

**IMMEDIATE  
ATTENTION**

SM/01/318  
Supplement 2

October 22, 2001

To: Members of the Executive Board

From: The Secretary

Subject: **Republic of Estonia—Report on the Observance of Standards and  
Codes—Detailed Assessments Using the Data Quality Assessment  
Framework**

Attached for the information of the Executive Directors are the detailed assessments using the data quality assessment framework for the Republic of Estonia.

It is expected that this report will be published on the Fund's external website.

Questions may be referred to Mrs. Liuksila (ext. 38768) and Ms. Valencia (ext. 34223).

Att: (1)

Other Distribution:  
Department Heads



INTERNATIONAL MONETARY FUND

REPUBLIC OF ESTONIA

**Report on the Observance of Standards and Codes (ROSC)—Data Module  
Detailed Assessments Using the Data Quality Assessment Framework**

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October 19, 2001

This document contains a detailed assessment by dataset of the elements and indicators that underlie the data quality dimensions discussed in the data module, including the generic framework used for the assessment of the quality of Estonia's data (Appendix I).

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## DETAILED ASSESSMENTS USING THE DATA QUALITY ASSESSMENT FRAMEWORK

The following detailed information on indicators of statistical practices in the areas of national accounts, prices, balance of payments, government finance, and monetary statistics was gathered from publicly available documents and information provided by the Estonian officials. This information, which is organized along the lines of the generic DQAF (Appendix I), was used by the mission to prepare the summary assessment of data quality elements presented in the Data Module.

### I. NATIONAL ACCOUNTS (ANNUAL AND QUARTERLY)

#### 0. Prerequisites of quality

##### *0.1 Legal and institutional environment*

*0.1.1 Responsibility for collecting, processing, and disseminating statistics is clearly specified.*

The Official Statistics Act (OSA) 1997, as amended in June 2000, provides that the main agencies for the conduct of official statistical surveys are the Statistical Office of Estonia (SOE) and, to the extent provided for in the Bank of Estonia Act<sup>1</sup>, the Bank of Estonia (BOE). The OSA does not specifically mention the responsibility for compiling and disseminating national accounts data, nor does it prescribe a list of the kinds of statistics to be collected and produced by official statistical agencies. However, the SOE has certain statistical coordination responsibilities (see 0.1.2 below) and the compilation of the national accounts is consistent with these responsibilities.

*0.1.2 Data sharing and coordination among data producing agencies are adequate.*

Data sharing and coordination arrangements between data producing agencies are soundly based. The OSA provides that the government shall approve a list of official statistical surveys each year, except surveys conducted by the BOE. This list is in fact compiled by the SOE, following an extensive process of consultation with the various government agencies, and is sent to the government for approval. The intent of the list and the process itself is to establish that specific surveys are in fact necessary, identify and eliminate duplication, and harmonize methods and classifications.

The OSA provides that the main agencies conducting official statistical surveys shall coordinate methods with one another, agencies conducting official statistical surveys shall adopt methods that conform to national and international standards and classifications, and

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<sup>1</sup> In respect of balance of payments, monetary and financial statistics.

that State agencies shall coordinate their methods of data collection, processing and dissemination, and subsequent changes, with the SOE. This is not quite as definite as saying that "the SOE is responsible for coordinating data collection, processing and dissemination by State agencies, as well as subsequent changes to such methods," i.e., the legislation appears to place the onus for coordination on the other agencies and not the SOE. However, the SOE considers that its coordination responsibilities are clear, visible, and well understood within government.

Until very recently the responsibility for coordinating the development and implementation of standard classifications was located in the Classification Center in the MOF. However, in January 2001 this responsibility was transferred to a newly established Classification Section in the SOE. While there is much classification development work required within the SOE, it will also be important for the Classification Section to give further assistance to other agencies in the implementation and observance of standard classifications.

Data sharing, as required for compiling the national accounts, is provided for in the OSA. State and local government agencies are required, at the request of agencies conducting official statistical surveys, to submit data collected in the course of their activities. Persons who maintain databases are required, at the request of agencies conducting official statistical surveys, to submit data collected in the databases.

The SOE maintains close contact with the other main data producing agencies that supply data for use in compiling the national accounts; i.e., the MOF, the BOE, the Estonian Insurance Supervisory Authority (EISA), and the Estonian National Tax Board (ENTB). The SOE is satisfied with the level of cooperation it receives from these agencies. However, there is scope for some improvements in the access to tax data, as discussed in section 0.2.2 below.

There appears to be no evidence of major duplication of statistical effort among the various agencies. An example of duplication that has now been eliminated is data on government investment that were formerly collected by the Enterprise Statistics Division of the SOE but are now obtained from the MOF.

*0.1.3 Respondents' data are to be kept confidential and used for statistical purposes only.*

The OSA requires agencies conducting official statistical surveys to ensure the protection (confidentiality) of the collected data, and that such data shall not be used for control, taxation, or other non-statistical purposes. The agencies conducting official statistical surveys may not disseminate data that directly or indirectly identify a respondent, except with the written consent of the respondent. Data collected through official statistical surveys may be used only for statistical purposes. This means that confidential data may not be used in litigation, except in cases of breach of the statistical law.

The OSA provides that the government shall establish procedures for protecting the privacy of the data collected and processed by the SOE. The SOE has established procedures, as a regulation under the OSA, and these have been approved by the government. They cover

principles for the general protection of data, the organizational protection of data, the protection of data in information technology, and the physical protection of data.

Office procedures have been established to reinforce the legislation and regulation, and are circulated to staff. They cover, inter alia, security rules and procedures regarding dissemination of data, processing of data, staff security and physical security. In addition, the requirement to maintain the confidentiality of individual information is emphasized in job descriptions for SOE staff.

The Public Service Act, 1995 protects the security of individual data collected. It provides that " a public servant shall maintain a state or business secret which becomes known to him or her due to his or her office....and other information received in confidence." A public servant may be disciplined for the wrongful non-performance or unsatisfactory performance of duties.

Finally, two other acts reinforce the OSA provisions. The Personal Data Protection Act, 1996 protects the fundamental rights and freedoms of persons with regard to the processing of defined types of personal data in accordance with the right of persons to freely obtain information disseminated for public use. The Act defines certain responsibilities of "chief processors" and "authorised processors" and provides penalties for violation. The Databases Act, 1997 provides for procedures to possess, use, and dispose of State and local government databases, general principles for maintaining databases and release and use of their data, and penalties for violation. The above three Acts are available on the website for the Estonian Government at [www.riik.ee](http://www.riik.ee).

*0.1.4 Statistical reporting is ensured through legal mandate and/or measures implemented to encourage voluntary response.*

The OSA provides that agencies conducting official statistical surveys shall communicate to respondents the purposes, the principles of processing, transmission, and dissemination, and the due dates for submission of requested data. Agencies shall also inform respondents of the liability upon non-compliance. Agencies must inform respondents of the intention to collect data, or of any changes, at prescribed times prior to collection or due date.

The OSA requires authorized processors of databases to coordinate the structure and definitions of the data and classifications used in databases with the Statistical Office. Since June 2000 the SOE has the right to communicate directly with all government agencies and use the data of the ENTB in producing statistics,

There are no provisions under the OSA that give the SOE the power to inspect respondents' books, records, premises and stocks, in order to obtain the required information in cases of non-compliance. However, this is not a cause for concern on the part of the SOE.

The penalties for non-compliance by legal persons are sufficiently large to act as a deterrent to non-compliance. In practice, the SOE has not initiated legal proceedings against any legal

persons, and prefers instead to make efforts to engender and maintain cooperation on the part of respondents. Penalties for non-compliance by natural persons are also provided for. However, as with legal persons, the SOE is understandably reluctant to initiate legal proceedings.

The SOE has been active in creating goodwill among the data providers through the provision of statistics to certain respondents; e.g., data on key operating ratios from the enterprise surveys are made available free of charge to respondents so that they are able to compare their performance with the industry (economic activity) in which they operate. Key agriculture data are provided free of charge to farmers, and small gifts are provided to households included in the household budget survey.

The statistical legislation, amended in 2000, has been discussed with the European Union (EU) and the SOE indicated that the legislation follows closely the pattern for the statistical law on transition economies that has been developed by the EU. In summary, the legal and other arrangements for obtaining data for national accounts purposes are completely adequate.

## **0.2 Resources**

### ***0.2.1 Staff, financial and computing resources are commensurate with institutional programs.***

The national accounts program has adequate staff resources. In the past, due to the low level of wages, the Macroeconomics Statistics Division of the SOE experienced difficulties in recruiting and retaining qualified staff. However, the situation has improved considerably over the past two to three years and overall staffing capability is now quite strong. A number of the national accounts staff have had the benefit of technical assistance and training in courses and seminars arranged by international organizations, including the IMF, Eurostat and the OECD. There has also been a small additional allocation of staff, mainly for development of supply and use tables. Participation in international seminars and courses has contributed significantly to the professional development of national accounts staff and has also been a contributing factor to job satisfaction.

The financial resources for the national accounts program are adequate. There have been some instances in which a small amount of funding has been available for surveys and studies (e.g., to assist in compiling estimates of the non-observed economy) but these are not done on a regular basis.

The national accounts program has adequate computing resources. Each staff has a PC. There is a reasonably satisfactory level of IT systems and ongoing technical support for national accounts staff. However, the provision of IT services in the SOE generally is less than satisfactory. The IT budget is controlled by the Ministry of Finance. Separate allocations are made to the SOE for general IT matters such as purchase of computers and software, and maintenance of hardware, and for special development projects, of which the current major examples are the Population and Housing Census, a Statistical Information System, and the



Agriculture Census. The total IT allocation for general and special projects is regarded by the SOE as inadequate to meet all the demands it faces. There have also been problems of incompatibility of systems that are being progressively addressed. These issues could have potential impact on the compilation of the national accounts and, more particularly, on the collection, processing and compilation of major source data such as the economic activity surveys and the household budget survey.

*0.2.2 Measures to ensure efficient use of resources are implemented.*

Concepts, methodologies, and accounting conventions used within the SOE are in harmony with those of the *1993 System of National Accounts (1993 SNA)* and the *1995 European System of Accounts (1995 ESA)*. Accounting conventions used within the agencies are generally in harmony with those of national accounts. The major exception is the use of the cash basis in government accounts.

As noted earlier, there are no legislative impediments to data sharing and in practice data sharing is quite effective. There is, however, some scope for improvement. There is reasonable access to, and use of, administrative data in the compilation of the national accounts. For instance, use is made of turnover data, based on value added tax data obtained from the ENTB, to compare with trends in the gross output data obtained from the economic activity survey and other sources, and to assist in compiling the "flash" estimates of GDP. However, there is scope for improvements to the ENTB data, which use an activity classification that does not fully accord with the Classification of Activities of the Estonian National Economy (EMTAK). The full use of EMTAK as the basis for classifying units in the taxation system would provide more reliable turnover data classified by activity for use in compiling the national accounts.

Beyond this, it would be potentially very useful for the SOE to have access to individual data records from the ENTB relating to business and personal income. Such data could potentially enable the imputation of gross product data for small sized organizations, thus reducing the extent to which data need to be collected directly from such organizations. Imputation of gross product for medium-sized and larger organizations would also be possible, although there is greater potential benefit with smaller organizations because of the larger numbers involved. Access to individual tax records would also benefit the ongoing development and updating of the statistical profile (or business register), which at present relies on a variety of lists, most of which are less comprehensive than ENTB sources.

There are no legislative obstacles to access to individual tax records and the ENTB is receptive to the SOE's need for such access for use in national accounts, updating of the statistical profile and the compilation/supplementation of business statistics. However, both the ENTB and the SOE need to develop systems that will provide the detailed data to the SOE while fully satisfying the legislative provisions with which both agencies must comply. The mission fully endorses the careful development of methods and systems, on the part of both agencies, to ensure full compliance with the legislation. At the same time, the mission

underlines the significant potential benefits, as mentioned above, that would accrue to the SOE when these issues are able to be satisfactorily resolved.

More generally on resource and cost-effectiveness issues, a recent reorganization of the SOE included the closing of a number of regional bureaus and the transfer of certain functions to head office in Tallinn. This appears to have contributed significantly to improving the cost-effectiveness of statistical programs and has also enabled some supplementation of salaries to professional staff, thus assisting in retaining expertise and experience.

The Head of Macroeconomics Statistics Division has some flexibility to reorganize the staffing of the Division and to reallocate staff in response to changed priorities and /or new demands for statistics. A fairly recent example has been the establishment of a unit that has developed and compiled supply and use tables.

### ***0.3. Quality awareness***

*0.3.1 Processes are in place to focus on quality, to monitor the quality of the collection, processing and dissemination of statistics, to acknowledge and deal with trade offs within quality, and to guide planning for existing and emerging needs.*

There is a clear focus on quality in the compilation of the national accounts. This is underlined by the many credibility checks throughout the process, and the comparisons made with other related data.

An Expert Group on GDP estimates has been in operation from time to time. This comprises experts from the SOE, BOE, MOF, and the Institute of Economic Research. The Group's main function at one time was to meet just prior to publication of quarterly national accounts estimates, to carry out a broad review of the aggregates about to be published. With growing SOE experience in compiling the national accounts, this review became less useful. However, more recently the group has met following major releases of data, at approximately half yearly intervals, to provide an opportunity for the Macroeconomics Statistics Division to provide background information on the data and underlying methodology, as well as any revisions to series.

For some time, there have been plans to establish a national statistical advisory council comprising major data users and data providers. There is no legal impediment to establishing such a body, provided that it is purely advisory in nature. It is important to determine a satisfactory basis for council membership and this is a matter that the SOE is addressing prior to the establishment of an advisory council. The SOE appreciates the many potential benefits that would result from such a body.

