do the numbers add up and are they consistent with published figures?

Are there any zero basic headings? If so, are they truly zero, or simply missing? If missing, make estimates to fill the gaps. Keep notes of how the estimates are made.

Usually control totals provided by published national accounts are broken down using weights developed from some data source. How reliable/recent are the data sources that were used to estimate the details? Were consistency checks made on survey data? For instance, HBS surveys are used to develop these weights. Does the HBS cover all of the population or just a segment of it? Do the data relate to the most recent HBS? Are survey totals consistent with published national accounts?

Do the expenditure weights of basic headings and their higher level aggregations make conventional economic sense?

How do they compare with neighbouring countries at a similar level of development and expenditure pattern? It can sometimes be useful to find one or two countries whose estimates are considered most reliable and use them to judge the reliability of others.

450. If the review reveals significant errors or omissions, list the sources of the errors and omissions, make rough estimates of the magnitude against each heading in case you wish

to or need to revise your current estimates but make sure to take steps to incorporate them in your next round of compiling GDP accounts.

Annex 5.1. ICP system of classification of expenditure on GDP

°	Code	Description	Count BHs
1	100000	GROSS DOMESTIC PRODUCT	155
2	110000	FINAL CONSUMPTION EXPENDITURE BY HOUSEHOLDS	110
3	110100	FOOD AND NON-ALCOHOLIC BEVERAGES	29
4	110110	Food	27
5	110111	Bread and cereals	5
6	110111.1	Rice	1
7	110111.2	Other cereals, flour and other cereal products	1
8	110111.3	Bread	1
9	110111.4	Other bakery products	1
10	110111.5	Pasta products	1
11	110112	Meat	5
12	110112.1	Beef and Veal	1
13	110112.2	Pork	1
14	110112.3	Lamb, mutton and goat	1
15	110112.4	Poultry	1
16	110112.5*	Other meats and meat preparations	1
17	110113	Fish	2
18	110113.1	Fresh, chilled or frozen fish and seafood	1
19	110113.2	Preserved or processed fish and seafood	1
20	110114	Milk, cheese and eggs	4
21	110114.1	Fresh milk	1
22	110114.2	Preserved milk and other milk products	1
23	110114.3	Cheese	1
24	110114.4	Eggs and egg-based products	1
25	110115	Oils and fats	2
26	110115.1*	Butter and Margarine	1
27	110115.3	Other edible oils and fats	1
28	110116	Fruit	2
29	110116.1	Fresh or chilled fruit	1
30	110116.2	Frozen, preserved or processed fruit and fruit-based products	1
31	110117	Vegetables	3
32	110117.1	Fresh or chilled vegetables other than potatoes	1
33	110117.2	Fresh or chilled potatoes	1
34	110117.3	Frozen, preserved or processed vegetables and vegetable-based products	1
35	110118	Sugar, jam, honey, chocolate and confectionery	3
36	110118.1	Sugar	1
37	110118.2	Jams, marmalades and honey	1
38	110118.3*	Confectionery, chocolate and ice cream	1
39	110119	Food products n.e.c.	1
40	110119.1	Food products n.e.c.	1
41	110120	Non-alcoholic beverages	2
42	110121	Coffee, tea and cocoa	1
43	110121.1	Coffee, tea and cocoa	1
44	110122	Mineral waters, soft drinks, fruit and vegetable juices	1
45	110122.1*	Mineral waters, soft drinks, fruit and vegetable juices	1
46	110200	ALCOHOLIC BEVERAGES, TOBACCO AND NARCOTICS	5
47	110210	Alcoholic beverages	3
48	110211	Spirits	1
49	110211.1	Spirits	1

°	Code	Description	Count BHs
50	110212	Wine	1
51	110212.1	Wine	1
52	110213	Beer	1
53	110213.1	Beer	1
54	110220	Tobacco	1
55	110221	Tobacco	1
56	110221.1	Tobacco	1
57	110230	Narcotics	1
58	110231	Narcotics	1
59	110231.1	Narcotics	1
60	110300	CLOTHING AND FOOTWEAR	5
61	110310	Clothing	3
62	110311*	Clothing materials, other articles of clothing and clothing accessories	1
63	110311.1*	Clothing materials, other articles of clothing and clothing accessories	1
64	110312	Garments	1
65	110312.1*	Garments	1
66	110314	Cleaning, repair and hire of clothing	1
67	110314.1	Cleaning, repair and hire of clothing	1
68	110320	Footwear	2
69	110321	Shoes and other footwear	1
70	110321.1*	Shoes and other footwear	1
71	110322	Repair and hire of footwear	1
72	110322.1	Repair and hire of footwear	1
73	110400	HOUSING, WATER, ELECTRICITY, GAS AND OTHER FUELS	7
74	110410*	Actual and imputed rentals for housing	1
75	110411*	Actual and imputed rentals for housing	1
76	110411.1*	Actual and imputed rentals for housing	1
77	110430	Maintenance and repair of the dwelling	1
78	110431*	Maintenance and repair of the dwelling	1
79	110431.1*	Maintenance and repair of the dwelling	1
80	110440	Water supply and miscellaneous services relating to the dwelling	2
81	110441	Water supply	1
82	110441.1	Water supply	1
83	110442	Miscellaneous services relating to the dwelling	1
84	110442.1	Miscellaneous services relating to the dwelling	1
85	110450	Electricity, gas and other fuels	3
86	110451	Electricity	1
87	110451.1	Electricity	1
88	110452	Gas	1
89	110452.1	Gas	1
90	110453*	Other fuels	1
91	110453.1*	Other fuels	1
92	110500	FURNISHINGS, HOUSEHOLD EQUIPMENT AND ROUTINE MAINTENANCE OF THE HOUSE	13
93	110510	Furniture and furnishings, carpets and other floor coverings	3
94	110511	Furniture and furnishings	1
95	110511.1*	Furniture and furnishings	1
96	110512	Carpets and other floor coverings	1
97	110512.1	Carpets and other floor coverings	1
98	110513	Repair of furniture, furnishings and floor coverings	1
99	110513.1	Repair of furniture, furnishings and floor coverings	1
100	110520	Household textiles	1

°	Code	Description	Count BHs
101	110521	Household textiles	1
102	110521.1	Household textiles	1
103	110530	Household appliances	3
104	110531	Major household appliances whether electric or not	1
105	110531.1	Major household appliances whether electric or not	1
106	110532	Small electric household appliances	1
107	110532.1	Small electric household appliances	1
108	110533	Repair of household appliances	1
109	110533.1	Repair of household appliances	1
110	110540	Glassware, tableware and household utensils	1
111	110541	Glassware, tableware and household utensils	1
112	110541.1	Glassware, tableware and household utensils	1
113	110550	Tools and equipment for house and garden	2
114	110551	Major tools and equipment	1
115	110551.1	Major tools and equipment	1
116	110552	Small tools and miscellaneous accessories	1
117	110552.1	Small tools and miscellaneous accessories	1
118	110560	Goods and services for routine household maintenance	3
119	110561	Non-durable household goods	1
120	110561.1	Non-durable household goods	1
121	110562	Domestic services and household services	2
122	110562.1	Domestic services	1
123	110562.2	Household services	1
124	110600	HEALTH	7
125	110610	Medical products, appliances and equipment	3
126	110611	Pharmaceutical products	1
127	110611.1	Pharmaceutical products	1
128	110612	Other medical products	1
129	110612.1	Other medical products	1
130	110613	Therapeutical appliances and equipment	1
131	110613.1	Therapeutical appliances and equipment	1
132	110620	Out-patient services	3
133	110621	Medical Services	1
134	110621.1	Medical Services	1
135	110622	Dental services	1
136	110622.1	Services of dentists	1
137	110623	Paramedical services	1
138	110623.1	Paramedical services	1
139	110630	Hospital services	1
140	110631	Hospital services	1
141	110631.1	Hospital services	1
142	110700	TRANSPORT	13
143	110710	Purchase of vehicles	4
144	110711	Motor cars	1
145	110711.1*	Motor cars	1
146	110712	Motor cycles	1
147	110712.1	Motor cycles	1
148	110713	Bicycles	1
149	110713.1	Bicycles	1
150	110714	Animal drawn vehicles	1
151	110714.1	Animal drawn vehicles	1
152	110720	Operation of personal transport equipment	3

°	Code	Description	Count BHs
153	110722	Fuels and lubricants for personal transport equipment	1
154	110722.1	Fuels and lubricants for personal transport equipment	1
155	110723*	Maintenance and repair of personal transport equipment	1
156	110723.1*	Maintenance and repair of personal transport equipment	1
157	110724	Other services in respect of personal transport equipment	1
158	110724.1	Other services in respect of personal transport equipment	1
159	110730	Transport services	6
160	110731	Passenger transport by railway	1
161	110731.1	Passenger transport by railway	1
162	110732	Passenger transport by road	1
163	110732.1	Passenger transport by road	1
164	110733	Passenger transport by air	1
165	110733.1	Passenger transport by air	1
166	110734	Passenger transport by sea and inland waterway	1
167	110734.1	Passenger transport by sea and inland waterway	1
168	110735	Combined passenger transport	1
169	110735.1	Combined passenger transport	1
170	110736	Other purchased transport services	1
171	110736.1	Other purchased transport services	1
172	110800	COMMUNICATION	3
173	110810	Postal services	1
174	110811	Postal services	1
175	110811.1	Postal services	1
176	110820	Telephone and telefax equipment	1
177	110821	Telephone and telefax equipment	1
178	110821.1	Telephone and telefax equipment	1
179	110830	Telephone and telefax services	1
180	110831	Telephone and telefax services	1
181	110831.1	Telephone and telefax services	1
182	110900	RECREATION AND CULTURE	13
183	110910	Audio-visual, photographic and information processing equipment	3
184	110911*	Audio-visual, photographic and information processing equipment	1
185	110911.1*	Audio-visual, photographic and information processing equipment	1
186	110914	Recording media	1
187	110914.1*	Recording media	1
188	110915	Repair of audio-visual, photographic and information processing equipment	1
189	110915.1	Repair of audio-visual, photographic and information processing equipment	1
190	110920	Other major durables for recreation and culture	2
191	110921*	Major durables for outdoor and indoor recreation	1
192	110921.1*	Major durables for outdoor and indoor recreation	1
193	110923	Maintenance and repair of other major durables for recreation and culture	1
194	110923.1	Maintenance and repair of other major durables for recreation and culture	1
195	110930	Other recreational items and equipment, gardens and pets	3
196	110931*	Other recreational items and equipment	1
197	110931.1*	Other recreational items and equipment	1
198	110933*	Gardens and pets	1
199	110933.1*	Gardens and pets	1
200	110935	Veterinary and other services for pets	1
201	110935.1	Veterinary and other services for pets	1
202	110940	Recreational and cultural services	3

°	Code	Description	Count BHs
203	110941	Recreational and sporting services	1
204	110941.1	Recreational and sporting services	1
205	110942	Cultural services	1
206	110942.1*	Cultural services	1
207	110943	Games of chance	1
208	110943.1	Games of chance	1
209	110950	Newspapers, books and stationery	1
210	110951*	Newspapers, books and stationery	1
211	110951.1*	Newspapers, books and stationery	1
212	110960	Package holidays	1
213	110961	Package holidays	1
214	110961.1	Package holidays	1
215	111000	EDUCATION	1
216	111010*	EDUCATION	1
217	111011*	EDUCATION	1
218	111011.1*	EDUCATION	1
219	111100	RESTAURANTS AND HOTELS	2
220	111110	Catering services	1
221	111111*	Catering services	1
222	111111.1*	Catering services	1
223	111120	Accommodation services	1
224	111121	Accommodation services	1
225	111121.1	Accommodation services	1
226	111200	MISCELLANEOUS GOODS AND SERVICES	10
227	111210	Personal care	2
228	111211	Hairdressing salons and personal grooming establishments	1
229	111211.1	Hairdressing salons and personal grooming establishments	1
230	111212*	Appliances, articles and products for personal care	1
231	111212.1*	Appliances, articles and products for personal care	1
232	111220	Prostitution	1
233	111221	Prostitution	1
234	111221.1	Prostitution	1
235	111230	Personal effects n,e,c,	2
236	111231	Jewellery, clocks and watches	1
237	111231.1	Jewellery, clocks and watches	1
238	111232	Other personal effects	1
239	111232.1	Other personal effects	1
240	111240	Social protection	1
241	111241	Social protection	1
242	111241.1	Social protection	1
243	111250	Insurance	1
244	111251	Insurance	1
245	111251.1	Insurance	1
246	111260	Financial services n.e.c.	2
247	111261	FISIM	1
248	111261.1	FISIM	1
249	111262	Other financial services n.e.c	1
250	111262.1	Other financial services n.e.c.	1
251	111270	Other services n.e.c.	1
252	111271	Other services n.e.c.	1
253	111271.1	Other services n.e.c.	1

°	Code	Description	Count BHs
254	111300	BALANCE OF EXPENDITURES OF RESIDENTS ABROAD AND EXPENDITURES OF NON RESIDENTS ON THE ECONOMIC TERRIT.	2
255	111310	BALANCE OF EXPENDITURES OF RESIDENTS ABROAD AND EXPENDITURES OF NON RESIDENTS ON THE ECONOMIC TERRIT.	2
256	111311	BALANCE OF EXPENDITURES OF RESIDENTS ABROAD AND EXPENDITURES OF NON RESIDENTS ON THE ECONOMIC TERRIT.	2
257	111311.1	Final consumption expenditure of resident households in the rest of the world	1
258	111311.2	Final consumption expenditure of non-resident households on the economic territory	1
259	120000	INDIVIDUAL CONSUMPTION EXPENDITURE BY NPISHS	1
260	120100*	INDIVIDUAL CONSUMPTION EXPENDITURE BY NPISHS	1
261	120110*	Individual consumption expenditure by NPISHs	1
262	120111*	Individual consumption expenditure by NPISHs	1
263	120111.1*	Individual consumption expenditure by NPISHs	1
264	130000	INDIVIDUAL CONSUMPTION EXPENDITURE BY GOVERNMENT	21
265	130100	HOUSING	1
266	130110	Housing	1
267	130111	Housing	1
268	130111.1	Housing	1
269	130200	HEALTH	12
270	130210	Health benefits and reimbursements	7
271	130211	Medical products, appliances and equipment	3
272	130211.1	Pharmaceutical products	1
273	130211.2	Other medical products	1
274	130211.3	Therapeutic appliances and equipment	1
275	130212	Health services	4
276	130212.1	Out-patient medical services	1
277	130212.2	Out-patient dental services	1
278	130212.3	Out-patient paramedical services	1
279	130212.4	Hospital services	1
280	130220	PRODUCTION OF HEALTH SERVICES	5
281	130221	Compensation of employees	1
282	130221.1*	Compensation of employees	1
283	130222	Intermediate consumption	1
284	130222.1*	Intermediate consumption	1
285	130223	Gross operating surplus	1
286	130223.1	Gross operating surplus	1
287	130224	Net taxes on production	1
288	130224.1	Net taxes on production	1
289	130225	Receipts from sales	1
290	130225.1	Receipts from sales	1
291	130300	RECREATION AND CULTURE	1
292	130310	Recreation and culture	1
293	130311	Recreation and culture	1
294	130311.1	Recreation and culture	1
295	130400	EDUCATION	6
296	130410	Education benefits and reimbursements	1
297	130411	Education benefits and reimbursements	1
298	130411.1	Education benefits and reimbursements	1
299	130420	Production of education services	5
300	130421	Compensation of employees	1

°	Code	Description	Count BHs
301	130421.1*	Compensation of employees	1
302	130422	Intermediate consumption	1
303	130422.1	Intermediate consumption	1
304	130423	Gross operating surplus	1
305	130423.1	Gross operating surplus	1
306	130424	Net taxes on production	1
307	130424.1	Net taxes on production	1
308	130425	Receipts from sales	1
309	130425.1	Receipt from sales	1
310	130500	SOCIAL PROTECTION	1
311	130510	Social protection	1
312	130511	Social protection	1
313	130511.1	Social protection	1
314	140000	COLLECTIVE CONSUMPTION EXPENDITURE BY GOVERNMENT	5
315	140100	COLLECTIVE SERVICES	5
316	140110	Collective services	5
317	140111	Compensation of employees	1
318	140111.1*	Compensation of employees	1
319	140112	Intermediate consumption	1
320	140112.1*	Intermediate consumption	1
321	140113	Gross operating surplus	1
322	140113.1*	Gross operating surplus	1
323	140114	Net taxes on production	1
324	140114.1*	Net taxes on production	1
325	140115	Receipts from sales	1
326	140115.1*	Receipts from sales	1
327	150000	EXPENDITURE ON GROSS FIXED CAPITAL FORMATION	12
328	150100	MACHINERY AND EQUIPMENT	8
329	150110	Metal products and equipment	5
330	150111	Fabricated metal products, except machinery and equipment [CPA 28.11 to 28.75]	1
331	150111.1	Fabricated metal products, except machinery and equipment	1
332	150112	General purpose machinery [CPA 29.11 to 29.24]	1
333	150112.1*	General purpose machinery	1
334	150113	Special purpose machinery [CPA 29.31 to 29.72]	1
335	150113.1*	Special purpose machinery	1
336	150114	Electrical and optical equipment [CPA 30.01 to 33.50]	1
337	150114.1*	Electrical and optical equipment	1
338	150115	Other manufactured goods n.e.c. [CPA 36.11 to 36.63]	1
339	150115.1	Other manufactured goods n.e.c.	1
340	150120	Transport equipment	3
341	150121	Road transport equipment [CPA 34.10 to 34.30 and 35.41 to 35.50]	2
342	150121.1	Motor vehicles, trailers and semi-trailers	1
343	150121.2	Other road transport	1
344	150122	Other transport equipment [CPA 35.11 to 35.30]	1
345	150122.1*	Other transport equipment	1
346	150200	CONSTRUCTION	3
347	150210	Residential buildings	1
348	150211	Residential buildings	1
349	150211.1	Residential buildings	1
350	150220	Non-residential buildings	1
351	150221	Non-residential buildings	1

°	Code	Description	Count BHs
352	150221.1	Non-residential buildings	1
353	150230	Civil engineering works	1
354	150231	Civil engineering works	1
355	150231.1	Civil engineering works	1
356	150300	OTHER PRODUCTS	1
357	150310	Other products	1
358	150311*	Other products	1
359	150311.1*	Other products	1
360	160000	CHANGES IN INVENTORIES AND ACQUISITIONS LESS DISPOSALS OF VALUABLES	4
361	160100	CHANGES IN INVENTORIES	2
362	160110	Changes in inventories	2
363	160111	Changes in inventories	2
364	160111.1	Opening value of inventories	1
365	160111.2	Closing value of inventories	1
366	160200	ACQUISITIONS LESS DISPOSALS OF VALUABLES	2
367	160210	Acquisitions less disposals of valubales	2
368	160211	Acquisitions less disposals of valuables	2
369	160211.1	Acquisitions of valuables	1
370	160211.2	Disposals of valuables	1
371	170000	BALANCE OF EXPORTS AND IMPORTS	2
372	170100	BALANCE OF EXPORTS AND IMPORTS	2
373	170110	BALANCE OF EXPORTS AND IMPORTS	2
374	170111	BALANCE OF EXPORTS AND IMPORTS	2
375	170111.1	Exports of goods and services	1
376	170111.2	Imports of goods and services	1

Source: Eurostat. The original Microsoft Excel file has macros that will calculate the sub-totals and totals automatically when the basic heading numbers are entered. The Global Office has prepared a diagnostic module to help spot problems in the expenditure data submissions.

Annex 5.2. Metadata Questionnaire

Chapter VI. PPPs for health sector

1. INTRODUCTION

451. Chapter 1 of this Manual provides an overview of the methods used for the ICP 2004-06 in respect of government services generally. This chapter is devoted to a single aspect: the calculation of PPPs for the health sector. The chapter covers expenditure by households on health products; by government acting as an agent in providing health products to households; and by government as a producer of hospital services. The chapter is completed by an Annex, also in three parts, summarizing the various situations which arise and how prices and weights are obtained in each situation.

452. Expenditure on goods and services relating to the health of individuals is usually an important part of total GDP (average 9% in OECD countries in 2004, for example). Yet at the same time, the pricing of many health services and the calculation of their weights can be very difficult – “comparison-resistant” in the jargon of the ICP. The pricing of health-related goods (such as hearing aids) is, on the other hand, often no more difficult than for other types of consumer products.

453. We may begin first by categorizing the various types of expenditure in the health sector. Expenditure may be on goods, i.e. physical products such as pharmaceuticals, or on services, such as a consultation with a medical practitioner.

Cutting across this categorization, we may also divide health expenditures into those incurred directly by households, such as the purchase of over-the-counter medicaments, or the payment of a fee to a medical practitioner on a private basis, and those incurred by government on behalf of households. The latter would include, for example, the provision of prescribed medications either free or at a subsidized price, or the provision of free or subsidized hospital facilities. Government expenditures themselves are of two types: those where government provides goods or services indirectly, by purchasing them from the private sector and then making them available to households, and those where government itself is the producer and supplier of health services.

454. It is particularly in the category of government-provided services that international price comparisons are difficult, not only because of the intrinsic difficulty of specifying particular services in such a way that they are capable of being priced, but also because the ways in which government subsidies operate are often very different in various countries. For these reasons, many specific “products” in the health sector are not directly priced at all in the ICP. Instead, the PPPs are estimated on the basis of other related products for which price comparisons can be made (for example, Basic Heading 13.02.12.4 - hospital services).

2. CATEGORIZATION AND CLASSIFICATION

455. A large part of total national expenditure on health is often made by government. Much of this chapter therefore focuses on government expenditure in the health sector. Readers may find it helpful to look at para. 5.2.2 of Chapter 1 of the Operational Manual, which explains the way in which government services are categorized as “individual services” (IS) or “collective services” (CS), and the classification (Table 4.4 of the same chapter) of all the different services within these two groups.

456. Government expenditure is classified according to COFOG, comprising the whole of Division 07. This Division is subdivided into the following six Groups. All but the first are services, and the Groups are shown below with “IS” (for individual services) or “CS” (for collective services):

- 07.1 Medical products, appliances and equipment (IS)
- 07.2 Out-patient services (IS)
- 07.3 Hospital services (IS)
- 07.4 Public health services (IS)
- 07.5 Research & development on health (CS)
- 07.6 Health n.e.c. (CS)

457. These Groups comprise a total of 17 COFOG Classes, but they have been re-grouped to form 7 Basic Headings for the ICP. These are shown below, with their ICP Basic Heading numbers:

- 13.02.11.1 Pharmaceutical products (IS)
- 13.02.11.2 Other medical products (IS)
- 13.02.11.3 Therapeutic appliances and equipment (IS)
- 13.02.12.1 Outpatient medical services (IS)
- 13.02.12.2 Outpatient dental services (IS)
- 13.02.12.3 Outpatient paramedical services (IS)
- 13.02.12.4 Hospital services (IS)

458. The costs of producing government health services are covered by the following ICP Basic Headings:

- 13.02.21.1 Compensation of employees
- 13.02.22.1 Intermediate consumption
- 13.02.23.1 Gross operating surplus
- 13.02.24.1 Net taxes on production
- 13.02.25.1 Receipts from sales

These are dealt with in section 5.

459. In addition to government expenditure, there is also expenditure on health goods and services made directly by households. Such products are classified within COICOP, comprising the whole of Division 06. This Division is subdivided into the following three Groups:

- 06.1 Medical products, appliances and equipment
- 06.2 Outpatient services
- 06.3 Hospital services

460. These groups comprise a total of seven Classes, which are treated as Basic Headings for the ICP. These are shown below, with their ICP Basic Heading numbers:

- 11.06.11.1 Pharmaceutical products
- 11.06.12.1 Other medical products
- 11.06.13.1 Therapeutic appliances and equipment
- 11.06.21.1 Medical services
- 11.06.22.1 Dental services
- 11.06.23.1 Paramedical services
- 11.06.31.1 Hospital services.

3. HOUSEHOLD EXPENDITURE ON HEALTH GOODS AND SERVICES

461. For the first six of the Basic Headings listed above (para 2.6), prices are collected in the same way as for other items of household expenditure, using a list of representative products. Expenditure weights may be derived from household budget surveys, supplemented or replaced by data from other sources as necessary – see Chapter 8.

462. Health insurance policy premiums fall within COICOP class 12.5.3 (insurance connected with health). But the prices to be collected in 11.06 should be the full prices before any reimbursement by the insurance company.

463. The last item shown in the list in para 2.6 is *Hospital services*. This covers the provision of medical services, pharmaceuticals, etc. that are provided to hospital in-patients. The ways in which these services are provided – and their quality - differ greatly from country to country and in the past it has proved very difficult to collect internationally comparable prices for hospital services. For that reason, reference PPPs are used for *Hospital services* in the 2003-06 ICP (see Section 6).

4. GOVERNMENT EXPENDITURE ON GOODS AND SERVICES PRODUCED BY THE PRIVATE SECTOR

464. Governments in many countries purchase health services, pharmaceutical and other medical goods from their producers, for subsequent consumption by households either free or at reduced prices. This activity is financed differently from country to country. In some cases the government may buy the goods or services direct from the producers and provide them without charge to households; in other cases governments reimburse households, in full or in part, after the households themselves have made the purchase.

465. The prices paid for these goods and services are collected and used to calculate PPPs in the same way as PPPs for other goods and services. Note however that the prices to be collected are “total prices”. In countries where households pay the whole purchasers’ price to the retailer (usually a pharmacy) prior to being reimbursed by the government, the total price is the price that households pay before reimbursement. In countries where households pay only a portion of the purchasers’ price to the retailer and the remainder is paid to the producer by government, the total price is the sum of the non-reimbursable part paid by households and the part paid by government.

466. Prices are only required for the following six Basic Headings:

- 13.02.11.1 Pharmaceutical products
- 13.02.11.2 Other medical products
- 13.02.11.3 Therapeutic appliances and equipment
- 13.02.12.1 Out-patient medical services
- 13.02.12.2 Out-patient dental services
- 13.02.12.3 Out-patient paramedical services

These goods and services are also Basic Headings within household final consumption expenditure (Basic Headings 11.06.11.1, 11.06.12.1, 11.06.13.1, 11.06.21.1, 11.06.22.1, and 11.06.23.1) so that the same prices can be used to calculate PPPs for both household and government expenditure.