The Marketing and Dissemination Division of the SOE has conducted a number of user surveys but none have specifically related to national accounts statistics. The annual national accounts publications are quite large and a more formal evaluation of user requirements (e.g., through a small-scale user survey) would be useful. This should cover the extent of use of

existing data, comments on how the existing data and metadata are presented, additional data and metadata needs, and preferred means of accessing data (e.g. through various electronic media).

The mission considers that it would be useful to review the dissemination of SOE data generally, in view of the emerging availability and use of data on the SOE website ([www.stat.ee](http://www.stat.ee)) and in other electronic forms, and the gradual shift by users away from accessing data through publications. The mission observes that there are many very large statistical publications, and questions the need for formal publication in such detail when many users undoubtedly only require a small proportion of what is formally published.

## **1. Integrity**

### ***1.1 Professionalism***

#### ***1.1.1 Statistics are compiled on an impartial basis***

The legal and institutional environment under which the SOE operates appears adequate to guarantee independence and impartiality in the compilation of statistics.

The Minister of Finance has the power to appoint and remove the Director General of the SOE, under an Act of the Government of Estonia. This is consistent with practice within the Estonian Government; i.e. it is usual for these powers to be held by Ministers. The SOE does not see this as in any way likely to affect the independence of the Director General and his agency.

#### ***1.1.2 Choices of sources and statistical techniques are informed solely by statistical considerations.***

According to the OSA, the main statistical agencies are independent in their determination of statistical methods, but are required to coordinate with one another. However, except for the balance of payments and monetary statistical questionnaires (which are approved by the President of the Bank of Estonia), the OSA provides that the Minister of Finance approves official statistical questionnaires. This might imply the possibility of intervention on the professional independence of the statistical agencies, at survey design stage. However, the SOE in practice is responsible for the design of all questionnaires to be used by that office and it appears that the approval process is largely automatic. There has been no instance of ministerial interference in the process. In determining appropriate statistical methods close attention is paid to the requirements of *1993 SNA* and *1995 ESA*. The SOE is free to determine the appropriate data sources and in practice the Macroeconomics Statistics Division chooses from a wide range of survey and administrative data from a variety of sources.

*1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics.*

There is no specific legal provision for SOE staff to comment on erroneous interpretation and misuse of data. However, the SOE considers that there are no practical impediments to making such comments.

*1.2 Transparency*

*1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public*

The terms and conditions under which the data are produced and disseminated are freely available to the public. The full text of the OSA, as well as other relevant legislation, is available on the SOE's website. Under the Public Information Act 2000, State and local government agencies are required to maintain websites for the disclosure of information.

Documentation on the concepts, sources and methodology of the national accounts statistics is disseminated in publications and on the SOE's website. The level of detail varies from one publication to another. Changes to the methodology and subsequent changes to the time series data are explained in the relevant publications at the time of change.

*1.2.2 Internal governmental access to statistics prior to their release is publicly identified.*

As noted above, data are released simultaneously to all interested parties. No officials outside the SOE have access to the data prior to their release. No ministerial commentary is attached to the release of the data.

*1.2.3 Products of statistical agencies are clearly identified as such.*

Products of the SOE are clearly identified as such. This includes special tables produced as hard copy, on diskettes, etc. Copyright protection notes are also included in all data releases.

*1.2.4 Advance notice if given of major changes in methodology, source data and statistical techniques.*

The main organizations that contribute data towards the compilation of the national accounts, and the main users of national accounts data (BOE, MOF and some other ministries), are informed of major changes in the methodology before changes are implemented. For example, these main users were informed some months ago about the revisions to quarterly GDP series back to 1993 that will be published in June 2001. The public is informed of changes in the methodology in the news release at the time the data using the new methodology are disseminated.

### **1.3 Ethical standards**

#### ***1.3.1 Guidelines for staff behavior are clear and publicized***

There is a code of conduct for official statistics. The OSA states that official statistics shall conform to the principles of impartiality, reliability, relevance, cost-effectiveness, confidentiality and transparency. There is some elaboration of the meaning of these terms in the Strategic Development Plan prepared recently by the SOE. As noted in 0.1.3 above, the requirement of SOE staff to maintain the confidentiality of individual data is emphasized in government procedures, SOE regulations and internal procedures, and in job descriptions for each staff member.

Professionalism in the SOE is promoted by management through the statement of objectives of the SOE and the ways to achieve them (detailed in the SOE Strategic Development Plan); through encouragement of staff participation in external training through Eurostat, IMF, OECD, etc.; and through sending staff for long-term traineeships at Eurostat. Occasional training courses are also arranged for middle level staff, and occasional specific training is provided in-house and from universities.

## **2. Methodological soundness**

### ***2.1 Concepts and definitions***

#### ***2.1.1 The overall structure in terms of concepts and definitions follows international standards, guidelines, or agreed practices.***

The national accounts are compiled in accordance with the 1993 SNA and the 1995 ESA. As a Candidate Country for membership of the EU, the full implementation of 1995 ESA is the centerpiece for the development of the national accounts statistics in Estonia and the SOE is making strenuous efforts and commendable progress in this regard.

GDP at market prices from the production side is defined as the sum of gross value added of resident producers plus net taxes on products (i.e., net of subsidies). From the expenditure side, GDP is defined as the sum of total final expenditure at purchasers' prices, gross capital formation, exports of goods and services less imports of goods and services. GDP from the income approach is the sum of compensation of employees, consumption of fixed capital, net operating surplus or mixed income, and taxes (net of subsidies) linked to production and imports. However, the net operating surplus and mixed income are derived as residuals.

## **2.2 Scope**

*2.2.1 The scope is broadly consistent with international standards, guidelines, or agreed practices.*

The following are included as part of the economy:

- territorial enclaves in the rest of the world;
- free zones/bonded warehouses/factories operated by offshore enterprises under customs control; and
- workers who work part of the year in another country.

The production boundary is generally in accordance with the *1993 SNA*. The following illegal output sold to willing buyers is included: drugs, prostitution, and illegal copies of videotapes, audiotapes and compact discs.

In particular, the following items are in scope for output measurement:

- all production destined for the market, whether for sale or barter;
- all goods and services provided free to individual households or collectively to the community by government units or by Non-Profit Institutions Serving Households (NPISHs);
- own-account production of housing services and all other goods produced for own final consumption;
- production of goods and services by households both for the market and for own consumption;
- services produced by the employment of paid domestic staff;
- research and development on own-account, provided the data are reported by a separately defined research and development establishment;
- output of goods for own-account fixed capital formation (including dwellings)
- mineral exploration; and
- production of entertainment, literary or artistic originals (although there are some particular measurement problems with this item).

The assets boundary is generally in accordance with the *1993 SNA*. In particular, the following items are in scope for estimating the assets boundary:

Among tangible assets:

- defense related assets that could be used for civilian purposes.

Among intangible assets:

- mineral exploration (whether successful or not);
- systems and standard applications computer software and databases;
- entertainment, literary or artistic originals;
- patented entities; and
- leases and other transferable contracts.

The following tangible assets are not at present in scope for estimating the assets boundary:

- valuables and historical monuments. These are not covered at present, but are to be covered from 2002.
- agricultural work-in-progress.

## **2.3 Classification/sectorization**

*2.3.1 Classification/sectorization systems used are broadly consistent with international standards, guidelines, or agreed practices.*

The 1993 SNA is followed in classifying institutional units, transactions and other flows. The goods and services produced by government units are classified as either individual or collective according to the Classification of the Functions of Government (COFOG). Government expenditure is classified according to the COFOG and individual consumption expenditure according to the Classification of Individual Consumption according to Purpose (COICOP). GDP estimates according to the production approach are classified according to the EMTAK, which is based on NACE Rev. 1. Foreign trade is classified according to the Estonian Goods Nomenclature that is based on the Harmonised System (HS). The International Standard Classification of Occupations (ISCO) has been used since 1992.

## **2.4 Basis for recording**

*2.4.1 Market prices are used to value flows and stocks.*

The valuation rules used for recording flows and stocks are in accordance with the 1993 SNA. They are as follows:

- Market output is valued at basic prices;
- Output for own-use is valued at equivalent market prices;
- Transport margins are included in the valuation of intermediate consumption;
- Sales and excise taxes are included in the valuation of intermediate consumption;
- Value added taxes are included in the valuation of intermediate consumption, excluding the deductible part of the value added taxes;
- The deductible part of the value added taxes is excluded from the valuation of final uses; and
- Total imports and exports are valued on an f.o.b. basis.

There are some exceptions to the *SNA/ESA* standards in this regard:

- There appears to be no systematic means of identifying transfer values (between related enterprises or establishments) and adjusting such values to market values. The SOE should examine the extent to which this occurs and the need for obtaining such data in significant cases so that appropriate adjustments can be made; and
- Information on insurance and freight by commodities for imports are not available.

Transactions are not reported in foreign currency so there is no need to make conversions using, for example, the mid-point exchange rate prevailing in the market at the moment they take place.

#### *2.4.2 Recording is done on an accrual basis.*

Timing rules for recording flows are generally in accordance with the *1993 SNA*. There are exceptions with work-in-progress and government-related transactions. Work-in-progress is recorded in the period it is produced. Government-related transactions are mainly on a cash basis; for instance, revenues, expenditures and taxes and subsidies on products are all recorded on a cash basis. Some government data are now available from the MOF on an accrual basis. The SOE consider that there is very little difference in practice between the two approaches, but plans to move progressively to an accrual basis. International transactions are recorded at the time the goods enter/leave the economic territory as documented in the corresponding customs declarations.

#### *2.4.3 Grossing/netting procedures are broadly consistent with international standards, guidelines, or agreed practices.*

Grossing/netting procedures are in accordance with the *1993 SNA*. For example, data are compiled for both gross value added and net value added, after deduction of consumption of fixed capital, and disposable income is calculated both on a gross basis and net of consumption of fixed capital. Output is always based on actual prices, net of discounts.

### **3. Accuracy and reliability**

#### *3.1 Source data*

##### *3.1.1 Source data are collected from comprehensive data collection programs that take account of country-specific conditions.*

The following major source data are relevant to the national accounts for Estonia:

- The economic activity surveys;
- Other business statistics; and
- The household budget survey (HBS).



In addition, the statistical profile (business register) is relevant to the reliability of the economic activity surveys and other business statistics, and the sample design/ estimation systems for all surveys are also critical to the reliability of the data.

The following comments are structured in terms of the *economic activity surveys* (used in estimating GDP by the production approach) and the *household budget survey* (used in estimating GDP by the expenditure approach).

### ***Economic activity surveys***

#### ***Statistical profile:***

The statistical profile (or business register) is the framework from which the annual and quarterly economic activity surveys are conducted. The statistical profile is updated from many sources. However, lists from the ENTB are not yet accessed by the SOE, and are not incorporated in the statistical profile. As in many countries, there have been many difficulties in establishing and maintaining the profile. However, there appear to have been some significant improvements in its reliability over the past two to three years.

There is now general satisfaction, on the part of the users in the Enterprise Statistics Division and Macroeconomics Statistics Division, about the reliability of the statistical profile. The profile is generally considered to be comprehensive, reasonably up-to-date, and providing a sound basis for the conduct of surveys. It is also considered that the registers that are accessed as part of the updating system for the statistical profile are generally satisfactory. Local kind of activity units are being progressively incorporated in the profile. This will bring the register further into line with Eurostat requirements and will enhance its use for compiling economic activity statistics. The completion of this development is expected by the end of 2002.

#### ***Coverage:***

The annual and quarterly economic activity surveys (formerly known as the enterprise financial surveys) are the major data source for compiling GDP estimates for nonfinancial estimates according to the production and income approaches. The economic activity surveys cover incorporated enterprises in most economic activities. These surveys are the main source for compiling gross product for fishing; mining and quarrying; manufacturing; electricity, gas and water; construction; wholesale and retail trade; hotels and restaurants; transport, storage and communication; real estate; and the private sector components of education, health and social work, and other services. Within these selected activities, all government enterprises and all non-government enterprises with 20 or more employees are surveyed. Stratified random sampling is used for the smaller non-government enterprises below this threshold.

#### ***Items covered:***

The questionnaires used for the economic activity surveys are fairly standard across the range of economic activities covered. Data requested include turnover; goods purchased for resale; costs; imports and exports; profit and loss data; balance sheet data; capital formation; stocks of fixed assets; employment; wages and salaries; and changes in inventories. Other data of

importance in national accounts compilation include sales and inventories of finished goods and work-in-progress; purchases and inventories of raw materials; and own- account production of capital goods; and, in the case of distributive trades, sales, purchases and inventories of goods for resale. Wages and employment data are also obtained in these surveys. The quarterly data are converted to an establishment basis using the structure of the most recent year for which annual results are available.

A large part of the data required for GDP calculation is available from these surveys, enabling measurement of gross output, intermediate consumption and value added on the basis required for the *1993 SNA* and *1995 ESA*. Data are generally available to the Macroeconomics Statistics Division on a timely basis.

### *Sampling:*

The SOE's overall sampling expertise and experience is located in a newly-created sampling and methodology section. The sampling specialist has appropriate qualifications, is well experienced in sampling theory and practice within the SOE, and provides sound overall advice on sampling and estimation methods to the Enterprise Statistics Division staff, and to other areas, including the household surveys. The SOE also has a newly-created sampling and methodology unit within the Enterprise Statistics Division. This unit is responsible for the application of sampling methods in the economic activity surveys, under the overall guidance of the sampling specialist.