5. GOVERNMENT PRODUCTION OF HEALTH SERVICES

467. Government services are generally provided free or at low prices. For this reason, they are valued in the national accounts at their cost of production. The same approach is used in the ICP. PPPs are calculated by comparing the costs of producing the services rather than the prices at which they are sold. In practice, as far as the health sector in the ICP is concerned, government services are confined to the provision of hospital services.

468. Intermediate consumption covers a wide range of goods and services such as office rent, computer services, cleaning, electricity etc. Actual prices are used to calculate PPPs for just three items of intermediate consumption – namely *pharmaceutical products*, *other medical goods* and *therapeutic appliances and equipment*. For other goods and services used in the production of hospital services (intermediate consumption n.e.c.) reference PPPs are used.

469. Net taxes on production consist of taxes on products payable when they are produced, taxes and duties on imports, taxes on the ownership of land, buildings or other assets used in production, and taxes on the labor used in production. Subsidies on production are considered to be negative taxes and so are deducted. In most countries, net taxes on production of government services are insignificant or zero. For the ICP, reference PPPs are used for this item.

470. Gross operating surplus consists of the net operating surplus plus consumption of fixed capital. In most countries the net operating surplus is insignificant or zero so this item consists only of consumption of fixed capital. Consumption of fixed capital should be calculated in respect of government-owned buildings and other structures and machinery and equipment. For the ICP, reference PPPs are used for this item.

471. Receipts from sales cover such expenditure as partial charges for health services etc. These expenditures are recorded under household final consumption expenditure and, in a few cases, under the intermediate consumption of enterprises. They must therefore be deducted from government consumption expenditure. For the ICP, reference PPPs are used for this item.

472. Compensation of employees is the largest component of the costs of producing government services. It is the only cost component for which separate price collection is required for the ICP. Compensation of employees is reported for a selection of occupations in public sector hospitals. The selection of occupations is made by the Global Office and

countries in all regions are required to use the same list of occupations. The intention is to represent the various education and skill levels that are commonly to be found among employees working in hospitals. Regions may, however, make minor modifications to fit particular conditions in their regions.

473. Box 1 lists 13 occupations based on job descriptions taken from ISCO-88 (International Standard Classification of Occupations). These descriptions specify the occupations in terms of the kind of work done. Note that several of the occupations in Box 1 are relevant to more than one type of service, not only hospital services. For example, nurses are primarily relevant to health services but they may also be employed in schools. Thus, the information on compensation of employees for such occupations can be used to calculate PPPs for more than one basic heading.

474. PPPs are calculated for each Basic Heading by taking the un-weighted geometric means of the price relatives for all the relevant occupations. Thus, for example, the PPP for BH 13.02.21.1 (compensation of employees for the production of health services) is obtained by calculating the price relatives for occupations 101-113 in Box 1 and calculating their geometric mean.

Table 6.1. Standard Government Occupations

Hospital Services	
101	Doctor, Head of Department
102	Doctor, (20 years seniority)
103	Doctor (10 years seniority)
104	Nurse, Head of Department
105	Nurse, Operating Theatre
106	Nurse
107	Nursing Auxiliary
108	Physiotherapist
109	Laboratory Assistant
110	Hospital Chief Executive
111	Secretary (Hospital)
112	Cook (not Head Cook)
113	Community Health Worker

475. The compensation of employees that participating countries report for the selected occupations is defined in Box 2. It is consistent with compensation of employees as defined in the SNA-93 except that:

- Overtime payments are excluded from gross salaries and wages. (Experience has shown that it is very difficult to obtain data on overtime that are comparable across countries.)
- The only benefits in kind to be taken into account are the provision of free or subsidized housing and food or meals.

Table 6.2. Compensation of Employees

Compensation of employees includes all payments in cash and kind made by the public sector employer in a year. These payments in cash and kind comprise:

- **Gross salaries and wages in cash** (before deduction of taxes and social contributions payable by employees). They cover:
 - Basic salaries and wages as laid down in the salary scales;
 - Other payments, over and above the basic salary or wage, such as: housing or residence allowance, passage or leave allowance, family allowance, special duty allowance or acting allowance, 13th month pay and other cash payments except overtime payments.
 - **Benefits in kind**, including such items as free or subsidised housing, meals, transport allowance, reimbursement of medical expenses etc. (Many of these benefits are difficult to evaluate, as they can vary from one general government institution to another. However, income in kind in the form of housing and food or meals is important in many countries and must be included in compensation of employees.)
 - **Employers' actual social contributions** are payments made by the employer for the benefit of their employees and cover pension contributions and insurance against sickness, accident and disability. They are calculated on the basis of the schemes in operation in the various countries.
- **Imputed social contributions** represent the counterpart to social benefits paid directly by the employing institutions without participating in, or establishing a fund, reserve or other special scheme for this purpose. Since these contributions do not involve actual cash flows, they have to be imputed. The imputations have to be done in line with the corresponding imputations made in the national accounts.

476. The compensation of employees to be reported for the selected occupations should not be extracted from payroll data. Dividing the total compensation of employees in a selected occupation by the total number of employees in that occupation gives an average which is representative of the country, but it does not give an average that is comparable between countries. This is because the distribution of the employees in the selected occupation over the various grades, categories and steps that make up the pay scale for the occupation will differ from country to country. Instead, the compensation of employees should be derived by a less representative but more comparable approach that involves working directly from actual salary scales.

477. The recommended approach is as follows. Underlying the compensation of employees paid by general government are the basic salaries and wages that are laid down in official salary scales. Once the basic salary or wage has been established for an occupation, it is relatively straightforward to compute its compensation of employees because most of the other components of compensation (such as housing allowance, family allowance, special duty allowance, etc) are normally related to the salary scale by being

defined as percentage additions to the basic salary or wage. To determine the compensation of employees for the selected occupations, countries have first to locate the basic salary or wage for each selected occupation in the government salary scales. The detailed procedure can be found in Chapter 8 of the ICP Handbook (see Box 5). The definition of each occupation is provided in Annex 8.1. of Chapter 8 of the ICP Handbook.

478. The compensation of employees reported for each selected occupation must be **annual**. Salary scales usually show annual amounts and any revisions to the salary scales that take place during the reference year are relatively straightforward to accommodate. When there are revisions, a weighted average should be calculated.

479. The compensation of employees should also be the national average taking into account the differences in compensation which may exist in different employing bodies and in different regions of a country. In principle some form of weighted average should be used.

480. For international comparisons, the compensation of employees reported for the selected occupations needs to be adjusted for differences in the numbers of hours actually worked in the different countries. In addition to compensation of employees, countries must also report the number of hours regularly worked per week – excluding overtime – and the number of weeks worked per year. The latter is obtained by deducting all paid holidays including annual leave and public holidays.

6. REFERENCE PPPs

481. Table 6.3 shows the five Basic Headings for government expenditure in the health sector for which PPPs are calculated from price data that have been collected for other Basic Headings. Such PPPs are called *Reference PPPs*.

Table 6.3. Reference PPPs for individual services in the health sector

Basic heading	Reference PPP
Health benefits & reimbursements	
13.02.12.4 Hospital services	PPPs for production of health services by government (before deducting receipts from sales)
Production of health services	
13.03.22.1 Intermediate consumption	PPPs for individual consumption expenditure by households on the domestic market (excluding all basic headings with reference PPPs)
13.02.23.1 Gross operating surplus	PPPs for gross fixed capital formation
13.02.24.1 Net taxes on production	PPPs for production of health services by government (without net taxes on production and before deducting receipts from sales)
13.02.25.1 Receipts from sales	PPPs for production of health services by government (before deducting receipts from sales)

482. The choice of reference PPP is self-explanatory in most cases. For example, the reference PPPs for intermediate consumption – which covers a wide range of products - are the PPPs for total household expenditure. When there is no obvious choice of a reference PPP, a *neutral average* is chosen instead.

Basic Headings				
11.06.11.1	11.06.12.1	11.06.13.1	11.06.21.1	11.06.23.1
Full Price paid by consumer, with no reimbursement from insurance company or government.	Price what the consumer actually pays or what the product supplier or service provider charges	Weights are from Household consumption data	Prices reflect market price recorded as the transaction occurs.	
Consumer pays part of the cost and government makes direct co-payment to the producer or service provider. No reimbursement from insurance company or government.	Price should reflect the full cost what the consumer pays plus the co-payment the government provides to the producer or service provider	For the GDP weights, what the household pays is recorded in the household account and what the government pays is recorded in the government account.	To capture full cost ask service/product provider what the total price is collected from households and from government.	
Consumer pays part of the cost and insurance company makes direct co-payment to the producer or service provider. No reimbursement from insurance company or government.	Price should reflect the full cost: what the consumer pays plus the insurance company provides to the producer or service provider	For the GDP weights, what the household pays is considered full cost provided that the household pays the insurance premium.	To capture full cost ask service/product provider what the total price is collected from households and from the insurance companies.	
Consumer pays in full and gets full or partial reimbursement from government.	Price should reflect the full cost: what the consumer pays to the producer or service provider	For the GDP weights, what the household pays is recorded to the household account and what the government pays is recorded to government account	This is the market price recorded as the transaction occurs.	
Consumer pays in full and gets full or partial reimbursement from insurance company.	Price should reflect the full cost - what the consumer pays to the producer or service provider	For the GDP weights, what the household pays is considered full cost provided that the household pays the insurance premium.	Price - This is the market price recorded as the transaction occurs. Expenditure - Reimbursement from insurance is recorded in BH "Insurance" with negative sign	
Good or service provided to everyone below the full market price as a result of government subsidy.	Price reflects the market price or what the consumer actually pays	No weights	Subsidies of this kind are not reflected in the National Accounts when compiling GDP and therefore are not taken directly into account when calculating PPPs. Average weighted prices should be calculated. Sold quantities by type of prices (full, reduced, nil) should be used as weights.	
Free provision – purchased and paid in full by government for distribution to households.	No price to be recorded	No weights		
Basic Headings				
11.06.31.1				
Hospital Service (in-patient)	Reference PPP	For the GDP weights, what the household pays is recorded in the	Some regions may collect prices from private hospitals, provided that the quality of the	

Governments in many countries purchase health services, pharmaceutical and other medical goods from market producers and then pass them on to particular groups of households either free of charge or at much reduced prices. The total (combined) prices paid for these products and services by GG and HH reflect full cost.

Basic Headings	GOVERNMENT Health Products	Prices	Expenditure	Comments
13.02.11.1	Health goods and services provided by private institutions and paid partially by the government.	Use the relevant price(s) from the following Basic Headings 11.06.11.1; 11.06.12.1; 11.06.13.1; 11.06.21.1; 11.06.22.1; and/or 11.06.23.1	For the GDP weights, what the household pays is recorded in the household account and what the government pays is recorded in the government account.	
13.02.11.2				
13.02.11.3				
13.02.12.1				
13.02.12.2				
13.02.12.3	Health Products and Services provided by private institutions and paid fully by the government.	Use the relevant price(s) from the following Basic Headings 11.06.11.1; 11.06.12.1; 11.06.13.1; 11.06.21.1; 11.06.22.1; and/or 11.06.23.1	GDP weights taken from the government account	13.02.12.4 Hospital Services: use reference PPPs unless the quality of hospital services are deemed comparable.
13.02.12.4				

Headings	Health Services			
13.02.21.1	Services provided by Government free of charge	Compensation of employees for services provided by government plus	GDP weights from government account	Account should be taken of bulk discounts the government may get from suppliers, where this information is available. Where this is difficult to obtain, use a uniform factor to adjust prices for all or group of pharmaceuticals. If all else fails, use market list prices from pharmacies.
	Services provided by Government at reduced (non-market) prices		For the GDP weights, what the household pays is recorded in the household account (the same expenditure as recorded in BH "Receipts from Sales" with negative sign) and what the government pays is recorded to government account	
13.02.22.1	Intermediate Consumption Gross	Reference PPP	Government account	Intermediate consumption includes drugs, hospital clothing, meals, beds, and other products. Private consumption PPP is normally used as reference.
13.02.23.1	Operating Surplus	Reference PPP		
13.02.24.1	Net Taxes on Production	Reference PPP		
13.02.25.1	Receipts from sales	Reference PPP		

Chapter VII. Gross capital formation

1. CAPITAL FORMATION DEFINED

1.1. Gross capital formation (GCF)

483. In the United Nations System of National Accounts (SNA-93), *gross capital formation* (GCF) is one of the principal components of final expenditures, typically accounting for around 20% of GDP. The main components of GCF are shown in Table 7.1 below.