The statistical profile is used as a sampling frame for all economic activity surveys. The statistical profile for year  $x$  is used as a frame for the annual survey in year  $x$ , and for the short-term economic activity surveys in year  $x + 1$ . The frame is stratified by enterprise ownership and number of employees. Simple random sampling is used in annual and more frequent surveys. A system of coordinated samples is used; this aims to achieve an even response burden among enterprises, and ensure that there is sufficient overlap between consecutive samples. As noted earlier, stratified random sampling is used for non-government enterprises with less than 20 employees. The sample size for the annual economic activity survey is 12,000 enterprises; the sample size for the quarterly survey is 10,000 enterprises. The annual survey questionnaire is more detailed than that for the quarterly survey.

The mission considers that reliable sampling frames and methods are used. Sampling error data are produced, but not published. Data on non-response are maintained as a means of monitoring survey performance. The overall response rate for the 1999 surveys was 82 percent, compared with a published figure of 95 percent that also included an allowance for statistical returns that had been estimated with reference to information in the statistical profile and other sources. While 82 percent is the true response rate, the effective response rate, in terms of percentage of turnover or value added, would be somewhat higher than this, due to the fact that there are better response rates from the larger enterprises in the sampled section of the surveys.

Records are maintained about the various imputation procedures; e.g., the numbers of outstanding enterprises that were estimated based on information from the statistical profile;

and the numbers of outstanding enterprises that were imputed based on the average for the strata. Appropriate estimation procedures are used for grossing up from survey to total population data. Information on non-sampling errors is not assessed and published.

*The economic activity surveys:*

The quarterly and annual economic activity surveys have recently replaced the former quarterly and annual enterprise financial surveys. The new surveys adopt an integrated approach so that data for individual economic activities (e.g., manufacturing, transport) are also obtained through supplements to the economic activity surveys, rather than from stand-alone surveys as was done in the past. The questionnaires for the economic activity surveys comprehensively cover national accounts requirements and were designed in consultation with the Macroeconomics Statistics Division and other users. The new surveys are effective from 2000 and Q1 2001

SOE plans that the economic activity survey data for quarter 1, 2001 will be available by the end of July 2001; this is a little less timely than in the recent past. From a national accounts viewpoint, the data will be later than desirable and may well reflect differences in methodology. The Macroeconomics Statistics Division plans to refer to turnover data from the ENTB to compensate for data that will be later than usual and possibly difficult to interpret. Use is already made of ENTB data, both in "flash" estimates and in validating data trends based on other sources.

The reliability of the new economic activity survey data cannot be assessed until data are available for at least three quarters and one annual period. However, in principle, the surveys obtain data according to appropriate national accounts concepts and classifications and the statistical units are based on the statistical profile. In the mission's view, the main issues that need to be addressed by the SOE at this time are:

- Complete the survey's editing, processing and estimation systems;
- Determine a methodology for reconciling quarterly and annual data and publishing final quarterly data for the benefit of users;
- Determine a strategy for revising quarterly and annual data as required;
- Determine a strategy for estimating and publishing standard errors; and
- Determine a dissemination strategy, including the possibility of advance estimates for particular purposes and the publication of standard error information.

The activities omitted from the economic activity survey are agriculture and forestry, budgetary institutions, and financial intermediation. The SOE uses other data sources in these cases. The main sources are as follows:

- Agriculture and forestry: the quarterly agricultural and forestry surveys and price and quantity data on crops, livestock and forestry products;
- Financial intermediation: the BOE, and surveys of insurance corporations and other financial intermediaries;

- Public administration and defense; budget documents and other Ministry of Finance reports; and
- Education and health, public sector component: budget documents and other Ministry of Finance reports.

As noted in section 0.2.2, trends in turnover data supplied by the ENTB, at the NACE two-digit level (and in some cases three-digit level), are used by Macroeconomics Statistics Division staff to compare with trends in gross output data obtained from the economic activity survey and other sources. The ENTB data are not directly used in the GDP calculations but are used to identify data from the major sources that may need further explanation or investigation. The ENTB data need to be used with caution as there are some differences in the application of EMTAK and this results in some units being classified differently from the treatment in SOE statistics.

Unincorporated enterprises are excluded from the economic activity surveys. Gross product for such enterprises is estimated from ENTB data. This amounts to about 1 percent of total turnover of all nonfinancial enterprises including a further allowance for suspected understatements in the data supplied to the tax authorities.

HBS data are used in compiling gross product for the household sector for following activities: fishing; manufacturing; wholesale and retail trade; transport, storage and communication; and other services. Budget data are used in compiling gross product for the following activities: public administration and defense; education; and health and social work.

Apart from the quarterly economic activity survey, sub-annual surveys of establishments/enterprises are conducted to obtain detailed quarterly/monthly indicators consistent with annual data, in particular, for manufacturing (monthly), construction (monthly), retail trade (monthly), transportation and telecommunication (quarterly), gross fixed capital formation (quarterly), inventories (quarterly), and labor force (quarterly). A survey of NPISHs is conducted to obtain data on revenues, expenditures, employment and fixed assets.

#### ***Household budget survey (HBS):***

The household budget survey (HBS) is a continuous survey with rotation. A variety of sampling approaches has been used. The present approach is to select a sample of persons from the Population Register and to interview each of these persons with a view to selecting, and including in the HBS, all households living in the same residence as the selected persons (multiple households will occur in some situations). The sample size for the HBS was 1,630 persons per month in 1998. This was reduced to 1,330 persons per month in February 1999, and to 820 per month in January 2000.

The sample is designed to provide for rotation of persons/ households but with some overlap of households over a two-year period to minimize the reporting burden on individual

households. The sample size over a complete year, allowing for multiple households, is about 12,000 (including households for which imputation is necessary) and this is about 1.8 percent of all households in Estonia. Data are collected monthly and compiled and published on a quarterly and annual basis.

The HBS has three components: a "household picture" (basic information about household size, economic situation, etc.); food expenditure, collected on a 15 day cycle; and other expenditures and income, collected on a monthly cycle. The approximate percentage response rates for the three components are, respectively, 80, 60 and 60. Estimates are made for the second and third components using data from the first component (the "household picture"). In doing this, use is made of post-stratification techniques. Data are first adjusted for under-enumeration at the county level. Then the data are calibrated by sex and age groups.

National accounts compilers make further estimates for the remaining 20 percent (i.e., those who have not even provided a "household picture"). These further adjustments are made for national accounts purposes only (i.e., for use on calculation of household final consumption expenditure) and are not published as such.

Data items collected include the following:

- purchases of consumption goods;
- purchases of durable goods;
- production for own-consumption;
- own-account capital formation;
- purchases of valuables;
- housing conditions (to provide estimates of imputed rents); and
- imputed rent (the home owner is asked to impute a market rent).

The contents of the survey are in accordance with EU standards and the COICOP is used. Standard errors are calculated but not published.

It is clear that alcohol, tobacco products, gambling, rents, rent services and valuables are under-reported. The Macroeconomics Statistics Division makes adjustments to allow for these understatements, using other data sources such as commodity flow calculations (production plus imports, less exports, less intermediate consumption, plus an adjustment for changes in inventories.)

Post-stratification of estimates is made in the analysis stage to improve the accuracy of estimates by compensating for non-response. This is done by geographic area. Calibration of data is also done to correct the estimator weights for actual sex/ age distributions.

In summary, the concepts and classifications used in the HBS are suitable for use in the national accounts and the CPI, and the questionnaire is appropriate. Sample design and estimation procedures are based on expert advice, and scientific random sampling techniques.

However, there are two major limitations. First, the sample is based primarily on a population register that has its own limitations and in any case is not as sound a basis as a household or address register. Second, the sample size has been progressively reduced, resulting in estimates with higher standard errors. Coverage is satisfactory both geographically and by socio-income groups, although response rates are lower for high-income households. However, response rates generally are poor but sound methods are used to compensate for this. Grossing-up factors are derived scientifically based on sample design. Relative standard errors of some of the estimates are high—for instance, 8.5 percent for household equipment, 7.9 percent for health, and 16.6 percent for education. While some of these are acceptable, the standard errors for disaggregations of these groups would be very much higher, and the estimates would need to be treated with caution. Sample design and estimation procedures are reviewed and corrected regularly.

*Other data sources relevant to national accounts:*

The SOE commenced a quarterly labor force survey effective 2000. This is now on a more frequent basis than on past years. These more frequent and timely data will assist in improving the estimates for the non-observed economy.

A Population and Housing Census was conducted in March 2000. The previous census was conducted in 1989. It is anticipated that the next census would be held in about 2010. The Population and Housing Census will provide an improved basis for making estimates of owner-occupied housing, and a potentially sounder basis for selecting household frames for the HBS.

A Census of Agriculture is to be held in 2001. This is the first agriculture census to be conducted for many years. This will provide a more comprehensive coverage of the agriculture sector than currently and will assist in improving the reliability of the agriculture gross product data presently compiled from other sources.

Ad-hoc surveys are conducted, when necessary, to supplement the regular survey program. For example, small-scale surveys have been conducted in the past to assist in making estimates of the non-observed economy

*3.1.2 Source data reasonably approximate the definitions, scope, classifications, valuation, and time of recording required.*

As already noted, source data are consistent with the definitions, scope and classifications of the national accounts estimates. They are also consistent with the time of recording, reference periods and valuation of national accounts estimates.

*3.1.3 Source data (from other systems) are timely.*

Price statistics used in compiling GDP at constant prices are compiled by the SOE. These include the producer price indices; the consumer price index; the import and export price

indices; price indices of agricultural products and inputs; and the construction price index. All are available on a timely basis.

Detailed international trade statistics are obtained on a timely basis from the Foreign Trade Statistics Section of the SOE. Detailed balance of payments statistics are obtained on a timely basis from the Bank of Estonia. Detailed monetary and financial statistics are obtained on a timely basis from the BOE, the MOF and the Estonian Insurance Supervisory Authority. Detailed government finance statistics are obtained on a timely basis from the MOF, apart from data on local government operations.

### ***3.2 Statistical techniques***

#### ***3.2.1 Data compilation employs sound statistical techniques.***

##### **GDP by production approach:**

The output estimates are compiled at a sufficient level of industrial detail. In most cases compilation is at the two-digit level of EMTAK, and in some cases at the three-digit level.

The estimates of intermediate consumption are compiled at a sufficient level of industrial detail. In most cases compilation is at the two-digit level of EMTAK, and in some cases at the three-digit level.

There is no reliance on fixed ratios of more than 5 years old in the compilation of GDP by activities.

Specific issues of GDP compilation:

Owner-occupied dwellings:

In estimating the services of owner-occupied dwellings, output is valued as the estimated rentals that tenants would pay for similar accommodation. The estimates are made by applying estimated "rents" to dwelling stock data for various classes of dwellings, expressed as areas in square meters. Intermediate consumption is estimated as a percentage of output of dwelling services and deducted from gross output to derive value added.

*Work-in-progress:*

Measurement of work-in-progress is not fully in accord with SNA/ESA. The following situations are not treated as work-in-progress:

- growing crops
- standing timber
- stocks of fish
- livestock reared for purposes of food

On the other hand, work-in-progress seems to be correctly reflected for large construction projects, and a revised book keeping law for the construction industry requires work-in-progress to be included in turnover effective January 2000. In addition, it appears that output of large equipment is generally treated as work-in-progress

Account is not taken of work-in-progress and changes in inventories when calculating agricultural output; that is, output is recorded when sales occur. Similarly, intermediate consumption is recorded when it occurs.

*Inventory valuation adjustment:*

Both output and intermediate consumption are adjusted for holding gains/losses accruing on inventories.

*Consumption of fixed capital:*

The perpetual inventory method (PIM) is not used as the conceptual basis for estimating consumption of fixed capital. The approach taken for nonfinancial enterprises, for example, is to take the change in inventories during the period and add this to the value of the capital stock at the end of the previous period at replacement cost (recalculated using the appropriate price index). Consumption of fixed capital is then calculated using specified depreciation rates for various types of assets. The SOE is receiving technical assistance from the OECD regarding improved measurement of consumption of fixed capital.

*Volume measures of GDP:*

The general method used by the SOE is the single indicator approach. There are two different ways this is done. For some activities, the current price output is deflated using an appropriate price index and constant price value added is then extrapolated using a volume index, or appropriate volume data. For other activities, the current price output is simply deflated using an appropriate price index and constant price value added is then estimated, implicitly assuming that the ratio of value added to value of output has not changed.

The other approach adopted in the SOE is to simply extrapolate constant price value added using a volume index, or selected volume data. For some of the activities where extrapolation is used, adjustments are made for productivity changes.

The SOE does not use the double indicator (or double deflator) approach, a requirement of 1995 ESA but plans to adopt this approach, within a supply and use framework, following completion of further analysis and estimates of supply and use tables. It is anticipated that this will be completed during 2002 with the publication of revised and final GDP data for 2000.



The price indices used in deflation are: the CPI, the PPIs, the construction price indices, and the export and import price indices. In all cases, series current price series are deflated at appropriately detailed levels.

### **GDP by expenditure approach**

The GDP estimates at current prices according to the expenditure approach are derived independently. In particular, independent estimates are made for household final consumption expenditure; gross fixed capital formation; and changes in inventories.

Household final consumption expenditure is compiled at the three-digit level of COICOP, and is also published at the three-digit level to form 12 categories of household final consumption expenditure. Government final consumption expenditure is compiled at the one-digit level of COFOG and published according to 14 categories of government final consumption expenditure. Gross fixed capital formation is compiled by activities (17 categories of EMTAK) and by type of assets (10 categories). Changes in inventories are compiled by activities (2-digit) and by type of assets.

In compiling GDP by expenditure components, there is no reliance on fixed ratios derived from benchmarks or other sources that are more than 5 years old.

Specific issues of GDP compilation are addressed as follows:

- Government final expenditure is exclusive of incidental sales
- Expenses of residents abroad are included in household final consumption expenditure
- Expenditures on items that are considered stores of wealth (such as jewelry and works of art) are included in the estimates of valuables. (The reliability of this estimate is regarded as questionable but it is unlikely to be of great significance.)

Current price estimates of household final consumption expenditure are mainly deflated at the detailed level (about 108 COICOP categories at the three-digit level) and the most detailed consumer price indices are used in all cases. National accounts staff expressed no concerns about the quality of the CPI data although there are instances where the CPI data are not entirely appropriate for deflating the specific household consumption expenditure category.

Deflation of government final consumption expenditure is made using the total CPI. Deflation of changes in inventories is carried out by deflating the opening and closing figures separately, using appropriate and detailed indices, from the producer price indices and other sources, and taking the differences. Deflation of exports and imports is carried out using either foreign trade price indices (compiled by the SOE from directly- collected data) or foreign trade unit value indices (compiled from Customs data). Each commodity is considered on a case-by-case basis and the more reliable indicator is taken in each case. In practice, greater use is made of the foreign trade price indices.

*3.2.2 Other statistical procedures (e.g., data adjustments and transformations, and statistical analysis) employ sound statistical techniques*

GDP data cover the entire economy. Estimates are made for under-reporting and for the non-observed economy. The non-observed economy at present represents 12 percent of GDP, including 1.5 percent for non-response. Estimates are made using comparisons of employment data from labor force surveys with employment data from economic activity surveys and other sources, and through informal surveys. Estimates are also made for most illegal activities (i.e., drugs, prostitution, illegal copies of videotapes, audiotapes and compact discs). As noted earlier, production for own consumption and capital formation for own consumption are covered.

The SOE plans to refine the measurement of the non-observed economy, mainly through the use of labor force survey data that are now available on a quarterly basis.

**3.3 Assessment and validation**

*3.3.1 Source data—including censuses, sample surveys and administrative records—are routinely assessed, e.g., for coverage, sample error, response error, and non-sampling error; the results of the assessments are monitored and made available to guide planning*

Information is available about sampling errors for the economic activity surveys (formerly the enterprise financial surveys), and is used as a guide to future survey control. Sample selection is adjusted when sampling errors become large.

Information is available about non-response in the surveys or percentages of source data imputed, and adjustments are made to limit the effect of outlier observations on overall results.

No field checks or random post-enumeration checks are carried out, but normal in-office edits are made and data queried back to source where necessary.

In compiling the estimates of output and intermediate consumption (and hence GDP), 73 percent of the total is obtained from surveys and censuses. The remaining 27 percent is estimated from administrative records. The proportions obtained from surveys and censuses, by institutional sector, are:

<b>Sector</b>	<b>Percent from Administrative Records</b>
Nonfinancial enterprises	0.0
Financial enterprises	75.0
General government	100.0
NPISHs	0.0
Households	0.0
TOTAL	18.1
FISIM	70.0
GDP at basic prices	17.1
Net taxes on products	100.0
GDP at market prices	27.1

In compiling the estimates of final consumption expenditure of households there is no reliance on administrative data; the observed data (sourced from censuses and surveys) account for 100 percent of the total. In the estimates of final expenditure of NPISHs, the observed data account for 100 percent of the total. In the estimates of fixed capital formation, the observed data account for 83 percent of the total.

The concepts, definitions, classifications and valuation bases used in the economic activity surveys are entirely consistent with national accounts concepts. There are also no difficulties with reference periods used in the economic activity survey. The questionnaires were re-designed recently with substantial input from the Macroeconomics Statistics Division, and comment from selected respondents.

The source data are analyzed to correct for underreporting/misreporting, and to check for temporal consistency and consistency with related data sources.

The data from the economic activity surveys are compared with turnover data from the ENTB to identify any potential problem areas that require further investigation.

### *3.3.2 Main intermediate results are validated against other information where applicable*

In compiling the national accounts, and validating the estimates, trends in gross output data are compared with turnover data from the ENTB.

### *3.3.3 Statistical discrepancies and other potential indicators of problems in statistical outputs are investigated and made available to guide users*

The statistical discrepancy between GDP by production activities and GDP by expenditure components is shown explicitly. There appear to be no formal studies of trends in the statistical discrepancy over time. See also 4.3.2.

## **3.4. Revision studies**

### *3.4.1 Studies and analyses of revisions are carried out routinely and used to inform statistical processes*

Revised national accounts data are released according to a regular, well-established, and transparent schedule. The release and revision dates are coordinated with the arrival of major data sources but not with the timing of preparation of important official economic policy documents. There are no known instances where the release of national accounts data was advanced, or retarded, to take account of policy announcements.

There is a general statement about revisions in each publication but it is not clear from the statistical tables as to which data have been revised. The use of a symbol r (for revised) would clarify the situation.

Revisions do not appear to be systematically tracked, as a gauge of reliability, and mined for the information they may provide. The mission found that in seven of the 12 quarters from quarter 1, 1996 to quarter 4, 1998 the difference between the preliminary and final GDP estimates was less than 1.0 percent. In a further two quarters, the difference was between 1.0 and 2.0 percent. In a high proportion of quarters, the preliminary estimate was a sound predictor of the final estimate.

### *3.4.2 Revision studies and analyses are made public and used to guide data users*

Revised data are made available in publications as a matter of course. However, analyses of revisions are not carried out.

## **4. Serviceability**

### **4.1 Relevance**

#### *4.1.1 Processes to monitor the relevance of and practical utility of existing statistics in meeting users' needs are in place*

In general, it appears that Estonia's national accounts statistics respond well to users' needs. The Macroeconomics Statistics Division maintains very close and productive contact with users in other government agencies, in particularly the BOE and the MOF. There are also close contacts with academic institutions.

The expert group comprising officials from the SOE, BOE, MOF and the Institute of Economic Research formerly met prior to the publication of quarterly national accounts data to review underlying trends in the data. This group now meets following major releases of data, at approximately half-yearly intervals. This has the potential to provide the SOE with some feedback on the data produced and on ways in which data dissemination might be improved.

No explicit external reviews have been conducted to assess, across a wider audience, the extent to which the program meets user needs, including issues such as whether it would be useful to fine-tune the scope of the data; adjust the priorities for future development; or make changes to the way the data are presented and disseminated.

The main fields where the SOE plans to further develop the national accounts, in response mainly to Eurostat requirements, are:

- Completion of the financial account and balance sheets
- Development of symmetric input-output tables
- Revision of constant price estimates to take account of supply and use tables data
- Produce more timely accounts for institutional sectors, from the production account to the capital account. The Eurostat requirement is for data within 12 months of the end of the reference period, compared with the present 16 month time lag
- Further refine the measurement of the non-observed economy, especially taking account of the more frequent labor force data that are now becoming available
- Possible development of tourism satellite accounts, in response to demands from some major users.

## ***4.2 Timeliness and periodicity***

### ***4.2.1 Periodicity follows dissemination standards***

The Estonian national accounts are compiled and disseminated with both annual and quarterly periodicity, as called for by the SDDS.

### ***4.2.2 Timeliness follows dissemination standards.***

The SOE has made serious attempts to improve timeliness of the national accounts statistics. Until the data of the fourth quarter of 2000, quarterly national accounts were published four months following the end of the reference quarter. However, from the data of the first quarter of 2001, Estonia disseminates quarterly national accounts data with a timeliness of no later than three months after the end of the reference quarter. This meets the SDDS standard.

The SOE also produces "flash" estimates of total GDP 65 days after the end of the quarter, based mainly on turnover and value added tax revenue data that are available 50 days after the

end of each month. The mission made an analysis of the flash estimates and the preliminary estimates in the 12 quarters from quarter 1, 1998 to quarter 4, 2000. This showed that the difference between the two measures in the percentage growth was either zero or 0.1 percentage points in seven of the 12 quarters and 0.2 percentage points in three other quarters. In two quarters (both occurring in 1998), the differences were 1.3 and 0.9 percentage points. This indicates that overall the flash estimates are a good predictor of preliminary (and final) GDP estimates.

Preliminary annual national accounts, derived from the sum of the four quarters, are published four to five months following the end of the reference year. Final annual accounts are published 16 to 17 months following the end of the reference year. Revisions between the preliminary and final accounts are not usually very significant, as mentioned in section 3.4.1.

### **4.3 Consistency**

#### ***4.3.1 Statistics are consistent or reconcilable over a reasonable period of time***

The national accounts data are available on a consistent basis over time for a number of years. When major revisions are made, data are revised back to a much earlier year, usually 1993. When final estimates are incorporated and published for a specific year it is usual practice to also revise data for the two or three earlier years to reflect new data available, changes in sources and methods, etc. Significant movements in time series are explained to major users but this is not a normal feature of publications.

Back series are adjusted to account for methodological developments. For example, when revised data for 2000 are published within a supply and use framework in June 2001 revised data will be published on the same basis for 1993 onwards. Back series are also adjusted to avoid discontinuities arising from changes in data sources.

In compiling the national accounts, and validating the estimates, outliers in the structural ratios are investigated as a matter of course, including the following:

- intermediate consumption to total output
- value added to total output
- saving to national income
- gross fixed capital formation to GDP
- household consumption to GDP
- exports to GDP
- imports to GDP.

#### ***4.3.2 Statistics are internally consistent (e.g., accounting identities observed)***

The SOE regards the GDP estimates according to the production approach as the most reliable. The present practice is to publish the statistical discrepancy explicitly as a balancing

item within GDP according to the expenditure approach. This means that GDP according to the expenditure approach is made to reconcile with GDP according to the production approach.

The GDP estimates according to the income approach are compiled independently of GDP according to the production approach. However, many of the data sources for the income approach are the same as for the production approach. GDP by the income approach is made to reconcile with GDP according to the production approach, through adjustments to net operating surplus and mixed income.

There is at present no opportunity to reconcile the GDP estimates within the supply and use framework. However, with the recent completion of the supply and use tables for 1997, this reconciliation will be done in future and will become part of the regular national accounts compilation process.

The mission carried out some analysis of the series for GDP at current prices and found that:

- For the annual series, the statistical discrepancy was 1.3 percent of GDP in 1996, and 1.0 percent of GDP or less in 1997 to 1999 (based on final data)
- For the quarterly series, the statistical discrepancy was 1.0 percent or less in nine of the quarters since quarter 1, 1996, based on final (or latest available) figures. In a further five quarters, the statistical discrepancy was between 1.1 and 1.5 percent.

It would be useful for the SOE to routinely carry out such analysis in future to ascertain whether there are any systematic biases in the data that need to be addressed.

In practice, the level of GDP according to the expenditure approach tends to be higher than that of GDP according to the production approach; that is, the statistical discrepancy tends to be negative. In the 32 quarters from quarter 1, 1993 to quarter 4, 2000, the statistical discrepancy was negative on 21 occasions.

Development of the financial account has not yet been completed so there is no opportunity, at present, to compare net lending/borrowing derived from the capital account with net lending/borrowing derived from the financial account.

The GDP estimates at current prices, volume measures, and (implicit) deflators are consistent within the “value = volume × price” framework.

Concepts and definitions for compiling quarterly GDP estimates are identical to those used to compile the annual estimates. Quarterly national accounts data are revised when the final annual GDP estimates are available. The benchmarking adjustments are simply based on the ratio between the annual data and the sum of the four quarterly figures.

*4.3.3 Statistics are consistent or reconcilable with those obtained through other data sources and/or statistical frameworks.*

Net lending of resident and nonresident surplus sectors is compared with net borrowing of resident and nonresident deficit sectors derived independently (from the balance of payments). For the years 1997 to 1999 there was a very close correspondence between the two sets of figures. In each of 1995 and 1996 there was a difference of five to six percent.

*4.4 Revision policy and practice*

*4.4.1 Revisions follow a regular, well-established and transparent schedule*

A calendar of precise release dates for the entire year is published at the beginning of the calendar year. This results in the release of annual and quarterly data in a quite stable pattern from year to year. The advertised dates are usually achieved so there is reasonable predictability for users. There are occasional slippages, for example in situations where the results of new data sources need to be incorporated or when there are a number of revisions to back series.

The release and revision dates are coordinated with the arrival of major data sources. New source data are incorporated in national accounts publications as soon as possible after the Macroeconomics Statistics Division is satisfied with the ongoing reliability of the data in question. The SOE does not suppress, permanently or temporarily, any source data, which would lead to the revision of national accounts statistics. There appears to be no recent instance of advancing the timing of release of national accounts statistics to allow incorporation in important official economic policy documents.

A major recent development has been the incorporation of the results of the supply and use tables for 1997 into the GDP estimates at current and constant prices. This has resulted in revisions to annual and quarterly GDP data by activities, back to 1993. Revisions have also been made to GDP according to the expenditure approach, both for total GDP and at the level of the seven major components. Initially, the published revised series will relate to annual data. It is planned to publish the revised data in June 2001 and to convene a media conference to announce and explain the revised data. Quarterly data will be supplied later on request. Alternatively, users will be informed that quarterly data may be simply derived by applying the ratio between the original and revised annual data.

*4.4.2 Preliminary data are clearly identified*

The status of data, whether preliminary, final, or revised, can usually be deduced from the methodology statements accompanying publications. The methodology statements make clear, in general terms, which data are final and which data are preliminary. However it would be useful to identify preliminary and revised series in each table with a notation; for example, the insertion of a note "p" (preliminary) and "r" (revised) alongside the series (or the specific figures) that are preliminary or revised. The mission considers this to be good statistical



practice and suggests this kind of approach be adopted in all statistical publications where data may be subject to revision.

#### *4.4.3 Studies and analyses of revisions are carried out routinely and made public*

Candid documentation is published on sources and methods of revising the data. However, the documentation does not give explicit information on matters such as:

- the direction and magnitude of revisions
- the main flows of data from the preliminary to the revised versions
- the reasons for revisions (except in quite general terms).

Some of this information is made available to major users. The SOE should consider publishing such information for the benefit of users generally.