Table 7.1. Gross Capital Formation as defined in SNA-93

<p><i>Gross fixed capital formation</i>, consisting of</p> <p><u>Acquisitions less disposals of new or second-hand tangible fixed assets</u> in the form of:</p> <p style="padding-left: 40px;">Machinery and equipment (conventionally referred to in the ICP context as “equipment goods”);</p> <p style="padding-left: 40px;">Dwellings;</p> <p style="padding-left: 40px;">Other buildings and structures;</p> <p style="padding-left: 40px;">Cultivated assets (trees and livestock that are used repeatedly, or continuously, over long periods of time to produce goods such as rubber, fruit, milk, wool, etc.)</p> <p><u>Major improvements to existing fixed or natural assets, including land.</u></p> <p><u>Acquisitions less disposals of <i>intangible</i> fixed assets</u> (e.g., computer software)</p>
<p><i>plus</i> <i>Changes in inventories</i> (acquisitions less disposals of stocks held by producers)</p>
<p><i>plus</i> <i>Acquisitions less disposals of valuables</i> (precious metals or stones, expensive jewels, works of art, etc. held as investments).</p>
<p><i>equals</i> Gross Capital Formation</p>

1.2. Gross fixed capital formation (GFCF).

484. GFCF is by far the largest component of total gross capital formation. Fixed assets are goods that are used repeatedly, or continuously, for at least a year in the process of producing other goods or services. Notice that dwellings are treated as fixed assets that are used, together with other inputs, to produce housing services for renting or own use. Owner occupiers do not consume the dwellings as such but rather the housing services produced by the dwellings.

485. In SNA-93, fixed assets are valued at purchaser prices payable for them. In the case of equipment goods, the purchaser price includes all the transportation or other costs incurred in delivering and installing the asset in the desired location. The purchaser price includes any (non-deductible) taxes payable on the assets and also includes the costs of any professional services incurred, such as the fees payable to surveyors, architects, lawyers, etc. As explained below, there are occasions when, for practical or cost reasons, it is

necessary to depart from the strict SNA definition of purchaser prices in reporting prices of fixed assets for the ICP.

486. GFCF consists of the value of both new and existing (i.e. used or secondhand) fixed assets acquired *less* the value of any existing assets sold to another enterprise for use in production or sold as scrap. Imports of secondhand machinery and equipment can be a major component of GFCF in certain countries and there is extensive international trade in used assets such as road vehicles, ships and aircraft.

1.3. Changes in inventories

487. Changes in inventories, or stocks, consist of the value of the raw materials, semi-finished or finished goods put into inventories by producers *less* the value of the goods disposed of. The semi-finished goods include work-in-progress, which can be particularly important for production processes with long gestation periods, such as construction projects or forests.

1.4. Valuables

488. Valuables comprise goods held as stores of value or in the expectation of capital gains. They include gold and other precious metals or stones, works of art, and expensive jewellery. Acquisitions *less* disposals of valuables constitute a form of investment or gross capital formation.

2. PRICE SURVEYS FOR GROSS CAPITAL FORMATION – GENERAL

489. Two kinds of price survey are conducted for ICP purposes. One is a survey of the prices of *equipment goods* and of *computer software*.. The second is a survey of the prices of a set of *construction components* – i.e. the elementary parts that are assembled by construction firms to make dwellings, non-residential buildings and civil engineering works. This chapter deals with the methods used in these two surveys. Price surveys are not carried out for the other components of GCF. The procedure followed for the other two components, *changes in inventories* and *net acquisitions of valuables* is to impute a PPP on the basis of the PPPs calculated for other categories of expenditure. These are usually referred to as “reference PPPs”.

2.1. Some special problems

490. Capital goods can be much more complex and variable than consumer goods. For this reason, it is more difficult to obtain perfect matches between the capital goods purchased in different countries than for consumer goods. Brands have an important role to play, but characteristics of a capital good with the same international brand and serial or

model number are actually liable to differ from country to country because of variations in local tastes, conditions, climates, regulations or the marketing strategy adopted by the producer. The characteristics of buildings and other structures can also be extremely complex and highly variable from one country to another. Many structures are unique, without any comparable or matching products in any other country, or even in any other time period within the same country.

491. The complexity of many capital goods is so great that the expertise required to draw up appropriate specifications for the products to be priced and to obtain average prices for them are not to be found within most national statistical institutes. Building engineers, architects, quantity surveyors or other experts have to draw up the specifications and determine the appropriate prices. In some countries these specialists can be found in government departments such as public works departments, construction ministries or other agencies responsible for building regulations or for purchasing equipment for government use. In other countries this work has to be contracted out to consultancy firms specialising in engineering and/or construction. These consultancies can be expensive and may use up a lot of the total resources available for PPP work. Contracting out the work to professional consultancy firms also means that there is no equivalent to the pre-survey for consumer goods involving prolonged interaction between the regional coordinators and the national statistical offices.

3. PRICING EQUIPMENT GOODS

3.1. General approach

492. The approach adopted for equipment goods is similar to that followed for consumer goods and services in that it starts with the creation of a set of Standard Product Descriptions (SPDs) by the Global Office.

493. However, there is an important difference compared with consumer goods and services in that the Global Office has partly converted the SPDs to Product Specifications (PSs) in the following ways:

- For each SPD the Global Office has identified the manufacturers and model numbers of the equipment to be priced. At least two manufacturers and model numbers are specified for each SPD.
- Countries are requested to provide prices for these in the order of preference in which they are listed. In other words, the first model listed is the preferred one and should be priced by countries provided that it is available and in common use. If it is not, then the next model in the list should be priced, and so on.

- If two or more of the listed models are available and in common use, countries are requested to provide prices for all of them.
- If none of the models listed is available and in common use, countries should price an equivalent model that is commonly used in their country. An equivalent model is one that meets the same needs with equal efficiency.
- If countries decide to price an equivalent model rather than one of those specified in the SPD, they must also provide the information on **Product Characteristics** which are listed below the photograph in the SPD. This part of the SPD does not need to be completed if prices are reported for one of the specified items of equipment.
- The Product Characteristics listed in this part of the SPD are of two kinds – **key characteristics** and **other characteristics**. Key characteristics are shaded and must always be completed. Countries are requested to provide information on the other (non-shaded) characteristics to the extent possible.

3.2. Layout of the SPDs and reporting forms

494. The SPDs are also the forms on which countries report the prices and related information. Box 1 below is a sample SPD for a “Utility Tractor”. This is a general purpose tractor used primarily on farms.

495. The SPD first gives a general description of the item of equipment and its usual purpose. This is followed by its principal specifications which, in this case, are the engine power, drive configuration (two-wheel drive) and type of roll-over protection provided for the tractor driver.

496. Three utility tractors are specified. The Kubota M6800 is identified as the preferred model but there are two alternatives: a Massey-Ferguson and a Mahindra. Provision is also made for an unspecified alternative in the event that none of the three listed models is available and in common use in the country.

497. The next part of the SPD requests information on the terms and conditions of the sale – specifically whether installation and transportation costs are included and about product taxes.

498. Information is next requested on the source of the price data, after which there is a picture of the item of equipment. It is a generic image and is not necessarily a picture of the preferred or alternative items of equipment specified in the SPD.

499. Following the picture is a list of product specifications. These are only to be completed by countries which have priced an unspecified alternative. The product specifications are of two kinds – key characteristics and other characteristics, with the key

characteristics identified by shading. For example, in the case of a utility tractor, shipping weight is a key characteristic whereas fuel type is not. It is compulsory to provide information on key characteristics, while countries are requested to provide information on other characteristics only if they can do so easily.

Table 7.2. Sample SPD for Equipment Goods

Basic Heading: Special Purpose Machinery 11.01.13.3 Product Name: UTILITY TRACTOR	Basic Heading Code: Product Code: 02																																
<p><u>DESCRIPTION:</u> Utility Tractors are purpose-built for a flexible variety of agricultural operators globally. It can be a support tractor on larger farms or a primary tractor on farms ranging from 40 to 100 hectares. This category of tractor configuration will range from basic two-wheel-drive power (2WD) to mechanical front-wheel-drive with cab, multiple PTOs and hitches. High specification tractors in this category can also have GPS and on-board micro-processors. The basic configuration dates from the 1939 Ford tractor with Ferguson system.</p> <p><u>SPECIFICATIONS:</u> Diesel engine power ranges from 37.5 to 75 kW and the configuration is two-wheel drive with open roll over protective structure (ROPS).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 33%;">SELECTION</th> <th style="width: 33%;">MANUFACTURER</th> <th style="width: 34%;">MODEL</th> </tr> <tr> <td><input type="checkbox"/> Preferred</td> <td>Kubota</td> <td>M6800</td> </tr> <tr> <td><input type="checkbox"/> Alternate 1</td> <td>Massey-Ferguson</td> <td>MF471</td> </tr> <tr> <td><input type="checkbox"/> Alternate 2</td> <td>Mahindra</td> <td>7520</td> </tr> <tr> <td><input type="checkbox"/> Unspecified Alternate</td> <td></td> <td></td> </tr> </table> <p>CHARACTERISTICS (For Unspecified Alternate) Power (kW): _____ Weight (kg): _____ <input type="checkbox"/> Open ROPS <input type="checkbox"/> Closed ROPS</p>		SELECTION	MANUFACTURER	MODEL	<input type="checkbox"/> Preferred	Kubota	M6800	<input type="checkbox"/> Alternate 1	Massey-Ferguson	MF471	<input type="checkbox"/> Alternate 2	Mahindra	7520	<input type="checkbox"/> Unspecified Alternate																			
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<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 5%;"></th> <th style="width: 45%;">Terms & Conditions:</th> <th style="width: 15%;">Cost Estimate (2005)</th> <th style="width: 35%;">Cost Estimate (2006)</th> </tr> <tr> <td style="text-align: center;">A</td> <td>Equipment Costs (in national currency)</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">B</td> <td>Installation if not included</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">C</td> <td>Transportation if not included</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">D</td> <td>Non-deductible tax if not included</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">E</td> <td>Deductible tax if included</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">F</td> <td>Sub Total (B + C+D - E)</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Total Cost [A + F]</td> <td></td> <td></td> </tr> </table>			Terms & Conditions:	Cost Estimate (2005)	Cost Estimate (2006)	A	Equipment Costs (in national currency)			B	Installation if not included			C	Transportation if not included			D	Non-deductible tax if not included			E	Deductible tax if included			F	Sub Total (B + C+D - E)				Total Cost [A + F]		
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<p><u>PRICING INFORMATION (Source of Price)</u></p> <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Distributor <input type="checkbox"/> Dealer <input type="checkbox"/> Expert/Consultant </div> <div> <input type="checkbox"/> Catalogue <input type="checkbox"/> Other: _____ </div> </div> <div style="border: 1px solid black; height: 100px; margin-top: 10px;"> <p><u>Comments:</u></p> </div>																																	

ICP, December 2005



Utility Tractor
(Indicative Picture)

PRODUCT CHARACTERISTICS:

Engine

Fuel Type		Shipping Weight(kg)	
Gross Power (kW)		Operating Wt (kg)	
Power Take Off Power (kW)		Max. Operating Wt (kg)	
Emission Cert. Stage			

Weight

Hitch System (Three Point)

Front Category: _____ Rear Category: _____
 Front Lift Capacity (kg): _____ Rear Lift Capacity (kg): _____
☐ Front Position Control ☐ Position Control
☐ Front Draft Control ☐ Draft Control ☐ Position/Draft Mix

Drawbar System

☐ Fixed ☐ Italian (pintle)
☐ Swinging ☐ French (piton fixe)
☐ German (pintle) ☐ UK (auto hitch)

Power Take Off (PTO)

☐ **Front** ☐ **Rear**
☐ Speed ☐ Speed
☐ Live ☐ Live
☐ Independent ☐ Independent
☐ Hydrostatic ☐ Hydrostatic

Drivetrain

☐ Hydrostatic ☐ Powershift
☐ Constantly Variable (CVT) Forward Speeds: _____
☐ Mechanical Transmission Reverse Speeds: _____
 Forward Speeds: _____ Minimum Speed (kph): _____
 Reverse Speeds: _____ Maximum Speed (kph): _____
☐ Sliding Gear Change
☐ Synchromesh

Operator Station	
<input type="checkbox"/> Cab/ROPS <ul style="list-style-type: none"> <input type="checkbox"/> Suspension <ul style="list-style-type: none"> <input type="checkbox"/> Suspended seat <input type="checkbox"/> Instructor seat <input type="checkbox"/> FOPS <input type="checkbox"/> Air conditioning <input type="checkbox"/> Air filtration <input type="checkbox"/> Adjustable steering wheel <input type="checkbox"/> Adjustable control pod <input type="checkbox"/> Windscreen demister <input type="checkbox"/> Windscreen wiper <input type="checkbox"/> Windscreen washer <input type="checkbox"/> Rear view mirror <ul style="list-style-type: none"> <input type="checkbox"/> Interior <input type="checkbox"/> Exterior 	<input type="checkbox"/> Open/ROPS <ul style="list-style-type: none"> <input type="checkbox"/> Suspended seat <ul style="list-style-type: none"> <input type="checkbox"/> Adjustable seat <input type="checkbox"/> FOPS <input type="checkbox"/> Sun Shield
Operator Control	
<input type="checkbox"/> Mechanical Steering <input type="checkbox"/> Hydrostatic Steering <input type="checkbox"/> Assisted Power Steering <input type="checkbox"/> Mechanical Brakes <input type="checkbox"/> Hydraulic Brakes <input type="checkbox"/> Boosted Brakes	<input type="checkbox"/> Mechanical Shift <input type="checkbox"/> Hydraulic Shift <input type="checkbox"/> Electro-Hydraulic Shift <input type="checkbox"/> Mechanical Lift Controls <input type="checkbox"/> Hydraulic Lift Controls <input type="checkbox"/> Remote Hitch Controls

3.3. How many equipment goods should be priced?

500. The Global Office has identified a core list of 108 equipment goods to be used for the “Ring Comparison” (see Chapter 9) which will link the Regions in order to calculate the Global PPPs. The full list of core items is given in Annex 1; Table 2 below shows how these 108 core items are distributed among the Basic Headings for *Machinery and Equipment* and *Other Products*. “Other Products” includes a number of disparate assets such as livestock, land improvement, mineral exploration and software but prices are only required for software. For Basic Headings for which no prices will be collected, reference PPPs will be used.