### **5. Accessibility**

#### *5.1 Data accessibility*

##### *5.1.1 Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons (layout and clarity of text, tables, and charts)*

National accounts estimates are disseminated at a detailed level and with time series back to 1993. The data are properly catalogued in the Statistical Publications Catalogue so that users may find what alternative sources of national accounts statistics are available.

National accounts data are also available in the library of the SOE and in other libraries throughout Estonia. Under the Compulsory Copy Act, 1997 the SOE and other publishers are required to send a free copy of each publication to five major Estonian libraries. A publication may be a printed product, a CD-ROM, or a diskette.

##### *5.1.2 Dissemination media and formats are adequate*

National accounts estimates are disseminated regularly, through dedicated annual and quarterly national accounts publications and news releases, and through electronic means, including posting on the SOE's website. National accounts data are published in broad terms in the monthly bulletin "Estonian Statistics", in those editions that follow the release of quarterly national accounts data.

National accounts data are also published in three dedicated national accounts publications or news releases. Annual summary GDP data are also published in "The Statistical Yearbook of Estonia" covering the latest three years for which final data are available.

The SOE's website shows annual and quarterly data since 1993 for GDP in current and constant prices and the percentage change from the previous year. All SOE publications are available on diskette.

A large number of GDP time series, back to 1993, are available from the newly released Statistical Database on the SOE's website at <http://gatekeeper.stat.ee:8000>. This has the facility to download and manipulate data, using PC-AXIS for Windows.

#### *5.1.3 Statistics are released on a pre-announced schedule*

A calendar of precise release dates for the entire year is published at the beginning of the calendar year in a separate news release. An advance release calendar is posted on the SOE's at the end of September of the previous year. A notice to this effect is given in a weekly calendar of publications, which is published every Friday at 9:00 a.m. There are very occasional slippages in meeting projected timetables.

#### *5.1.4 Statistics are made available to all users at the same time*

National accounts data are released simultaneously by news release to all interested parties at 9.00 a.m. on the day of release. At the same time, the news release is also published on the SOE's website.

#### *5.1.5 Non-published (but non-confidential) sub-aggregates are made available to users upon request*

Non-confidential data at the compilation level are available upon request. Under the OSA, the SOE may transmit or disseminate collected data in a form which precludes the possibility of direct or indirect identification of the respondents.

### **5.2 Metadata accessibility**

#### *5.2.1 Documentation on concepts, scope, classifications, basis of recording, data sources, and statistical techniques is available, and differences from international standards are annotated*

Reasonably comprehensive descriptions of the national accounts methodology are published in the national accounts publications and on the SOE's website. Linkages with major data systems, such as the balance of payments and government finance statistics are not shown. Deviations from international standards are not documented. Inclusion of such documentation in the new sources and methods publication (see 5.2.2) would be desirable.

### *5.2.2 Different levels of detail are provided depending on intended audience and type of collection*

Metadata are available at different levels of detail. There are summary descriptions in the monthly publication and *The Statistical Yearbook of Estonia*. More detailed descriptions are given in the national accounts publications. Finally, the SOE has recently prepared a detailed and comprehensive description of the sources and methods used in the compilation of the national accounts. It was developed from self-assessment reports made to the EU to indicate the extent to which the SOE meets EU requirements. The SOE plans to publish it in English on its website in the near future.

## **5.3 Assistance to users**

### *5.3.1 Contact person for each subject field is publicized.*

A contact person for national accounts statistics is publicized in each of the national accounts publications, in the monthly publication *Estonian Statistics*, and on the SOE's website. This enables a prompt and knowledgeable "help desk" service function to be provided. National accounts information is also available in the library of the SOE. Library staff refer questions to national accounts specialists where necessary.

### *5.3.2 Catalogues of publications, documents, and other services, including information on any charges, are widely available*

The *Statistical Publications* catalogue is widely available, including on the SOE's website. Charges for statistical products are shown in the catalogue. The Public Information Act, 2000 is designed to ensure that the public has the opportunity to access information intended for public use. State and local government agencies are one of the categories of holders of information. Holders of information are required to assist persons making requests for information "in every way during the making of requests". Generalized economic statistics and economic forecasts of the State and local governments are a specified category of information subject to disclosure. State and local government agencies are required to maintain websites for the disclosure of information.

## **II. CONSUMER PRICE INDEX**

### **0. Prerequisites of quality**

#### **0.1 Legal and institutional environment**

##### *0.1.1 Responsibility for collecting, processing, and disseminating statistics is clearly indicated*

The Official Statistics Act (OSA) 1997, as amended in June 2000, provides that the main agencies for the conduct of official statistical surveys are the SOE and the BOE. The OSA

does not specifically mention the responsibility for compiling and disseminating prices data, nor does it prescribe a list of the kinds of statistics to be collected and produced by official statistical agencies. However, the SOE has certain statistical coordination responsibilities (see 0.1.2 below) and the compilation of price indices is consistent with these responsibilities. In practice, the SOE is clearly established as the agency responsible for the compilation and dissemination of consumer price indices.

*0.1.2 Data sharing and coordination among data producing agencies are adequate.*

Data sharing and coordination arrangements between data producing agencies are soundly based. The OSA provides that the Government shall approve a list of official statistical surveys each year, except surveys conducted by the BOE. This list of surveys is in fact compiled by the SOE, following an extensive process of consultation with the various government agencies, and is sent to the Government for approval. The intent of the list and the process itself is to establish that specific surveys are in fact necessary, identify and eliminate duplication, and harmonize methods and classifications.

The OSA provides that the main agencies conducting official statistical surveys (SOE and BOE) shall coordinate methods with one another, agencies conducting official statistical surveys shall adopt methods that conform to national and international standards and classifications, and State agencies shall coordinate their methods of data collection, processing and dissemination, and subsequent changes with the SOE.

The legal and organizational arrangements for coordination of statistical work in Estonia are therefore well established. In the case of the CPI, as noted in section 0.1.1, the SOE is clearly established as the agency responsible for the CPI.

*0.1.3 Respondent's data are to be kept confidential and used for statistical purposes only.*

The confidentiality of individual data for use in compiling the CPI is protected by the OSA. This requires the SOE, and the other agencies conducting official statistical surveys, to ensure the protection (confidentiality) of the collected data, and provides that such data shall not be used for control, taxation or other non-statistical purposes.

The provisions for the CPI in this area are the same as those for the national accounts.

*0.1.4 Statistical reporting is ensured through legal mandate and/or measures implemented to encourage voluntary response.*

The OSA provides that agencies conducting official statistical surveys shall communicate to respondents the purposes of use, the principles of processing, transmission, and dissemination, and the due dates for submission of requested data. This is made clear to respondents when they are first approached to request their cooperation in the CPI collection. At the request of agencies conducting official statistical surveys, legal persons and State and local government agencies are required to disclose the subject matter they collect, except

where, in the case of State and local agencies, the disclosure of data is prohibited by law. Various specified penalties for non-compliance by legal persons are provided.

In practice, much of the price collection can be done by the SOE price collectors through observing the prices marked in retail outlets, without needing to take the time of respondents. The emphasis on CPI collection is in obtaining cooperation voluntarily and not on the legal requirements of the OSA.

While there are penalties for non-compliance in CPI collections (and in most SOE surveys and censuses), the emphasis is on voluntary cooperation and it is highly unlikely that the SOE would commence legal proceedings against a non-respondent to the CPI collection. In the event of an uncooperative respondent, the normal course of action would be to replace the respondent with another respondent providing similar goods or services.

The price collectors are trained to encourage this cooperative approach. However, no additional inducements are used, such as the provision of data, or monetary or other compensation. The SOE may wish to consider producing a one-page statement for distribution to CPI respondents, showing CPI data in summary form, and a brief explanation of the purpose and importance of the CPI.

The OSA guarantees access by the SOE to administrative records and other data. This is to some extent relevant to the collection of prices for certain services where a proportion, at least, of the services is provided by government agencies; e.g., electricity and heating.

## **0.2 Resources**

### ***0.2.1 Staff, financial, and computing resources are commensurate with institutional programs***

The CPI program has adequate staff resources. There are two CPI staff members in head office (Tallinn), excluding the head of the Prices Division who has responsibility for a number of price indices. There are also 17 price collectors who are each based in one of the 10 population centers directly represented in the CPI (including three in Tallinn). The price collectors basically work full time on price collection.

Prices Division staff have a good knowledge of CPI concepts, methods and practices. Two of the senior CPI specialists have attended the U.S. Bureau of Labor Statistics course on the CPI and, collectively, the CPI staff have participated in a number of courses convened by Eurostat, the IMF, and the OECD. CPI personnel are familiar with the draft CPI manual. Internal training is organized as required.

There are at present no problems in retaining trained staff, but this is always a potential problem due to the low wages paid to SOE staff generally. For example, there has been no wage increase for CPI staff in the past three years. The incentives come from the professional interest involved in the work, and the opportunities to develop further experience in price

index work and to exchange experiences with counterparts in other countries and international organizations.

The financial resource allocation is considered to be just adequate. However, there is no financial capacity to undertake or commission additional surveys that might be required to supplement the prices and other information obtained by price collectors. The financial allocations are commensurate with the overall resource availability of the SOE.

Sufficient resources are allocated to computing support for the CPI compilation and dissemination procedures. Each CPI staff member has a personal computer and software is adequate.

#### *0.2.2 Measures to ensure efficient use of resources are implemented*

The SOE accounts for expenditures on all of its statistical surveys and activities, as a means of monitoring the size of the various components of the statistical system, and reviewing allocations against program activities.

### *0.3. Quality awareness*

#### *0.3.1 Processes are in place to focus on quality, to monitor the quality of the collection, processing, and dissemination of statistics, to acknowledge and deal with tradeoffs within quality, and to guide planning for existing and emerging needs*

There is strong user interest and public interest in the CPI and this serves to emphasize to CPI staff the importance of producing a high quality CPI, and a measure that maintains its public credibility. The CPI staff give appropriate attention to data quality through adherence to international standards and methods, instructions to price collectors on price collection issues, the conduct of a range of edits at the micro level that compare price levels and movements shown by similar respondents in each population center, and further checks at more aggregated levels.

There is an expert group on the CPI that comprises representatives of the SOE, the BOE, the MOF, the Ministry of Social Affairs, the Institute of Market Research and a trade union representative. This group meets just prior to the publication of revised CPI weights. It enables the major users to be informed by the SOE about the new weights and methods of deriving them. It does not review methodology nor does it provide advice on policy issues or priorities concerning data collection. However, it is a useful sounding board for the CPI specialists in the SOE. The SOE may wish to consider broadening the functions of this group to include provision of advice to the SOE on alternative methodologies and data sources (within the general framework of international standards and recommendations), the general usefulness of the CPI data produced, and data dissemination strategies.

There is no overall statistical advisory body. For some time there have been plans to establish a national statistical advisory council comprising major data users and data providers. There is

no legal impediment to establishing such a body, provided that it is purely advisory in nature. It is important to determine a satisfactory basis for council membership and this is a matter that the SOE is addressing prior to the establishment of an advisory council. The SOE appreciates the many potential benefits that would result from such a body. It could reasonably be expected that the high -profile CPI would be one of the matters that an overall statistical advisory body would consider from time to time.

## **1. Integrity**

### ***1.1 Professionalism***

#### ***1.1.1 Statistics are compiled on an impartial basis***

The SOE is independent in its choice of statistical methods as long as these comply with international and national standards. The legal and institutional environment under which the SOE operates is adequate to guarantee independence in determining methodology, design of surveys, and definitions used. The release date of the CPI on the 5<sup>th</sup> working day of the month following the reference month has been set by a Minister of Finance decree, which is publicly available in the State Gazette. In addition, the Minister of Finance approves the official questionnaires used by the SOE but this does not apply to the CPI questionnaires (which are largely tailored to individual respondents and CPI items).

The SOE acts independently in its release of CPI data and in the content of the release. Release of the CPI data does not include any ministerial commentary. Analysis of data in publications is objective. For example, comments are made on the main factors contributing to overall CPI movements with reference to index points contributions data that are compiled during the course of index calculations. The SOE does not comment on government policy issues.

The CPI specialists are professional in their approach and display a very good knowledge of price index principles and practices. The CPI is compiled in accordance with Eurostat standards and recommendations, and decisions about methodologies are made within this framework. Staff are also familiar with the draft CPI manual and the International Labor Organization guidelines.

#### ***1.1.2 Choices of sources and statistical techniques are informed solely by statistical considerations***

The CPI collectors and compilers are free to choose the data sources with regard to quality, timeliness, costs, and the burden on respondents. In the collection of prices (in terms of the numbers of specifications priced and the numbers of respondents), the SOE appears to strike an appropriate balance between statistical validity and respondent burden. The price collectors are given general instructions from CPI staff in Tallinn about the kinds of item specifications and respondents they should select as representative of price change for each item in the CPI. The collectors then select specifications and respondents within these broad parameters. The general instructions to collectors are consistent with international standards.

*1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics*

There is no specific legal provision for SOE staff to comment on erroneous interpretation and misuse of data. However, the SOE considers that there are no practical impediments to making such comments where applicable.

**1.2 Transparency**

*1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public*

The terms and conditions under which the statistical data are produced and disseminated are freely available to the public. The full text of the OSA, as well as other relevant legislation, is available on the SOE's website. The OSA provides that agencies conducting official statistical surveys shall communicate to the respondents the purposes for use, the principles of processing, transmission and dissemination, and the due dates for submission of the collected data.

Reasonably detailed documentation on the concepts, sources and methodology of the CPI are included on the SOE's website. This includes a description of the methodology for price collection and compilation, estimation of weights, and index calculation. Brief notes on CPI methodology are published in the news release, the monthly *Estonian Statistics* publication and *The Statistical Yearbook of Estonia*. All changes in methodology are explained when the data based on new methodology, including the introduction of revised weights, are published for the first time.

*1.2.2 Internal governmental access to statistics prior to their release is publicly identified*

The CPI data are released simultaneously to all interested parties without exception at 9.00 a.m. on the day of release by issuing a news release, *Consumer Price Index*, which is sent to all interested parties, including the media, at their request either by fax or by e-mail. At the same time, the news release is also published on the SOE's website.

*1.2.3 Products of statistical agencies/units are clearly identified as such*

All CPI products are clearly identified as being produced by the SOE. This includes unpublished data released on hard copy, diskette, e-mail, etc.

*1.2.4 Advance notice is given of major changes in methodology, source data, and statistical techniques*

Advance notice is given about forthcoming revisions of weights about four months prior to the actual release of the revised data. For instance, the announcement about the introduction



of revised weights, which was effective from the release of the CPI for January 2001, was made in the September 2000 through December 2000 issues of *Estonian Statistics*.

### **1.3 Ethical standards**

#### ***1.3.1 Guidelines for staff behavior are clear and publicized***

There is a code of conduct for official statistics. Clause 2 (3) of the OSA states that official statistics shall conform to the principles of impartiality, reliability, relevance, cost-effectiveness, confidentiality and transparency. There is some elaboration of the meaning of these terms in the Strategic Development Plan prepared recently by the SOE. As noted in 0.1.3 above, the requirement of SOE staff to maintain the confidentiality of individual data is emphasized in the OSA, SOE regulations and internal procedures, and in job descriptions for each staff member.

As noted in 0.1.3, office procedures have been established to reinforce the OSA and Regulation 41. These procedures, titled Internal Rules of the Statistical Office, are circulated to staff. They cover, inter alia, security rules and procedures regarding dissemination of data; processing of data, staff security and physical security. In addition, the requirement for maintaining the confidentiality of individual information is emphasized in job descriptions for SOE staff.

Professionalism in the SOE is promoted by management through the statement of objectives of the SOE and the ways to achieve them (detailed in the SOE's Strategic Development Plan), encouragement of staff participation in external training provided by international organizations including Eurostat, IMF and OECD, and sending staff for long-term traineeships at Eurostat. Occasional internal training courses are also arranged for middle level staff, and occasional specific training is provided in-house and from universities.

CPI staff in Estonia have participated in Eurostat and OECD seminars and working groups on the Harmonised Index of Consumer Prices (HICP) and the European Comparison Project. CPI staff are familiar with the draft CPI manual and the ILO guidelines.

## **2. Methodological soundness**

### ***2.1 Concepts and definitions***

#### ***2.1.1 The overall structure in terms of concepts and definitions follows international standards, guidelines, or agreed practices.***

The concepts and methodologies used in compiling the CPI are consistent with Eurostat standards and recommendations. In the development and ongoing production of the CPI the SOE is guided by Eurostat standards and recommendations in relation to the HICP. This is a standardized consumer price index measure required of all EU member countries, and

Candidate Countries are also encouraged to develop a HICP and produce it on a regular basis, which the SOE does.

The CPI specialists also follow ILO guidelines and the draft CPI manual. They also find useful the standards prescribed in the European Comparison Project. CPI practices in some other countries are noted. Significant assistance has been given on conceptual and methodological matters by Statistics Sweden and Statistics Finland.

Expenditure weights are estimated using the household budget survey (HBS) as the primary data source. The concepts and definitions used for measuring household expenditure in the HBS follow 1993 SNA/ 1995 ESA guidelines. The Classification of Individual Consumption according to Purpose (COICOP) is used to classify the goods and services included in the CPI.

Weights relate to consumer purchases of goods and services, i.e., goods and services purchased for use by the household for household consumption and not used for business or investment purposes. Transaction characteristics (e.g., purchasers' prices, including margins and applicable taxes) form part of the specifications of the goods and services for which prices are obtained.

## **2.2 Scope**

### *2.2.1 The scope is broadly consistent with international standards, guidelines, or agreed practices*

In principle, the CPI covers all resident household consumption activities. Prices are collected from a total of 10 population centers that comprise 85 percent of the total population of Estonia. Most of these centers serve significant rural populations, as well as the immediate center, and to that extent the CPI can be said to be representative of both urban and rural households.

The CPI, and the HBS (as the main source for weights), relate to families of all sizes (based on the number of persons) and all income levels. The CPI and the HBS cover households whose major activity involves unincorporated business activity where they are able to separate records on business and consumption purchases (CHECK) and households whose primary activity is farming or fishing (CHECK). The CPI relates to all households except individuals residing in special institutions (e.g., persons in old-age homes, and in military establishments).

The CPI includes marketed goods and services for consumption purchases. The CPI does not include own-account production of market goods and services for own final consumption, or illegal marketed goods and services sold to willing buyers. This is consistent with the general approach taken in other countries.

Dwelling ownership (owner-occupied housing) is excluded from the CPI. The SOE has made initial investigations into the possible inclusion of this item in the CPI in the future. Goods

received as income in kind and charitable donations are excluded from the CPI. Purchases of second hand goods (except cars) are also excluded.

## **2.3 Classification/sectorization**

*2.3.1 Classification/ sectorization systems used are broadly consistent with international standards, guidelines, or agreed practices.*

The HBS follows the *1993 SNA* in classifying household units, transactions and other monetary flows. Consumption transactions are in terms of purchasers' prices, including margins and applicable taxes, and are consistent with the *1993 SNA*. COICOP is used to classify consumption expenditures.

## **2.4 Basis for recording**

*2.4.1 Market prices are used to value flows and stocks*

Consumption expenditures in the HBS (the primary source for estimating CPI weights) are valued at purchasers' prices, including margins and applicable taxes. Production for own-use is excluded from the CPI. Specifications provide detailed descriptions of the characteristics (such as brand, size, type of material, etc.) of the items to be priced.

Consistent with the HBS, purchasers' prices are collected for use in the CPI. These include margins and applicable taxes and relate to the actual prices in force on the day of collection. Detailed specifications are used to enable prices to be obtained to a constant quality over time. Consumer credit charges are excluded from the CPI.

*2.4.2 Recording is done on an accrual basis*

Prices of goods and services are recorded as at the time of interview and therefore relate to the period in which the items are purchased. Prices are collected each month during the week that contains the 15<sup>th</sup> day of the month. The SOE should consider the desirability of obtaining prices more frequently for goods and services subject to considerable short-term price fluctuation. These might include, for example, fresh fruit and vegetables and petrol. Price collection for such items three or four times per month (and calculation of average monthly prices) would enable more accurate monthly CPI movements to be calculated.

*2.4.3 Grossing/netting procedures are broadly consistent with international standards, guidelines, or agreed practices*

Expenditure weights based on net purchases by households (i.e., purchases by households less sales by households) are calculated and applied. The only items where this is relevant are used cars and insurance items. Prices collected take account of discounts and rebates that may apply to the specific products purchased.

### 3. Accuracy and reliability

#### 3.1 Source data

*3.1.1 Source data are collected from comprehensive data collection programs that take into account country-specific conditions*

The CPI weights are derived using HBS data as the basic source. However reference is also made to the estimates of household final consumption expenditure (HFCE) that are compiled by national accounts staff. These rely not only on HBS data but also on retail trade survey data (after deducting estimates for sales of goods and services that are not for final consumption) and other sources. For some items the national accounts staff adopt a commodity flow estimation approach.

HFCE data are not as timely as HBS data. Taking the weighting base period of 2000 as an example, the general approach was to use HBS data for quarter 4, 1999 through quarter 3, 2000 (i.e., the year ended 30 September 2000); make certain corrections with reference to the HFCE calculations (for the most recent period available); and finally make price adjustments so that the data relate to calendar year 2000.

The following discussion is in terms of the HBS data as the primary source for estimating CPI weights.

*Sample frame for household budget survey (HBS):*

The household budget survey (HBS) is a continuous survey with rotation. A variety of sampling approaches has been used by the SOE. The present approach is to select a sample of persons from the Population Register and to interview each of these persons with a view to selecting, and including in the HBS, all households living in the same residence as the selected persons (multiple households will occur in some situations). The initial sample size for the HBS was 1,630 persons per month in 1998. This was reduced to 1,330 persons per month in February 1999, and to 820 per month in January 2000.

The sample is designed to provide for rotation of persons/ households but with some overlap of households over a two-year period to minimize reporting burden on individual households. The sample size over a complete year, allowing for multiple households, is now about 12,000 (including households for which imputation is necessary) and this is about 1.8 percent of all households in Estonia. Data are collected monthly and compiled and published on a quarterly and annual basis.

Post-stratification of estimates is made in the analysis stage to improve the accuracy of estimates by compensating for non-response. This is done by geographic area. Calibration of data is also done to correct the estimator weights for actual sex/ age distributions.

Sample design and estimation procedures are based on international expert advice, and scientific random sampling techniques. However, there are two major limitations. First, the sample is based primarily on a population register which has certain limitations and, in principle, is not as sound a basis for selection as a household or address register. Second, the sample size has been progressively reduced in recent years, resulting in estimates with higher standard errors.

Standard error data are produced for the HBS but are not published. Relative standard errors of some of the estimates are high-- for instance, 8.5 percent for household equipment, 7.9 percent for health, and 16.6 percent for education, based on data for 2000. While some of these are acceptable the standard errors for disaggregations of these groups would be very much higher, and the estimates would need to be treated with caution when estimating CPI weights. Sample design and estimation procedures are reviewed and corrected regularly.

*Measuring consumer expenditures through a regular household survey*

The HBS is a continuing monthly survey. Data are compiled and published on quarterly basis. All households apart from those living in institutions are included. Coverage is satisfactory both geographically and by socio-income groups. The concepts and classifications used in the HBS are suitable for use in the national accounts and the CPI, and the questionnaires are appropriate. The HBS has three components: a "household picture (basic information about household size, economic situation etc.); food expenditure collected on a 15 day cycle; and other expenditures and income, collected on a monthly cycle.

Response rates generally are poor but sound methods are used to compensate for this. The approximate percentage response rates for the three components are respectively: 80, 60 and 60. Estimates are made for the second and third components using data from the first component (the "household picture"). In doing this, use is made of post-stratification techniques. Data are first adjusted for under-enumeration at county level. Then the data are calibrated by sex and age groups.

National accounts staff makes further estimates for the remaining 20 percent outstanding (i.e., those who have not even provided a "household picture"). These further adjustments are made for national accounts purposes (i.e., for use on calculation of household final consumption expenditure) and are not published as such.

Information collected and compiled include:

- expenditures for marketed goods and services at purchaser's prices
- value of goods produced for own consumption at market prices
- value of services produced for own consumption at market prices
- characteristics of dwellings
- imputed rental value of owner occupied dwelling (the household owner is asked to impute a market rent).

However, only the first category is included in the CPI.

The contents of the survey are in accordance with EU standards and the COICOP is used to classify the expenditures. Expenditure data are collected in sufficient detail for CPI purposes, but standard errors of estimates are high for many of the detailed items and the results at this level need to be treated with caution. Standard errors are calculated but not published.

It is clear that alcohol, tobacco products, gambling, rents, rent services and valuables are underreported. This is a common problem in most countries. National accounts staff make adjustments to allow for this underreporting, using other data sources such as commodity flow calculations (production plus imports, less exports, less intermediate consumption, plus an adjustment for changes in inventories).

The quality of HBS data was of some concern a few years ago but the CPI specialists consider that the overall quality of the data has improved over the past two or three years.

#### *Regular surveys to collect consumer prices*

Samples of specifications and outlets are selected on a judgmental basis. A sample of three outlets is selected for most CPI items. However the capital city, Tallinn, is divided into two districts and this results in samples of six outlets for most items. Prices are collected for more than 500 separate goods and services, in a total of about 1,000 outlets in 10 population centers. This results in about 15,000 price quotations each month.

Most prices are collected by personal visit to retail outlets. Telephone contact is used for some service suppliers. Central price collection is used for obtaining prices for computers, mobile phones and part of the package holiday item.

The judgmental samples of outlets are intended to be representative of the different kinds of outlets that provide the selected goods and services. Outlets selected must be popular with households, have significant turnover, and sell significant amounts of the kinds of goods and services included in the CPI. In practice, there is an emphasis on very large stores that have become popular in Estonia in recent years. However, some goods are priced at markets. The CPI price surveys do not cover special forms of commerce such as automatic vending, shopping by mail and tax-free shops. Outlet samples are reviewed on a continuing basis. For example, the opening of a very large department store or supermarket will lead to an immediate review of the outlet samples for the goods and services supplied by that store to determine what adjustments might be necessary.

The mission considers that the SOE should review the practice of selecting a sample of three outlets (effectively six outlets in Tallinn as this is divided into two districts) for most of the CPI specifications. There may be a case for increasing the outlet sample size for certain significantly weighted items/ specifications where there are different kinds of outlets that tend to show different price levels and price movements.

Judgmental samples are also selected for the individual specifications included in the CPI. In principle, all consumer purchases are covered with the exception of dwellings for owner-occupation, illegal marketed goods, and second-hand goods other than cars.

Judgmental samples are used to select the geographic areas. In practice, Estonia is represented by 10 population centers; these 10 centers account for 85 percent of the total population of Estonia.

The price data collected are sufficiently detailed by product, and use sufficiently detailed product specifications, to ensure that the same variety is priced each period, as a means of minimizing the possibility of quality change affecting recorded price movements.

Funds are not allocated, nor are staff resources available, to conduct ad-hoc surveys that would provide supplementary data and information (e.g., to assist in adjusting prices for changes in quality; to identify new products; or to provide source data for internal weights and prices). However, relevant data have occasionally been obtained, without charge, from the Estonian Institute of Market Research.