501. When Regions draw up their own lists for the equipment goods to be priced, they should look first at these 108 items and price as many of them as they consider to be representative for their Region. They should also price other items that are not on the core list if they are important in their countries. Countries should provide prices for at least 80 of the items specified in the SPDs for equipment goods.

Table 7.3. Core list of Equipment Goods for ICP 2003-06

Basic Heading	Description	Number of products
15.01.11.1	FABRICATED METAL PRODUCTS	5
15.01.12.1	GENERAL PURPOSE MACHINERY	15
	A. Engines and Turbines, Pumps & Compressors	10
	B. Other General Purpose Machinery	5
15.01.13.1	SPECIAL PURPOSE MACHINERY	39
	A. Agricultural and Forestry Machinery	2
	B. Machine Tools	6
	C. Machinery for Metallurgy, Mining, Quarrying & Construction	22
	D. Machinery for Food, Beverages and Tobacco Processing	4
	E. Machinery for Textile, Apparel and Leather Production	0
	F. Other Special Purpose Machinery	5
15.01.14.1	ELECTRICAL & OPTICAL EQUIPMENT	29
	A. Office Machinery	5
	B. Computers and Other Information Processing Equipment	9
	C. Electrical Machinery and Apparatus	2
	D. Radio, Television and Communications Equipment & Apparatus	3
	E. Medical, Precision and Optical Instruments, Watches and Clocks	10
15.01.15.1	OTHER MANUFACTURED GOODS n.e.c.	0
15.01.21.1	MOTOR VEHICLES, TRAILERS and SEMI-TRAILERS	11
15.03.11.1	SOFTWARE	9
TOTAL		108

3.3. Prices to be reported

Definition of prices for equipment goods

502. To be consistent with the national accounts, countries are required to provide prices for machinery and equipment which are consistent with their valuation as fixed capital assets in the national accounts. This means that the prices must include trade, transport, delivery and installation charges, they must only include import duties and other product taxes that are actually paid by the purchaser, and they must be reported after deducting any discounts that are generally available to most producers. The following rules should be observed in reporting prices for machinery and equipment.

- **Discounts.** The price should refer to the purchase of a single item so that it is not affected by discounts that may be available for large orders. However, the price of the single item should be reported after deducting any discount that is customarily available to most purchasers and that is available for most of the year.

-
- **Transport and delivery costs.** When prices of equipment goods do not include transport and delivery costs, these should be estimated by countries selecting their own average distance over which the items are transported and delivered.
 - **Installation costs.** There are usually costs associated with the installation of fixed equipment and these are included as part of gross fixed capital formation in the national accounts. Installation charges include not only any charges that the purchaser pays for the item to be physically installed at the factory or other site but also any costs for testing, running-in or calibrating the equipment. In the case of transport equipment there are usually no installation costs.
 - **Product taxes.** Finally, the price should include only *non-deductible* product taxes. Countries that levy value added taxes normally allow purchasers to deduct the full amount of tax on capital goods. Sales and other product taxes and sometimes import duties may also be fully or partly deductible on capital goods.

503. The transaction characteristics have to be respected since countries are required to report actual transaction prices and not list or catalogue prices. List or catalogue prices may be the initial source of price data but these prices must be adjusted to meet the transaction characteristics noted above.

National prices

504. The prices required are the national average prices. Country experts should decide how these are to be collected following these guidelines:

- In some small countries it may be sufficient to collect prices in only a single location – normally the capital city or the largest commercial or industrial town.
- In larger countries where there are several centres of significant industrial and commercial activity, prices will need to be collected in several of these centres in order to calculate an average national price.

Number of price observations

505. In many countries there will be a single dealer with the right to sell the specified type of equipment and in this case a single price observation is sufficient. In other countries, however, there may be several distributors of the specified type of equipment and in this case several price observations are required to establish the average national price. The decision as to whether one or more price observations are necessary is left to the national experts.

Timing of data collection

506. The prices reported should be average prices for the year and, in principle, these should be the average of prices collected at regular intervals throughout the year. However, experience shows that provided all countries price equipment goods at approximately the same period, there is no need to collect prices throughout the year. Price collection in mid-year is recommended.

Used Equipment

507. All the products specified for the equipment goods survey are for new items. For a number of countries, however, a significant proportion of GFCF in equipment goods consists of imports of secondhand goods, some of which may have been reconditioned. Experimental pricing of secondhand equipment goods shows that there is considerable variation in the quality of the goods priced by different countries. It is very difficult to find secondhand goods that are comparable for pricing purposes. Substantial quality adjustments may be necessary to make the prices comparable and such quality adjustments are not feasible in practice at the present time. In ICP 2003-06, therefore, price collection is confined to new equipment goods. Prices of secondhand goods are not acceptable, even when secondhand equipment goods are more representative than new goods.

3.4. Sources of price information for equipment goods

508. The prices of equipment goods can be obtained directly from producers, importers or distributors or from their catalogues. They may even be obtained from actual purchasers - which is preferable in principle, but difficult in practice. The prices can be collected by whichever method, or combination of methods, countries find the most convenient - personal visit, telephone, letter, internet, etc. The prices must however be adjusted to conform to the valuation principles outlined above with regard to discounts, transport and delivery charges, installation costs and product taxes.

509. These are the sources most likely to be used for obtaining the price information:

- **Within a National Statistical Institute:**

Those who compile a producer price, a wholesale price, or an import price index are most likely to have familiarity with the types of goods being compared for these basic headings. For some items, like automobiles or computers, the comparisons used for consumption are also relevant for equipment although prices collected for household consumption expenditure will need to be adjusted by subtracting value added taxes and other product taxes which are payable by households but which can be deducted by enterprises.

- **Within the Country:**

Distributors and dealers in equipment in a country will have the knowledge of the models and their detailed characteristics and price. It is important in obtaining prices from dealers to make sure all local taxes and any other charges are included.

- **Outside the Country:**

A separate listing of websites is provided as Annex 2 of this chapter that should be of value to both country and regional staff. Websites are often available in more than one language, and usually give all the technical information called for in the PS/SPDs that the Global Office has provided. Websites may be tailored to regions of the world and often provide names and contact information for dealers and distributors. In smaller countries, there may be regional distributors covering adjacent countries.

- **Local Purchasers:**

Departments of government, especially Public Works, purchase equipment on a regular basis. They may buy directly from manufacturers, but in many cases they will also have contacts with dealers and distributors.

3.5. Editing prices of equipment goods

510. Countries which have collected multiple prices for each specified type of equipment can carry out the Quaranta editing procedure in the same way as for consumer goods and services. Other countries will have reported the transaction prices in the largest city for a single point in time and the price reported will usually come from a single outlet. In this case, the Quaranta editing procedure cannot be used by the country, although it can still be used by the Regional Office to compare prices across countries with a view to detecting outliers.

511. Editing the prices of equipment goods simply by examining and comparing their prices alone is not sufficient because of the complexity of the items priced. The fact that the prices for a particular item appear plausible and consistent across countries does not mean that the items priced are comparable between countries. The technical characteristics of the items that are not outliers still need to be checked against each other and any mismatches discovered must be treated in the same manner as outliers identified by the Quaranta editing procedure.

512. Outliers identified by the Quaranta editing procedure should have their technical characteristics checked against the technical characteristics of the items priced by other countries. There are two possible outcomes: either the technical characteristics of the outlier match the technical characteristics of the items priced by at least some of the other

countries, or the technical characteristics do not match the technical characteristics of any of the items priced by the other countries. In the first case, it is necessary to refer the outlier back to the reporting country asking it to confirm the price. In the second case, it is necessary to ask the country to provide a price for an equipment good whose technical characteristics do match the technical characteristics of the goods priced by some of the other countries. Depending on the country's response, the price of the outlier will be retained, replaced or dropped.

513. The main responsibility for editing the technical characteristics of the goods that countries have priced for the equipment goods survey rests with the regional coordinators. Countries, however, are responsible for making sure that the regional coordinator is in a position to be able to identify matches and mismatches among the goods priced. Before sending their prices to the regional coordinator, countries are required to verify that the reporting forms are complete with the name and number of the make and model priced and the technical characteristics that are indicated as *important characteristics* on the reporting form. It is in the interest of countries to provide this information from the beginning as it will reduce the subsequent response burden that editing imposes.

4. PRICING CONSTRUCTION PROJECTS

4.1. The Three Methods in Use for ICP 2003-06

514. In the ICP classification, "construction goods" are listed under three Basic Headings:

- *residential construction* (all types of dwellings including both apartments and houses);
- *non-residential buildings* (shops, office buildings, banks, factory buildings, warehouses etc.);
- *civil construction works* (roads, bridges, reservoirs, sewerage systems, airports, railways, telecommunication towers, dams, etc.)

515. Three methods are in use for calculating PPPs of construction goods for ICP 2003-06:

- The OECD-Eurostat group uses the "Standard Project Method" (SPM);
- The CIS countries (members of the former Soviet Union) use the "Method of Technical Resource Models" (MTRM)
- All other countries use a method developed specifically for ICP 2003-06 - the "Basket of Construction Components Method" (BOCC). This method is used by the majority of the countries participating in the ICP 2003-06.

4.2. Standard Project Method (SPM)

516. The **SPM** is described in the Eurostat-OECD manual on PPPs.³ It requires countries to price a number of standard construction projects. For ICP 2003-06 there were 16 projects and these are shown in Table 3 below.

Table 7.4. Standard construction projects used for the OECD-Eurostat comparisons

Residential buildings	
01.	European single-family house
02.	Portuguese single-family house
03.	Nordic single-family house
04.	Apartment in a multi-apartment building
05.	North American single-family house
06.	Japanese single-family house
07.	Australasian house
Non-residential buildings	
08.	Agricultural shed
09.	European factory building
10.	Office building
11.	Primary school
12.	Japanese factory building
Civil engineering works	
13.	Asphalt road
14.	Concrete road
15.	Bridge
16.	Concrete main sewer

517. A “Bill of Quantity” (BOQ) is specified for each project covering all the costs that make up the purchasers’ price. These costs include the building materials, hire of equipment, labor costs, architect’s and draughtsman’s fees, and overhead costs such as accident insurance for the laborers, providing them with accommodation, facilities for the secure storage of materials and equipment and rent of telephone lines. The BOQ also includes an estimate of the profits that the main contractor and the subcontractors would expect to earn given the business conditions of the reference year.

518. The SPM mimics the costing procedure that construction companies undertake when they make a competitive bid for a construction project. The key characteristic of the SPM is that it aims to compare the prices of construction goods that are required by the SNA – namely purchasers’ prices.

519. The SPM ensures good comparability between countries because all countries are pricing standard projects. Note that the SPM allows countries to vary the mix of labor, building materials, plant-hire and other costs to reflect differences in relative prices. In a country where labor is expensive, more machinery will be used to complete a given construction project than in a country where labor is relatively cheap.

³ Eurostat OECD PPP Manual (2006), available at the “Circa” website:
http://forum.europa.eu.int/Public/irc/dsis/palojpi/library?l=/methodological_papers&vm=detailed&sb=Title

520. Apart from comparability, representativity is a constant concern for the calculation of PPPs. For the OECD-Eurostat group, the projects listed under non-residential construction and under civil engineering works are considered to be highly representative since all countries carry out these kinds of construction projects on a regular basis. For residential construction, however, representativity is a problem because there are distinctive types of houses in different countries. For this reason six different house styles are included and countries are asked to price the house that is most representative for them plus one other that is found in their country even though it is not considered to be representative.

521. The SPM has been criticised on several grounds:

- It is expensive to implement because it is necessary to hire quantity surveyors⁴, to price the BOQs. This objection has been partly overcome by reducing the number of items in the BOQs. It was found that nearly 90% of the total price of most projects was accounted for by only 50% of the items listed in the BOQs, so “reduced BOQs” are now used for the ICP. Nevertheless, even the reduced BOQs require expertise that is not available in national statistical institutes and so must be purchased from outside.
- Because it is an expensive procedure, countries are asked to price only a single BOQ for each selected project. It is clear that if several experts were asked to price a given BOQ they would each come up with different estimates. While the consensus among experts in the construction industry is that the variation in the BOQ estimates provided by different experts would not be large, it is nevertheless possible that the single BOQ estimate obtained by a particular country may, in some sense, be an outlier. OECD-Eurostat try to deal with this problem by Quaranta-type tests at the level of detailed BOQ components and countries are asked to confirm or re-estimate the prices of BOQ components that are out of line with the average for other countries.
- Most construction projects take several months to complete so that the experts who price the BOQs may build an “inflation factor” into their estimates to compensate for the expected increase in prices when the contractor completes the later stages of the project. The BOQs may not, therefore, represent the true costs of the current period but rather a mixture of this year’s and next year’s prices.
- The BOQs refer to fictitious projects and the experts who price them know that the projects will never actually be carried out. The artificiality of the exercise may result in cost estimates that differ from those that would result from real-life competitive bidding.