### *3.1.2 Source data reasonably approximate the definitions, scope, classifications, valuation, and time of recording required*

HBS data are consistent with the definitions, scope and classifications of CPI estimates. HBS data are also consistent with the time of recording, reference periods and valuation of CPI estimates.

### *3.1.3 Source data are timely*

The basic source data from the HBS are available on a timely basis, as are the HFCE estimates and the other related data sources. The introduction of revised weights is carried out promptly. For example, the weights relating to 2000 were introduced in the CPI for January 2001, which was published in February 2001. All monthly prices data are collected on a timely basis. No CPI price data or information are obtained from other price index statistical systems (e.g. import and export price indices).

## **3.2 Statistical techniques**

### *3.2.1 Data compilation employs sound statistical techniques*

#### *(i) Compilation of consumer expenditure estimates*

The estimates from the HBS are compiled at a sufficiently detailed level for use as weights. However, as noted in section 3.1.1, the standard errors of the estimates at detailed levels of expenditure are generally high and the data need to be used with caution and subject to adjustment.

*(ii) Specific issues of consumption measurement*

The value of the goods and services represent the economic cost to the consumer at the time the good or service is purchased regardless of method of payment (cash or credit). Goods and services produced for own final consumption are excluded from the CPI. Dwelling ownership (owner-occupied dwellings) is also excluded from the CPI.

*(iii) Techniques used to compile CPI estimates*

The ratio of average prices approach is used to calculate the elementary (basic) level indices. Short-term price change is calculated based on the previous December (e.g., December 2000 = 100). However, the long term price series is expressed on a base period of 1997 = 100.

The index is compiled as a chain-linked Laspeyres index. CPI weights were formerly revised at about three to four year intervals. The present CPI weights refer to the year 2000 and the SOE plans to revise the CPI weights annually in future. Weights are fixed at the item level (approximately 500 items). The revised weights, when introduced, are adjusted for price change to align them with the appropriate price reference period. When new weights are introduced, the new index is linked to the old index, and either a monthly or annual overlap period is used to calculate linking factors.

In compiling the price indices, the first step is to calculate an average price for each item at the level of the selected center. (For these purposes, there are in effect 11 centers as Tallinn is divided into two districts). An average price is then calculated for each item for each of the five regions that comprise Estonia. Then a national average price is calculated using the regional weights that apply to each of the five regions. The modified Laspeyres formula is then used to aggregate elementary indices to higher levels.

The CPI is calculated and published for Estonia but is not calculated for the 10 population centers or the five regions, as it is claimed that user demand has not been strong. The SOE might wish to review the user demand for a CPI for Tallinn.

*(iv) Missing prices and new products*

Price collectors are requested to price the same quality of good or service from month to month in order to minimize the effects of quality changes from period to period. If a selected price specification is not available for pricing, a replacement product will be introduced into the index through a linking process or, alternatively, a price will be imputed. On rare occasions the price will be repeated from the previous month. The list of items is reviewed each December and new products are added or old items removed, as necessary.

Prices for temporarily missing products are appropriately handled. The usual practices are to impute the price based on the change in the prices of similar items, or to discontinue the product from the sample and use matched sample techniques. If a replacement product is



introduced this is done through a linking process so that the index is not affected by any differences in quality. On occasions the last reported price is carried forward. It appears that missing prices are not a significant problem.

Seasonal products such as fresh fruit and vegetables are in fact available for sale in reasonable quantities for most months of the year. Where a seasonal product is unavailable for a short period, such as one or two months, the price is imputed with reference to prices reported by other respondents in that population center or, alternatively, the last reported price is carried forward. Products that become permanently unavailable are replaced in the sample, with the new product introduced into the index through a linking (splicing) procedure so that the level of the index is not affected by such introduction. In one case, cucumbers, the weight for this item is temporarily allocated to related vegetable items in months when the product is sold in insignificant quantities. Seasonal clothing prices are collected for specified months when they are available in significant volumes. The last available price is carried forward in those months when there is no price collection.

Adjustments for quality differences are made. However, the more usual approach is to replace old products with new products using a linking process, provided the old and new products are sold side by side for a reasonable overlap period.

New products are introduced into the sample as they gain market share, and at the time that it is considered that the price is reasonably stable (i.e. not at a stage when there is a premium price because of "novelty value" or small volumes being purchased). For instance, mobile (cellular) phones and personal computers were introduced into the CPI from January 2001. The list of items is reviewed each December prior to the introduction of revised weights. New items are added to the index in January and old items removed from the index.

*3.2.2 Other statistical procedures (e.g., data adjustments and transformations, and statistical analysis) employ sound statistical techniques*

The CPI has a high coverage of total household final consumption expenditure. The implicit price deflator for household consumption expenditure notionally has a broader coverage. However, the CPI is recognized as the main indicator of price change at the household level as it measures price change to a constant quality.

### **3.3 Assessment and validation**

*3.3.1 Source data—including censuses, sample surveys and administrative records—are routinely assessed, e.g., for coverage, sample error, response error, and non-sampling error; the results of the assessments are monitored and made available to guide planning*

(i) Information about sampling errors, non-sampling errors and non-response of the surveys/censuses

Information is available about standard errors associated with the estimates from the HBS. No information is available about non-sampling errors. Sample selection is adjusted when

sampling errors become large. Information is available about different kinds of non-response in the surveys, and this information is used in making adjustments for the non-response.

The influence of outliers is limited; for example, data edits identify outliers and households are queried about unusual expenditure amounts. Post enumeration checks are not carried out for the HBS.

In the price surveys, sampling errors are not applicable as judgmental samples are used. Non-response is not an issue. A very high level of cooperation is obtained at the price collection stage; this mainly relies on visits to respondents to obtain the information by inspection.

Prices data are edited to identify outliers. Respondents are queried to verify the information. Apart from this kind of querying, post-enumeration checks are not made.

ii. Reliance on source data from surveys/censuses and appropriate administrative records

The CPI weights rely mainly on the HBS data, and to some extent on HFCE estimates (which are in turn based on the HBS, the retail trade survey and other sources). Observed data are likely to account for at least 90 percent of total household consumption expenditures.

It is difficult to determine the proportion of total household consumption expenditure that would be accounted for by the sampled specifications included in the monthly price surveys. The value of consumption expenditures on these items is not available. It is estimated that expenditures on the sampled items would be about 30 to 50 percent of total HCE.

iii. Measures to validate source data and make them consistent with CPI

The HBS source data are analyzed to correct for underreporting/misreporting through checks for temporal consistency. The national accounts staff (and not the HBS staff) make further adjustments for non-response and also adjustments for suspected under-reporting of certain items. The HBS data are consistent with the CPI in respect of definitions, valuation, reference periods, and classifications.

*3.3.2 Main intermediate results are validated against other information where applicable*

CPI data by item and category are not compared with relevant estimates from other sources such as the producer price indices, export price indices, and import price indices. The SOE considers that such checks would usually be inconclusive.

The SOE may wish to consider developing and publishing, on an ongoing basis, the imported goods component of the CPI. This would provide a useful indication of the extent to which the CPI is affected by imported goods.

*3.3.3 Statistical discrepancies and other potential indicators of problems in statistical outputs are investigated and available to guide users.*

Statistical discrepancies are not applicable; the monthly CPI data are not revised once they have been published. The prices of goods and services are analyzed to identify possible misreporting, and in particular to check for temporal consistency and consistency with other related data sources.

Price collectors in each of the population centers are required to check price levels and changes and to provide explanations for unusual movements. Collected prices are also checked at SOE head office. Calculations are reviewed by CPI staff for reasonableness and consistency.

**3.4. Revision studies**

*3.4.1 Studies and analyses of revisions are carried out routinely and used to inform statistical processes*

The CPI weights are now revised annually (less frequently prior to 2000). There have been no re-compilations of data, and comparisons of results, using revised weights, to check for systematic biases that may exist.

*3.4.2 Revision studies and analyses are made public and used to guide data users*

Not applicable. No revisions are made to CPI data.

**4. Serviceability**

**4.1 Relevance**

*4.1.1 Processes to monitor the relevance and practical utility of existing statistics in meeting users' needs are in place*

No explicit external reviews have been conducted to assess whether the program meets user needs. A CPI user survey would be useful. With some broadening of its functions, the expert group on the CPI (see section 0.3.1) would be well placed to provide advice on the relevance and utility of the existing CPI data.

**4.2 Timeliness and periodicity**

*4.2.1 Periodicity follows dissemination standards*

The CPI is published monthly and therefore meets dissemination standards.

#### *4.2.2 Timeliness follows dissemination standards*

The CPI is released on the fifth working day following the end of the reference month and therefore meets dissemination standards. The CPI is released according to the date specified in the advance release calendar and does not take account of the preparation of major government economic or political documents. Index points contributions data are available on request, and are used to prepare comments on main periodic price changes. The usefulness of the CPI data would be enhanced by regular publication of such data with suitable explanation.

### *4.3 Consistency*

#### *4.3.1 Statistics are consistent or reconcilable over a reasonable period of time*

Consistent time series data are available without a break for a period in excess of 5 years. The CPI is compiled as a chain-linked series so that there are continuous series for the total CPI and for each CPI group. The index series are linked at the time of each revision. Significant movements in the monthly time series, when they occur, are explained in publications with reference to data on the contributions of components to the total change in the index.

Back series are not adjusted to account for methodological developments or to avoid discontinuities arising from changes in data sources.

#### *4.3.2 Statistics are internally consistent.*

There are no consistency issues as the CPI is not calculated for regions or population centers within Estonia, nor is it calculated for particular population subgroups. The CPI data are analyzed at the compilation stage to ensure that there is a broad consistency in price movements across geographic areas.

The SOE may wish to re-examine the demand for CPI data for Tallinn and possibly for the other regions. The SOE should also consider publication of detailed indices below the level of the 12 COICOP groups.

#### *4.3.3 Statistics are consistent or reconcilable with those obtained through other data sources and/or statistical frameworks*

As noted in 3.3.2, the CPI data are not routinely analyzed to determine consistency with other price index measures.

#### **4.4 Revision policy and practice**

##### **4.4.1 Revisions follow a regular, well-established and transparent schedule**

Revisions to weights are now made on a regular annual basis and it is planned that they will occur with the release of the index for January each year. The revisions are announced about four months in advance in the monthly publication *Estonian Statistics*. As noted earlier, revisions are not made to index series; these are final when released.

##### **4.4.2 Preliminary data are clearly identified.**

Not applicable. No revisions are made to CPI data.

##### **4.4.3 Studies and analyses of revisions are carried out routinely and made public. (See also 3.4)**

Not applicable. There are no preliminary estimates for the CPI.

#### **5. Accessibility**

##### **5.1 Data accessibility**

##### **5.1.1 Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons (layout and clarity of text, tables, and charts)**

The CPI data are released according to a regular, well-established, and transparent schedule. The release schedule is predetermined and stable from year to year, and announced in advance of expected release dates. The release dates of the CPI have been set by a Minister of Finance decree, which is publicly available in the State Gazette. The CPI data are disseminated regularly, at a broad level (12 groups) and with time series, according to a well-established production schedule and through electronic means.

More detailed CPI data, below the level of the 12 groups based on COICOP, are available on request. The availability of CPI data is advertised in the *Statistical Publications* catalogue and on the SOE's website. CPI data may also be accessed in the SOE library.

##### **5.1.2 Dissemination media and formats are adequate.**

CPI estimates are disseminated through monthly news releases, in the SOE monthly statistical publication, in the monthly publication *Main Social and Economic Indicators* and in *The Statistical Yearbook of Estonia*. In addition, the CPI is available from the SOE's website and from the newly released statistical database that is also accessed from the SOE's website.

*5.1.3 Statistics are released on a pre-announced schedule.*

CPI estimates are released according to an advance release calendar. A calendar of precise release dates for the entire year is published at the beginning of the calendar year in a separate news release. In order to meet the quarter-ahead requirement of the SDDS for the first quarter of the year, Estonia is posting an advance release calendar on the SOE's website at the end of September of the previous year. A notice to this effect is given in a weekly calendar of publications, which is published every Friday at 9:00 a.m.

*5.1.4 Statistics are made available to all users at the same time.*

CPI estimates are released simultaneously to all interested users on the date and/or time specified in the advance release calendar.

*5.1.5 Non-published (but non-confidential) sub-aggregates are made available upon request.*

Non-confidential data at the compilation level are available upon request; e.g., detailed data below the level of the 12 groups.

**5.2 Metadata accessibility**

*5.2.1 Documentation on concepts, scope, classifications, basis of recording, data sources, and statistical techniques is available, and differences from international standards are annotated.*

Very brief notes accompany the actual releases of CPI data. Comments on new items and main changes in CPI weights are published at the time revised weights are introduced. There is no specific mention of any deviations from international standards.

*5.2.2 Different levels of detail are provided depending on intended audience and type of collection.*

As noted above, metadata are available at two different levels of detail; it is reasonably detailed in the DSBB and very brief in publications. The SOE may wish to consider publishing a more comprehensive description of the CPI at the time new weights are introduced.

**5.3 Assistance to users**

*5.3.1 Contact person for each subject field is publicized.*

A CPI contact person is publicized in the monthly publication. The name, telephone number and e-mail address of the contact person is indicated in the DSBB but only the name and position is shown in publications. The Price Statistics Division provides a help desk function to assist users requiring more detailed information and/ or metadata. CPI data are also available from the SOE library.

*5.3.2 Catalogues of publications, documents, and other services, including information on any charges, are widely available.*

The SOE *Statistical Publications* catalogue is widely available, including on the SOE's website. Charges for statistical products are shown in the catalogue.