⁴“Quantity surveyor” is a term widely used in English-speaking countries but “building economist” is another term sometimes used. Quantity surveyors are employed by building contractors to estimate the costs of the materials, labour and other inputs required to construct building projects.

- Finally, estimation of the profit margin is particularly difficult since, in real life, the actual profit can only be known once the project has been completed.

4.3. Method of Technical Resource Models (MTRM)

522. The **MTRM** requires countries to collect statistics on wages and salaries in the construction industry and the average prices of just over 100 types of building materials and energy products. The building materials and energy products that are priced cover around 85% of the material and energy costs of construction projects. A number of “technical resource models” are then used to calculate the costs of 100 different residential and non-residential buildings and civil engineering works. PPPs for Basic Headings are obtained as the price relatives of the unweighted geometric means of the costs of the construction projects allocated to each of the three Basic Headings.

523. The technical resource model is a linear equation that combines the information supplied by countries on the prices of building materials, energy products and wage rates with estimates supplied by technical experts of the quantities of materials and labor used, consumption of fixed capital, profit margin, taxes and other costs to obtain the purchasers’ price of each different type of construction goods. It is of this form:

$$P_{mk} = \left[\left(1 + \frac{a}{100} \right) \sum_{j=1}^m PM_j QM_j + \sum_{k=1}^l PE_k QE_k + W * F_k * \left(1 + \frac{S + A + B + P}{100} \right) \right] * I * VAT$$

where:

P_{mk} is the purchasers’ price of a construction project of type k which requires m types of building materials that have been specifically named and priced;

a is the share of other, minor, types of materials that have not been specifically named and priced;

PM , QM are, respectively, the prices and quantities of the m types of building materials that have been specifically named and priced;

PE , QE are, respectively, the prices and quantities of the l types of energy that have been specifically named and priced;

F_k is the number of work days required to complete a construction project of type k ;

W is the daily wage rate;

S is the employers’ contribution to social security funds as a percentage of wage costs;

A is the rate of consumption of fixed capital, expressed as a percentage of wage costs;

B is other costs not included elsewhere, expressed as a percentage of wage costs;

P is the rate of operating surplus, expressed as a percentage of wage costs;

I is the engineering costs (design and prospecting activities, technical advice, control of the project and similar services) expressed as a percentage of all other costs; and VAT is the rate of value-added tax.

524. Note the following points:

- Countries are required to submit prices only for building materials (PM), for energy products (PE) and the wage rate (W). All other variables are estimated by construction and engineering experts. For the CIS countries, therefore, the MTRM is relatively cheap to implement. In practice, many of the price and wage data have been collected by the CIS countries for many years as part of their regular statistical programs in order to compile time-series price indices of construction costs, although the standard list has been adapted to meet ICP requirements.
- Some of these variables are adjusted, in consultation with country experts, to meet special conditions in individual CIS countries. *In particular, the volume of labor inputs (F) and depreciation rate (A) will be adjusted to reflect differences in the relative prices of labor and capital.*
- *The model* does not include the cost of hire of equipment. This is because construction companies in the CIS countries usually own their construction equipment. Instead of plant-hire, the model therefore includes consumption of fixed capital in respect of that equipment (A).
- For each of the 100 construction projects, countries are required to indicate whether or not they are *representative* and whether any projects of that kind were carried out in the year *concerned*. The asterisk method (see para 8.1 in Chapter 1) is used to give different weights to representative *versus* non-representative projects and types of projects that were not carried out in a particular year are excluded for that country.

525. The strength of the MTRM is that it draws on data already being collected by the participating countries. In addition, like the SPM, it aims to measure purchasers' prices of construction goods and this is what the SNA requires. Of course, the accuracy of the PPPs based on the MTRM depends crucially on the variables provided by construction experts for the linear equation given above – in particular on the quantities of materials, energy and labor required for the 100 construction projects and on the estimated profit and depreciation rates.

526. There are also some conceptual problems with the formulation of the model shown above. The operating surplus (P) would more usually be calculated as a percentage of the basic price of the project rather than being related to the wage costs. The same comment applies to the consumption of fixed capital (A).

527. In support of the MTRM it is claimed that building and construction techniques are very similar in all CIS countries so that the 100 standard models, with some adjustments for local conditions, accurately reflect construction costs. Two points: first, the standardization of building methods is largely a legacy from the Soviet era and is likely to erode over time so that MTRM will become less reliable; second, the MTRM is almost certainly not applicable to more heterogeneous groups of countries so that it is doubtful if it can be widely applied for future rounds of the ICP.

4.4. Basket of Construction Costs (BOCC)

528. The BOCC method was developed for the ICP 2003-06 because neither the SPM nor the MTRM was considered appropriate for the majority of countries taking part in the program. The main problem with the SPM is its expense. The MTRM is relatively cheap and easy to implement but it was designed for a group of countries that use rather similar construction methods.

529. The BOCC starts from the observation that each of the three Basic Headings within construction can be seen as consisting of groups of systems. For example, Residential Construction projects can be seen as weighted combinations of the following systems:

- Site work.
- Substructure.
- Superstructure.
- Exterior shell.
- Interior partitions.
- Interior/exterior finishes.
- Mechanical and plumbing.
- Electrical.

530. These systems are relevant for all types of modern residential construction ranging from single household dwellings to multi-storey apartment blocks, and they apply to residential construction in all regions of the world. The importance of each system will, however, vary according to the type of building and the country involved.

531. Similar groups of systems are identified for the other two Basic Headings.

532. The BOCC then identifies a number of components that are typical of each system. The components have been selected because they are standard throughout the world and all systems making up residential construction projects anywhere in the world will include the

selected components. This means that the BOCC method fully meets the *representativity* requirement. For example, the *Interior/exterior finishes* system contains the following *components*:

- Exterior wall cement plastering.
- Interior ceiling plastering.
- Interior wall plastering.

533. Countries are asked to estimate the **direct costs** of constructing each *component*. Direct costs are:

- Building materials.
- Labor costs.
- Hire of construction equipment.

534. Unweighted geometric means of price relatives for the various components are calculated to obtain a PPP for each system.

535. Countries are also required to estimate the weight of each system and these weights are used to combine the system PPPs to obtain the PPPs for the three basic Headings: Residential Construction, Non-residential Construction and Civil Engineering Works. The weights of the systems that make up each of the three Basic Headings will, of course, vary both between Basic Headings and between countries. Each country is required to make its best estimate of, for example, the weights of the systems listed under Residential Construction and these will not be the same as the weights of the systems listed for Non-Residential Construction. The system weights for a specific Basic Heading will also vary between countries although they will usually be fairly similar.

536. Using BOCC, the PPPs are not based on the purchasers' prices which are theoretically required by the SNA. BOCC costs cover only the basic inputs and no estimates are made for overhead costs or operating surplus (profit). While this can be seen as a theoretical objection to BOCC, it can also be seen as a practical advantage. Estimates of overhead costs and, especially, profits are the weakest part of the calculation of purchasers' prices. The BOCC focuses on the direct costs which are certainly the most reliable components of the purchasers' price.

537. The components are costed using whatever combinations of labor, materials and equipment are typical of each country. If, in one country, concrete is hand-mixed on site but is delivered ready-mixed to the site in another country, each country's costing of the components will reflect these different ways of working. Thus, differences in the relative prices of labor, capital and materials are correctly reflected in the PPPs.

538. The BOCC requires some input of expert advice that is not typically available in national statistical institutes and has to be purchased from outside. These experts are required to estimate the costs of constructing the components and also the weights needed to combine systems into Basic Headings. BOCC does, however, require substantially less expert input than SPM and, in many countries, the necessary expertise can be found within government public works or construction departments. This further reduces the costs of BOCC.

539. Given that its high cost rules out SPM for general use in ICP 2003-06, and given that MTRM is not applicable to heterogeneous groups of countries, BOCC is an ingenious compromise. It exploits the similarities in construction methods throughout the world but allows differences in construction methods to be fully reflected in the price relatives. It is both affordable and practical.

4.5. Applying the BOCC method

540. In the BOCC method 34 “components” are defined; they are listed in Table 4 below. The table also shows which components are relevant for calculating PPPs for the three Basic Headings within Construction.

541. The 34 “components” are of two kinds:

- Composite components such as a round bridge pier or a concrete airfield pavement;
- Basic inputs, specifically:
 - Skilled and unskilled labor;
 - Rent of four types of equipment – a back-hoe, a centrifugal pump, a vibratory plate compactor and a sand filter;
 - Six kinds of building material – Portland cement, sand, aggregate,⁵ plywood, reinforcing steel, and structural steel.

⁵ “Aggregate” is gravel which, together with cement, water and sand, is used to make concrete.

Table 7.5. Construction components included in the baskets for residential buildings, non-residential buildings and civil engineering works

Construction Component	BH 150211.1 Residential buildings	BH 150221.1 Non-residential building	BH 150231.1 Civil engineering works
Composite components			
Column Footing	✓	✓	
Culvert			✓
Drilled Shaft			✓
Earthwork	✓	✓	✓
Electrical Service Point	✓	✓	
Exterior Painting	✓	✓	
Exterior Wall Cement Plaster	✓	✓	
Interior Ceiling Plaster	✓	✓	
Interior Painting	✓	✓	
Interior Wall Ceiling Plaster	✓	✓	
Roadway Lane			✓
Round Bridge Pier			✓
Structural Column Round	✓	✓	
Structural Column Square	✓	✓	
Round Bridge Pier			✓
Aluminium Frame Window	✓	✓	
Bridge T Beam			✓
Bridge Spread Footing			✓
Concrete Airfield Pavement			✓
Exterior Sidewalk	✓	✓	
Masonry Interior Wall	✓	✓	
Concrete	✓	✓	✓
Basic inputs			
Backhoe	✓	✓	✓
Vibratory Plate Compactor		✓	✓
Centrifugal Pump			✓
Sand Filter			✓
Portland Cement	✓	✓	✓
Aggregate	✓	✓	✓
Sand	✓	✓	✓
Reinforcing Steel	✓	✓	✓
Structural Steel	✓	✓	✓
Plywood	✓	✓	✓
Unskilled Labour	✓	✓	✓
Skilled Labour	✓	✓	✓

542. In the BOCC method, prices for subsets of these 34 components are used to obtain PPPs for “Systems”. PPPs for systems are then weighted together to obtain PPPs for the three Basic Headings i.e. Residential Buildings, Non-Residential Buildings, and Civil Engineering Works.

543. Table 5 shows how the Systems for Residential Buildings are obtained by combining different sub-sets of the 34 components. There are eight systems for Residential buildings - site work, substructure, *superstructure*, *exterior shell*, *interior partitions*, *interior/exterior finishes*, *mechanical and plumbing*, and *electrical*. Systems broadly correspond to the sequential stages in which a construction project is carried out. The different sets of Systems and components relevant for the other two Basic Headings – *Non-Residential Buildings* and *Civil Engineering Works* – are shown in Tables 6 and 7.

544. In Tables 5 to 7, the composite components are shown in normal script and the basic inputs in italics. The PPPs for Systems will be based only on price relatives for composite components, except in the case of three Systems for which no composite components have been identified. These are the Mechanical and Plumbing Systems for both Residential and Non-residential buildings and the Mechanical Equipment System for Civil Engineering works. For these three Systems the PPPs are calculated from the price relatives of the basic inputs shown under these Systems.

545. In principle, therefore, only prices of the composite components plus prices of five of the twelve basic inputs (skilled and unskilled labor, hire of a vibratory plate compactor, hire of a centrifugal pump, and the price of Portland cement)), are needed to calculate PPPs. However, countries are required to provide prices for the other seven basic inputs as well. This information will be useful both to the countries and the Regional Offices in reviewing the costs reported for composite components. In addition, if some countries cannot report reliable cost estimates for composite components, it may be necessary to base the PPPs on the prices of the basic inputs relevant for the various systems.

Table 7.6. Components of systems for residential buildings

System	Component	System	Component
Site work	Aggregate base	Exterior shell	Aluminium frame window
	Earthwork		<i>Sand</i>
	Exterior sidewalk		<i>Portland cement</i>
	Concrete		<i>Unskilled labor</i>
	<i>Aggregate</i>		<i>Skilled labor</i>
	<i>Portland cement</i>	Interior partitions	Masonry interior wall
	<i>Sand</i>		<i>Portland cement</i>
	<i>Backhoe</i>		<i>Sand</i>
	<i>Unskilled labor</i>		<i>Plywood</i>
	<i>Skilled labor</i>		<i>Unskilled labor</i>
Substructure	Aggregate base		<i>Skilled labor</i>
	Column footing	Interior/exterior finishes	Exterior wall cement plaster
	Aggregate		Interior ceiling plaster
	Concrete		Interior wall plaster
	<i>Portland cement</i>		<i>Exterior paint</i>
	<i>Reinforcing steel</i>		<i>Interior paint</i>
	<i>Sand</i>		<i>Portland cement</i>
	<i>Backhoe</i>		<i>Sand</i>
	<i>Plywood</i>		<i>Plywood</i>
			<i>Unskilled labor</i>
			<i>Skilled labor</i>
Superstructure	Structural column round	Mechanical and plumbing	<i>Unskilled labor</i>
	Structural column square		<i>Skilled labor</i>
	Concrete	Electrical	Electrical service point
	<i>Aggregate</i>		<i>Unskilled labor</i>
	<i>Portland cement</i>		<i>Skilled labor</i>
	<i>Reinforcing steel</i>		
	<i>Sand</i>		
	<i>Structural steel</i>		
	<i>Plywood</i>		
	<i>Unskilled labor</i>		
	<i>Skilled labor</i>		

Table 7.7. Components of systems for non- residential buildings

System	Component	System	Component
Site work	Aggregate base	Exterior shell	Aluminium frame window
	Earthwork		Sand
	Exterior sidewalk		Portland cement
	Concrete		Unskilled labor
	Aggregate		Skilled labor
	Portland cement		
	Sand		
	Backhoe	Interior partitions	Masonry interior wall
	Unskilled labor		Portland cement
	Skilled labor		Sand
Substructure	Aggregate base		Plywood
	Column footing		Unskilled labor
	Concrete		Skilled labor
	Portland cement		
	Reinforcing steel		
	Sand	Interior/exterior finishes	Exterior wall cement plaster
	Aggregate		Interior ceiling plaster
	Backhoe		Interior wall plaster
	Plywood		Exterior paint
Superstructure	Structural column round		Interior paint
	Structural column square		Portland cement
	Concrete		Sand
	Aggregate		Plywood
	Portland cement		Unskilled labor
	Reinforcing steel		Skilled labor
	Sand	Mechanical and plumbing	Vibratory plate compactor
	Structural steel		Unskilled labor
	Plywood		Skilled labor
	Unskilled labor	Electrical	Electrical service point
	Skilled labor		Unskilled labor
			Skilled labor

Table 7.8. Components of systems for civil engineering works

System	Component	System	Component
Site work	Concrete	Superstructure	Roadway lane
	Aggregate base		Bridge T beam
Substructure	Earthwork		Concrete airfield pavement
	Portland cement		Concrete
	Aggregate		Aggregate
	Backhoe		Plywood
	Sand		Portland cement
	Unskilled labor		Reinforcing steel
	Skilled labor		Sand
			Structural steel
			Unskilled labor
			Skilled labor
Electrical equipment	Round bridge pier	Underground utility	Culvert
	Bridge spread footings		Drilled shaft
	Aggregate base		Concrete
	Concrete		Backhoe
	Aggregate		Portland cement
	Portland cement		Sand
	Reinforcing steel		Sand filter
	Sand		Unskilled labor
	Backhoe		Skilled labor
	Plywood	Mechanical equipment	Vibratory plate compactor
Electrical equipment	Unskilled labor		Centrifugal pump
	Skilled labor		Portland cement
			Unskilled labor
			Skilled labor

4.6. How many construction items should be priced?

546. Countries should price all 34 components. Note that 12 of these are very common basic inputs which can be priced without difficulty. The 22 composite components on the list have been selected because they represent types of construction work that are common throughout the world.

4.7. Prices to be reported

Definition of the prices for construction

547. The prices to be reported are as follows:

- For the 22 **composite components**, the price is the total of the cost, at purchaser prices, of the materials, labor and hire of any necessary equipment. Note the following points.
 - The price reported for completed components does not include any profit margin, fees for architects and other construction specialists or for any other overhead costs. It consists only of the direct costs of materials, labor and hire of equipment.
 - The purchasers' prices of the materials and hire of equipment includes only non-deductible product taxes. Value added taxes are often fully deductible for goods and services that are considered to be investments and so will usually be excluded from the purchaser price.
 - For labor, compensation of employees is reported (see the definition in the next paragraph).
- For **skilled and unskilled labor**, compensation of employees is reported and not just cash wages and salaries. Compensation of employees consists of:
 - wages and salaries paid in cash before deduction of income taxes, social security contributions that are paid by the employee and, where relevant, union dues;
 - employers' contributions to social security schemes; and
 - the cost to the employer of income in kind provided to the employees in the form of free or subsidized housing and food.

In many countries, construction workers are usually employed on a temporary basis and employers do not make any payments on their behalf into a social security system nor provide income in kind. In such cases compensation of employees will equal wages and salaries before deduction of income taxes, social security contributions that are paid by the employee and union dues.

- For **rent of equipment** purchaser prices are reported. These include non-deductible product taxes and the costs of transporting the equipment to the construction site. If the owner of the equipment also supplies a specialized operator for the equipment, these labor costs will also be included in the purchaser price.

- For **building materials** purchaser prices are reported. Purchaser prices include non-deductible product taxes and the costs of delivering the materials to the construction site.

National prices

548. For **composite components**, countries are required to supply average national prices. These should be weighted averages of the costs of the materials, labor and hire of equipment required to construct the component in different regions of the country with the weights proportional to the value of construction work being carried out in those different regions. In small countries, it may be sufficient to estimate the cost of the completed component in a single location – e.g. the capital city – but in many countries it will be necessary to take account of regional variations in calculating national average costs for completed components.

549. The same reasoning applies for building materials, hire of equipment and labor. National prices should be weighted averages of prices in all the parts of the country where construction activity is significant. In small countries this may be a single location, but in most countries prices will have to be collected in a number of different locations.

Number of price observations

550. For **composite** components, a single estimate of the national average is required.

551. For building materials and for hire of equipment, prices should be collected from at least five outlets in each part of the country where construction activity is significant.

552. For skilled and **unskilled labor** the number of observations required depends on the data sources used. These are discussed below.

Timing of data collection

553. The prices reported should be average prices for the year: in principle, these should be the average of prices collected at regular intervals throughout the year. However, provided all countries price equipment goods at approximately the same period, there is no need to collect prices throughout the year. Price collection in mid-year is recommended.

Product specifications and reporting forms

554. Box 2 gives an example of a reporting form for one of the 22 composite components - namely *Earthwork*. Hire of all kinds of equipment, purchase of all kinds of building materials and payments for all kinds of skilled labor are reported and not only those kinds of equipment, building materials, and skilled labor that are included in the list of basic inputs. For example, in most countries crawler-dozers and dump trucks would be used for the type

of earthwork specified. The cost of hiring these and other kinds of equipment must be included in the cost of this composite component.

Table 7.9. Sample SPD for Construction: Earthwork

Source Information: Date of price collection: _____ Country: _____ Describe source of price			
<input type="checkbox"/> Architect	<input type="checkbox"/> General Contractor		
<input type="checkbox"/> Engineer	<input type="checkbox"/> Specialty Contractor		
<input type="checkbox"/> Average, Price Index data collection	<input type="checkbox"/> Other (_____)		
Quantity and Details: <p>This component is intended for collection of pricing data for excavating, transporting, water treating, and compacting 5000 cubic metres (bank measurement) of soil excavation. Assume that soil conditions are similar to those commonly described as common soil (this means excluding rocky condition or a condition that is referred to as a “problem soil”) and that earthwork is to be performed under average workability and trafficability conditions. For purposes of this pricing, assume that the earthwork is to be conducted as part of a mass grading operation for a project, and that all transport of soil will take place within the project boundaries (no off-site or over-road transport is required). Stripping of topsoil is not to be included in the price. No shoring is required for the cut portion of the earthwork. The average haul distance is 800m, with a maximum haul distance of 1000m. The fill will be constructed only out of the 5000 bank cubic metres of cut, and is to be compacted to a minimum density of 95% of the maximum density of the standard Proctor compaction test (ASTM D698 or equivalent) at moisture content within 2% of optimum. Assume that compaction testing will be conducted, but the cost of this testing is not to be included in the price.</p>			
Pricing Information:			
Material Costs (in national currency)			
Type	Quantity (Column 1)	Unit Cost (Column 2)	Extended Material Costs (Column 1 X Column 2)

TOTAL COST FOR MATERIALS (in national currency):	_____ (a)			

Labor Costs (in national currency)

Type:	Number of Hours Required (Column 1)	Rate per hour (Column 2)	Extended Labor Costs (Column 1 X Column 2)	
Unskilled Labor				
Skilled Labor (list by type):				
TOTAL COST FOR LABOR (in national currency):			_____ (b)	

Equipment Costs (in national currency)

Type:	Number of Hours Required (Column 1)	Rate per hour (Column 2)	Extended Equipment Costs (Column 1 X Column 2)	
TOTAL COST FOR EQUIPMENT (in national currency):			_____ (c)	

Total Price for earthwork
(in national currency – sum of a, b, and c): _____

Comments (if any)

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Sources of price information

555. The sources of price data differ depending on the nature of the component:

- A construction expert should be used provide the prices for composite components, building materials and hire of equipment. The expert could be an architect, quantity surveyor, construction engineer or a building contractor. In some countries it will be possible to find someone with the necessary expertise in a government agency such as a public works department or construction ministry. In other countries private sector consultants have to be hired.
- For skilled and unskilled labor there are several possible sources:
 - Some countries regularly compile statistics on the costs of various kinds of labor and may be able to supply the necessary data from existing records.
 - In some countries all or most workers in the construction industry belong to trade unions which enforce standard levels of employee compensation. Provided that a high percentage of employees in the industry are unionized, the standard trade union rates can be used.
 - In other countries it is necessary to make a special investigation into compensation for both skilled and unskilled workers. In this case the sources could be specialist or general building contractors, public or private employment agencies, or advertisements in trade publications aimed at the construction industry.

4.8. Editing prices

556. Methods used to edit price data for BOCC will again depend on the type of component:

- For completed components there will be only a single price observation per country. The Quaranta tables can be applied by the Regional Offices but not by national statistical offices.
- For building materials and for plant hire countries should make multiple price observations so the full Quaranta procedure can be used both by countries and by the Regional Offices.
- For compensation of employees some countries will make multiple observations so that the Quaranta editing procedure can be used both by the countries and by the Regional Offices. In other case only a single observation will be provided so that only the Regional Office can perform a Quaranta edit.

5. DETAILED WEIGHTS FOR CONSTRUCTION (BOCC METHOD)

557. The BOCC approach uses weights at three levels:

1. W1— for aggregation of composite components and/or basic inputs to obtain Systems;
2. W2—for aggregation of Systems to obtain Basic Headings;
3. W3— for aggregation of the three Basic Headings – Residential and Non-residential and Civil engineering works - to obtain GDP

558. Unweighted geometric means are used to obtain price relatives for Systems from the composite components or basic inputs. In other words the W1 weights are set at unity. However, weights are still implicitly being used because in constructing composite components different combinations of labor, materials and plant hire will be used in different countries depending on relative prices.⁶

559. W3 weights are Basic Heading weights and come from the national accounts.

560. Special calculations are required for the W2 weights. Each country is required to estimate its own W2 weights for the systems that make up each of the three Basic Headings. These system weights will be different for each Basic Heading and for each country. Two broad strategies for calculating W2 can be adopted by National Statistical Institutes (NSI).

- Strategy 1: Under the first strategy the NSI retains the service of a construction expert to determine the values of W2. If the NSI has hired an outside expert to cost the composite components, this same person may be able to provide the W2 Weights.
- Strategy 2: Under this strategy the NSI performs all the W2 calculations in-house. This approach is only advisable where the NSI can request help from the country's public works department or ministry of construction.

561. The procedure for calculating W2 weights involves the following steps:

Step 1: Collect priced Bills of Quantity (BOQs) from past projects for the three Basic Headings.

- For the Residential buildings BOQs for single-family dwellings and apartment buildings and the like are obtained.

⁶ However, in the case of the three Systems for which only basic inputs are used there are neither implicit nor explicit weights.

- For Non-residential buildings, BOQs for farm buildings, office buildings, industrial buildings, hospitals, schools and buildings for cultural and religious purposes are obtained.
- For the Civil engineering works, BOQs for roads, highways, airports, water and sewer systems, telecommunication structures, marine structures, power generation and transmission infrastructure are obtained.

The larger the sample, obviously the more reliable the overall result will be. However, at least one project of each type within each Basic Heading should be used, and preferably three or more. The BOQs to be collected relate to past projects, so there is no need to generate new data for this process.

Step 2: Every item in the priced BOQ needs to be classified as belonging to one of the systems. For someone with expertise in construction or engineering it is not difficult to map each line item in the BOQ to a particular system. It is not necessary to have an extremely detailed BOQ for this purpose. A summary or “roll-up” BOQ which lists only the principal divisions and a few major categories within each division is sufficient and is somewhat easier to work with. With a “roll-up” BOQ, the mapping of the line items to the appropriate systems can be accomplished in a few minutes. Table 8 illustrates this step. Columns 1 to 5 are already available; Column 6 is completed in Step 2.

Table 7.10. Sample BOQ illustrating allocation of items to systems

(1) Item Description	(2) Unit	(3) Quantity	(4) Unit Rate	(5) Item Cost	(6) System
3.1 Building concrete: 150 kg cement 5 cm thick	m3	4	100	400	Substructure
3.2 Foundations: reinforced concrete for strip and independent footings. 350 kg cement	m3	19	140	2660	Superstructure
3.3 Rough formwork for item 3.2	m2	97	12	1164	Superstructure
3.4 Reinforced concrete for anchorages, lintels, parapet and upright	m3	41	140	5740	Superstructure
3.5 Rough formwork for item 3.4	m2	574	12	6888	Superstructure
3.6 Reinforced concrete: 250 kg for slab 10 cm thick	m2	260	12	3120	Superstructure

Step 3: After the classification of all the items in the BOQ is complete, the contributing cost of each system to the total project can be calculated using the equation:

$$W2_{S_i} = \frac{\sum_{\text{all } k} I_k}{T}$$

where:

$W2_{S_i}$ = $W2$ weight for the i^{th} System

I_k = line item cost for the k line items classified as belonging to system i ;

and T = total direct cost of the project, i.e. excluding taxes, profits, and overhead costs.

This process is repeated for all i Systems in each of the three Basic Headings.

Annex 7.1. ICP equipment Ring list

BH Code	Basic Heading Title	Product Name	Pr. Code	No. of Prods
15.01.11.1	FABRICATED METAL PRODUCTS			
		Horizontal Cylindrical Storage Tank (5,000 Litres)	1	
		Horizontal Cylindrical Storage Tank 10,000 Litres)	2	
		Tank for Storing Liquid Food & Beverage Products (1,000 Litres)	3	
		Tank for Storing Liquid Food & Beverage Products (5,000 Litres)	4	
		Pressurized Gas Storage Tank	5	5
15.01.12.1	GENERAL PURPOSE MACHINERY			
	A. Engines & Turbines, Pumps & Compressors			
		Air Compressor - Small	1	
		Air Compressor - Towed	2	
		Industrial Diesel Engine (Heavy Duty) - Tier2 Stage2	3	
		Industrial Diesel Engine (Heavy Duty) - Tier3 Stage3A	4	
		Light Industrial Diesel Engine	5	
		Marine Diesel Engine (Commercial)	6	
		Marine Diesel Engine (Pleasure)	7	
		On-Highway Commercial Diesel Engine (Heavy Duty)	8	
		Water Pump - Centrifugal	9	
		Water Pump - Jet	10	10
	B. Other General Purpose Machinery			
		Air Conditioner - Residential	11	
		Air Conditioner - Room	12	
		Rough Terrain Forklift - Extendable Boom	13	
		Rough Terrain Crane	14	
		Telescopic Boom Truck Crane	15	5
15.01.13.1	SPECIAL PURPOSE MACHINERY			
	A. Agricultural & Forestry Machinery			
		Compact Tractor	1	
		Utility Tractor	2	2
	B. Machine Tool			
		MIG Welder (Arc Welder)	3	
		Power Circular Saw	4	
		Power Hand Drill	5	
		Grinder Power Handheld	6	

15.01.13.1	SPECIAL PURPOSE MACHINERY		
	Grinder Power Handheld	6	
	Router	7	
	Sander	8	6
	C. Machinery for Metallurgy, Mining, Quarrying & Construction		
	Backhoe Loader	9	
	Crawler Dozer - Large	10	
	Crawler Dozer - Medium	11	
	Crawler Dozer - Small	12	
	Crawler Loader - Large	13	
	Crawler Loader - Medium	14	
	Crawler Loader - Small	15	
	Dumper1 - Rigid Frame	16	
	Dumper2 - Over 30 Tonnes	17	
	Dumper3 - Under 30 Tonnes	18	
	Hydraulic Excavator1 - Large	19	
	Hydraulic Excavator2 - Compact	20	
	Hydraulic Excavator3 - Mini	21	
	Motor Grader	22	
	Skid Steer Loader	23	
	Skid Steer Loader - Rubber Track	24	
	Trenchless	25	
	Wheel Dozer	26	
	Wheel Loader1 - Large	27	
	Wheel Loader2 - Mid-Size	28	
	Wheel Loader3 - Compact	29	
	Wheel Loader4 - Small	30	22
	D. Machinery for Food, Beverages & Tobacco Processing		
	Mincing Machine (0.5 KW Power)	31	
	Mincing Machine (1 KW Power)	32	
	Spiral Dough Mixer (for 50 Kg)	33	
	Spiral Dough Mixer (for 100 Kg)	34	4
	E. Machinery for Textile, Apparel & Leather Production		0
	F. Other Special Purpose Machinery		
	Blow Moulding Machine for 50 Litres	35	
	Blow Moulding Machine for 100 Litres	36	
	Injection Moulding Machine for 50 Tonnes (Low-end)	37	
	Injection Moulding Machine for 1,000 Tonnes (High-end)	38	
	Extruder	39	5

15.01.14.1	ELECTRICAL & OPTICAL EQUIPMENT		
	A. Office Machinery		
	Copier	1	
	Fax Machine	2	
	Digital Projector	3	
	Overhead Projector	4	
	Paper Shredder	5	5
	B. Computers & Other Information Processing Equipment		
	Desktop Computer - Compaq	6	
	Desktop Computer - Dell	7	
	Laptop Computer	8	
	Inkjet Printer	9	
	Laser Printer	10	
	Multifunction Printer	11	
	PDA	12	
	Scanner	13	
	Server	14	9
	C. Electrical Machinery & Apparatus		
	Electric Motor	15	
	Generator	16	2
	D. Radio, Television & Communications Equipment & Apparatus		
	2-Way Radio	17	
	DVD Player	18	
	Security Camera	19	3
	E. Medical, Precision & Optical Instruments, Watches & Clocks		
	Anaesthesia Unit	20	
	Chemistry Analyzer	21	
	CT Scanner	22	
	Infant Incubator	23	
	Infusion Pump	24	
	Mammography Unit	25	
	MRI	26	
	Patient Monitor	27	
	Ultrasound	28	
	X-Ray Machine	29	10
15.01.15.1	OTHER MANUFACTURED GOODS n.e.c.		0
15.01.21.1	MOTOR VEHICLES, TRAILERS & SEMI-TRAILERS		
	Commercial Vehicle - 28 Passengers	1	
	Diesel Minibus - 8 Passengers	2	
	Diesel Minibus - 15 Passengers	3	

15.01.21.1	MOTOR VEHICLES, TRAILERS & SEMI-TRAILERS		
	Diesel Minibus - 21 Passengers	4	
	Intra-City Bus - 26 to 44 Passengers	5	
	Inter-City Bus - 45 Passengers	6	
	Lorry Cab Chassis 5 Tonnes	7	
	Lorry Cab Chassis 10 Tonnes	8	
	Lorry Cab Chassis 15 Tonnes	9	
	Pickup Truck	10	
	Van Truck	11	11
15.03.11.1	SOFTWARE		
	Adobe Photoshop (10)	1	
	Adobe Photoshop (100)	2	
	MS Office 2003 Standard (10)	3	
	MS Office 2003 Standard (100)	4	
	MS Windows XP Professional (10)	5	
	MS Windows XP Professional (100)	6	
	Norton Antivirus (10)	7	
	Norton Antivirus (100)	8	
	SPSS V10	9	9
TOTAL			108

Annex 7.2. Web-Sites that can be uses for identifying and pricing equipment goods

Fabricated Metal Products

www.alcoa.com (aluminium extrusions)

General Purpose Machinery

www.ingersoll-rand.com (cranes, compressors)

www.volvo.com (cranes)

www.kawasaki.com (gas turbines)

www.cat.com (engines, gas turbines)

www.johndeere.com (diesel engines)

www.komatsu.com (diesel engine, forklift)

www.cummins.com (engines)

www.liebherr.com (cranes)

www.lindelifttruck.com (forklift)

www.linkbelt.com (cranes)

www.manitowoccranes.com (cranes)

www.jlg.com (cranes, forklift)

www.manitou-na.com (cranes, forklift)

www.mit-lift.com (forklift)

www.mustangmfg.com (forklift)

www.pettibone-mi.com (cranes)

www.towercranes-usa.com (tower cranes)

www.snorkelusa.com (truck mounted cranes)

www.tadanoamerica.com (cranes)

www.technocrane.com (cranes)

www.terex-crane.com (cranes)

www.yale.com (forklift)

www.airtechnical.com (crane)

www.demag-us.com (crane)

www.noellcrane.com (crane)

www.mantiscranes.com (cranes)

www.badgerequipment.com (cranes)

www.kobelcoamerica.com (cranes)

www.palfinger.com (crane)

www.positech-solutions.com (cranes)

www.stellarindustries.com (cranes)
www.altec.com (cranes)
www.lenox.com (HVAC)
www.carrier.com (HVAC)
www.rheem.com (HVAC)
www.americanstandard.com (HVAC)
www.granger.com (HVAC, tools, electrical, lighting, welders, generators, motors)
www.grovetworldwide.com (cranes)

Special Purpose Machinery

www.agcocorp.com (agricultural machinery brands- Challenger, Fendt, Massey-Ferguson, Valtra, Gleaner, Hesston, New Idea, Ideal, Sunflower, White planters, RoGator, TerraGator, Spra-Coupe, Farmhand, Glencoe, Sisu Diesel, TYE, Fieldstar, Lor*al, Soilteq, Willmar)
www.cat.com (earthmoving, mining, quarrying, material handling)
www.cnh.com (agricultural machinery brands-CASE IH, New Holland, Steyr) (construction machinery-CASE, New Holland, Kobelco)
www.johndeere.com (agricultural, earthmoving, forestry and lawn care)
www.ingersoll-rand.com (earthmoving)
www.volvo.com (earthmoving)
www.komatsu.com (earthmoving)
www.kawasaki.com (earthmoving)
www.jcb.com (earthmoving, agriculture, forklifts)
www.makita.com (power woodworking tools)
www.black&decker.com (power woodworking tools)
www.ryobi.com (power woodworking tools)
www.portercable.com (power woodworking tools)
www.dewalt.com (power woodworking tools)
www.bosch.com (power woodworking tools)
www.milwaukee.com (power woodworking tools)
www.skil.com (power woodworking tools)
www.hilti.com (power woodworking tools)
www.hitachi.com (power woodworking tools)
www.metabo.com (metal working tools)
www.ridgid.com (metal working tools)
www.grizzley.com (power woodworking tools)
www.festool.com (power woodworking tools)
www.craftsman.com (power woodworking tools)
www.chicagopneumatic.com (power Tools)

www.universaltool.com (power tools)
www.woodworker.com (power woodworking tools)
www.jettool.com (power woodworking tools)
www.unverferth.com (agricultural trailers)
www.balzerinc.com (liquid manure haulers)
www.rotomix.com (semi solid manure hauler)
www.liebherr.com (earthmoving)
www.linkbelt.com (earthmoving)
www.mustang.com (earthmoving)
www.gehl.com (earthmoving)
www.ditchwitch.com (earthmoving)
www.vermeer.com (earthmoving)
www.geartechology.com (gear tooth cutting)
www.gleason.com (bevel gear cutting)
www.brown&sharpe.com (metrology)
www.barber-coleman.com (gear cutting machines)
www.granger.com (tools, welders, woodworking)
www.hobart.com (welding machines)
www.lincoln.com (welding machinery)
www.mitrowskiwelding.com (welding machinery)
www.thermadyne.com (welding and plasma cutting machines)
www.bernina.com (sewing machines and sergers)
www.pfaff.com (sewing machines and sergers)
www.singer.com (sewing machines and sergers)
www.brother.com (sewing machines and sergers)

Electrical/optical/medical equipment

www.leviton.com (switching devices)
www.squared.com (control and switching devices)
www.sylvania.com (controls, switching devices, lights)
www.siemens.com (controls, switching devices, lights, transformers, motors, medical devices)
www.westinghouse.com (controls switching devices, lights, motors)
www.ge.com (controls, switching devices, motors, generators, transformers, lights, medical devices)
www.basler.com (transformer, switching gear)
www.kirloskar.com (generators)
www.marathonelectric.com (generators)

www.onan.com (generators)

www.lightinguniverse.com (lighting)

Motor vehicles/trailers/semi-trailers

www.mack.com (cab/chassis, tractor)

www.paccar.com (truck/tractor brands-Kenworth, DAF, Leyland, Peterbilt, Foden)

www.navistar.com (cab/chassis, tractors)

www.gmc.com (cab/chassis, van, pickup)

www.isuzu.com (cab/chassis, tractor, van, pickup)

www.misubishi.com (cab/chassis, tractor, van, pickup)

www.ford.com (cab/chassis, van, pickup)

www.zil.com (cab/chassis, tractor)

www.tatra.com (cab chassis, tractor)

www.renault.com (cab/chassis, tractor)

www.iveco.com (cab/chassis, tractor)

www.freightliner.com (van, cab/chassis, tractor)

www.sterling.com (cab/chassis, tractor)

www.dodge.com (van, pickup)

www.scania.com (cab/chassis, tractor)

www.volvo.com (cab/chassis, tractor)

www.eastmfg.com (semi-trailer, trailer)

www.fontainespecialized.com (semi-trailers)

www.haletrailer.com (trailers)

www.mausersteel.com (semi-trailers)

www.vancotrailers.com (trailers)

www.wabashnational.com (trailers)

www.fruefauf.com (trailers)

www.nelsontrailers.com (trailers)

www.heil.com (truck hauling units)

www.johnsontruckbodies.com (truck hauling units)

www.knapheide.com (truck hauling units)