### **III. BALANCE OF PAYMENTS STATISTICS**

#### **0. Prerequisites of quality**

##### ***0.1 Legal and institutional environment***

###### ***0.1.1 The responsibility for collecting, processing, and disseminating statistics is clearly specified.***

The *Law on the Central Bank of the Republic of Estonia* (May 1993) gives the BOE responsibilities for collecting balance of payments statistics. The Law states that the BOE shall be entitled to obtain, free of charge, all data necessary for compiling the balance of payments from any State or municipal entity or from any other legal entity engaged in foreign operations and located within the Republic of Estonia. A BOE Decree (July 1, 1996, No 23) requires commercial banks to send data on their client's international transactions to the BOE's Balance of Payments Statistics Division (BPSD). The BOE's role in compiling and disseminating balance of payments statistics is recognized in the OSA, which specifically authorizes the BOE to conduct surveys necessary for the collection, compilation, processing, dissemination, analysis, and storage of balance of payments data.

###### ***0.1.2 Data sharing and coordination among data producing agencies are adequate.***

The BPSD itself collects most of the data directly from data providers using surveys and the International Transactions Reporting System (ITRS). Within the BOE, the Banking Statistics and Analysis Department and the Central Accounting Department provide initial data on external transactions of the banking and monetary authority sector through multi-user data warehouses. Access to data bases and distribution of user rights is regulated by internal rules on database administration. Important data sources outside the BOE are the SOE—providing monthly external trade statistics; the Central Business Register (CBR)—providing monthly updates on the register of registered legal entities, their owners, and main audited annual economic indicators; and the Central Depository of Securities (CDS)—providing access to the official securities register, which consists of relevant information on portfolio investment. Cooperation with the CBR and the CDS is based on principles of agreements. These principles, spelled out in bilateral cooperation memoranda, form the basis on which data are shared and delivered. There are no legal obstacles hindering effective cooperation, and cooperation is reported to be good.

*0.1.3 Respondents' data are to be kept confidential and used for statistical purposes only.*

The confidentiality of individual respondent's data collected by the BOE is guaranteed by the OSA and by the *Law of the Central Bank of the Republic of Estonia*. The Law (Article 35) requires that persons employed by the BOE shall keep confidential all information regarding the BOE, credit institutions and any other legal entity. The obligation of secrecy does not terminate even after discontinuing service with the BOE. To prevent disclosure of data, there is restricted access to the balance of payments work area.

*0.1.4 Statistical reporting ensured through legal mandate and/or measures implemented to encourage voluntary response.*

The compilation and dissemination of balance of payments statistics are governed by terms and conditions set out in the OSA and the *Law of the Central Bank of the Republic of Estonia*. These laws provide collectively the legal basis for the collection of statistical information used in the compilation of balance of payments statistics. The various institutions that provide information include the CDS, SOE, MOF, Ministry of Foreign Affairs, CBR, Estonian Privatization Agency, Migration Office, Migration Fund, Insurance Inspection, ENTB, and the Estonian Authors Society.

**0.2 Resources**

*0.2.1 Staff, financial and computing resources are commensurate with institutional programs.*

The BPSD comprises 10 staff involved in data collection and compilation, consisting of a Survey System Group (2 staff), a Settlements System Group (4 staff), analysts (3 staff), and an Information Technology manager. All staff are equipped with appropriate hardware and software. Appropriate working conditions and a positive atmosphere support teamwork and staff motivation. The staff is knowledgeable in balance of payments concepts and compilation methods and most staff members have more than 5 years of experience in their current field of work.

The current resources are adequate at the moment, but there is no potential for meeting future needs if one takes into account the likely increase in external activity associated with EU membership, which would cause a rapid increase in the number of external transactions and the number of respondents. In addition, increasing requirements for external sector data such as monthly balance of payments data, external debt data, and regional distribution data, are also likely.

Although most of the staff have participated in domestic and international training courses, training is the most important tool to promote professionalism and motivation of employees. Up to now, 8 staff have attended the IMF Balance of Payments Statistics Course. Participation in other courses is being promoted. On-the-job training is used especially for



new staff as well as for all interested parties in case a new methodological approach or work procedure is introduced.

In order to solve the problem related to the lag in resources, a special project team was formed. The aim of the project team is to plan, procure, and implement a modern integrated information technology system for balance of payments statistics compilation. Installing and adopting the new software is planned to be finished at the end of 2002.

*0.2.2 Measures, to ensure efficient use of resources are implemented.*

No special procedures are implemented for monitoring cost-effectiveness, but all major decisions on methods and methodological approaches covering different fields of external statistics are based on comparison and analysis of indirect or direct costs and the importance of the program, taking into account overall interests, work capacity, reporting burden, respondent rate, statistical culture, etc.

**0.3 Quality Awareness**

*0.3.1 Processes are in place to focus on quality, to monitor the quality of the collection, processing, and dissemination of statistics, to acknowledge and deal with tradeoffs within quality, and to guide planning for existing and emerging needs.*

The BPSD is responsible for ascertaining all lapses and problems related to quality, as well as solving these problems. Other departments within the BOE will contribute if needed. In the event of problems related to other government agencies, the problems will be resolved by the BOE after consultations with the relevant agencies.

The BPSD is constantly monitoring new regulations, requirements, and initiatives on external statistics released by international organizations such as the IMF, EUROSTAT, and the ECB. The projects connected with emerging data requirements are discussed with other departments of BOE.

**1. Integrity**

**1.1 Professionalism**

*1.1.1 Statistics are compiled on an impartial basis*

Legal provisions are in place to ensure the professional independence of the BOE staff. Professionalism among staff is actively promoted and supported by the BOE through a code of conduct and training.

*1.1.2 Choices of sources and methods are informed solely by statistical considerations*

The BOE is completely independent in the area of compilation of balance of payments statistics and choices of sources and methods are based solely on statistical considerations.

*1.1.3 Statistical agencies are entitled to comment on erroneous interpretation and misuse of statistics*

There are no impediments to the BOE commenting on erroneous interpretation and misuse of statistics.

**1.2 Transparency**

*1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public*

The terms and conditions under which statistics are collected and published are governed by the terms and conditions set out in OSA and the *Law of the Central Bank of the Republic of Estonia*. These laws are available on websites and from the BOE 's Statistics and Public Relations Departments. These laws provide for the confidentiality of the data. The BOE also provides users with advance notification of dissemination dates, analysis of balance of payments developments, and major changes in methodologies. The BPSD provides assistance to users, and responds to their requests.

*1.2.2 Internal government access to statistics prior to their release is publicly identified.*

No officials outside the BOE have access to the data before its release to the public.

*1.2.3 Products of statistical agencies/units are clearly identified as such.*

The BOE monthly bulletin, in which balance of payments statistics are published, is clearly identified as a product of BOE by name and by logo. Other products are also clearly identified as being produced by the BOE.

*1.2.4 Advance notice is given of major changes in methodology, source data and statistical techniques.*

Changes in methodology are explained in the BOE's publications and are announced at the time of the release of the data. For changes in source data and statistical techniques, even though there is no policy for advance notice, special efforts are made to announce these changes in advance. Special sessions open to the public are held to announce and provide clarifications of these changes. This happened in 1996/97 when the "General Trade System" was changed to the "Special Trade System." Similar procedures were to be carried out in 2000, when the benchmark definition for foreign direct investment abroad was changed to 10 percent. But the speed with which the methodology change was implemented precluded this.

### **1.3 Ethical standards**

#### **1.3.1 Guidelines for staff behavior are clear and publicized**

The integrity and professional conduct of employees in agencies producing official statistics is governed by the *Law on Public Service*. Within the BOE, the main ethical guidelines (covering data confidentiality, misuse of information, etc.) are set by the occupational description of positions. Staff are not reminded periodically of the ethical guidelines, but new staff is made aware of the guidelines when they join the organization. High professional standards are expected and observed by BPSD staff.

## **2. Methodological soundness**

### **2.1 Concepts and definitions**

#### **2.1.1 The overall structure in terms of concepts and definitions follows international standards, guidelines, or agreed practices.**

Balance of payments statistics are compiled in accordance with the guidelines set out in *BPM5*.

### **2.2 Scope**

#### **2.2.1 The scope is broadly consistent with international standards, guidelines, or agreed practices.**

No transactions between Estonian residents and nonresidents and geographic regions are systematically excluded from Estonia's balance of payments. Estonia's balance of payments statistics define resident institutional units in conformity with *BPM5*'s concepts of economic territory, residence and center of economic interest. New definitions for residents were introduced from the beginning of the year 2000, and guidelines were issued to banks to apprise them of the new definitions. As a result, the definitions of residents and nonresidents underlying the monetary statistics and the balance of payments are the same. Under the new definitions, students studying abroad or people undergoing medical treatment are treated as residents irrespective of the length of their stay abroad. On the other hand, all offshore companies are considered nonresident, unless they registered in the CBR.

### **2.3 Classification/sectorization**

#### **2.3.1 Classification/sectorization systems used are broadly consistent with international standards, guidelines, or agreed practices.**

The classification/sectorization system is in accordance with the guidelines of *BPM5*. Accordingly, four sectors are distinguished in the balance of payments statistics: the monetary authorities (comprising the BOE), the government sector, deposit money banks, and other

sectors. The government sector includes all State and local government bodies, embassies, and State funds. Deposit money banks include all commercial banks. Other sectors include nonfinancial enterprises, households and non-profit institutions serving households. An exception with respect to the guidelines is the treatment of loans from the IMF, which are included under general government. Prior to 2000, data on long-term and short-term portfolio investment were grouped together for confidentiality reasons. From 2000 onwards, money market funds were separately shown. In a similar vein, confidentiality reasons prevented data on derivatives from being shown separately before 2000.

## ***2.4 Basis for recording***

### ***2.4.1 Market prices are used to value flows and stocks.***

Transactions are valued at market prices. Direct investment capital flows and stock positions are recorded at market prices and on an accrual basis. Portfolio transactions are valued at market prices, and market valuations are used for stocks, where the instrument is listed. However, the acquisition price at which portfolio investment transactions are recorded includes commissions.

### ***2.4.2 Recording is done on accrual basis***

In general, change of ownership as specified in *BPM5* is the principle governing the recording of transactions, which are recorded at the time of ownership change. Most items are valued on an accrual basis, although foreign payments orders are on a cash basis. However, the use of surveys, the ITRS, and other data sources for the compilation of balance of payments statistics necessitates adjustments as follows:

- Data on merchandise trade are based on customs declarations and follow the Special Trade System. Customs data are adjusted for coverage to include unidentified imports, repair on capital goods abroad, and goods procured abroad by carriers. Classification adjustments are made to adjust c.i.f. valuation of imports to an f.o.b. basis.
- Services are, in accordance with accounting rules, recorded when contracts are concluded. Data on services are based on surveys, supplemented with data from the ITRS. Freight services are recorded on an accrual basis, while travel data are derived from a border survey, conducted by the market research institutes and the SOE in cooperation with the BOE and the Estonian Tourist Board. Interest and other investment income are recorded on an accrual basis, except for transactions related to general government, which are recorded on a cash basis.
- Data on direct investment are based on surveys of enterprises and information provided by the CBR, Estonian Privatization Agency, CDS, and sources within the BOE.

- Data on portfolio investments are based on surveys of enterprises, investment funds, and other financial intermediaries, the CDS, and sources within the BOE. Prior to 2000, data on financial derivatives were included in debt securities for reasons of confidentiality. For the same reason, the distribution between bonds and notes and money market instruments was not published before 2000.

*2.4.3 Grossing/netting procedures are broadly consistent with international standards, guidelines, or agreed practices.*

In the ITRS system, netting of transactions is officially not permitted and the BOE is aware of those areas in which nettings are likely to occur. However, even if netting occurs in practice, its significance would be negligible as the information from the ITRS is supplementary. Current account items, including insurance, are recorded on a gross basis, while financial items are recorded on a net basis, separately for assets and liabilities.

### **3. Accuracy and reliability**

#### **3.1 Source data**

*3.1.1 Source data are collected from comprehensive data collection programs that take into account country-specific conditions.*

Surveys are the main information source for quarterly balance of payments and international investment position data compilation. The BPSD is responsible for all procedures related to conducting surveys, maintaining direct contact with respondents and receiving input data at the individual company level. The main cornerstones of survey design are to keep surveys close to accounting standards and to keep complexities at an optimal level in order to make completing the survey forms easier and at the same time ensuring a high response rate.

At present, there are nine different survey forms, designed especially for enterprises in different fields of economic activity. These survey forms are sent to approximately 3,000 enterprises at the end of each quarter. The current survey forms request data to be reported on a net basis, but next year new survey forms will request separate data on drawings and repayments of trade credits and loans, under assets and liabilities. The response rate has been high (90 percent), as a result of outreach and an individual approach. Reminders are sent after 60 percent of the responses have been received. Statistical sampling techniques are not used because of the smallness of the economy and the lack of statistical regularity. The enterprise sample is regularly updated. The process is based mainly on various information sources mentioned below. Surveys and other information sources (ITRS transactions register, securities register, business register, and press releases) enable the BPSD to derive complementary information for crosschecks, logical control, and in-depth analysis for finding out possible inaccuracies in data to guarantee more reliable results.

The ITRS system was introduced in 1994 as an “open reporting system”, based on reporting of individual transactions. The system covers only banks’ client settlements above a certain threshold (EEK 100,000). Data on single transactions are collected through the mediation of credit institutions, enabling resident clients to declare their incoming and outgoing international payments. Taking into account the limitation of settlements data (non-accrual flows, miscoding, nettings), the ITRS is mainly used as an additional, supplementary data source for quarterly balance of payments data to deal with nonresponse. Owing to the promptness of the ITRS data collection system, settlements are an essential input for estimation of monthly balance of payments key items.

Approximately 60,000 payments per quarter are checked and processed one by one. The main questions relate to miscoding. A lot of manpower is needed to get reliable results. Taking into account the European Central Bank (ECB) requirement of publishing monthly balance of payments data and to avoid possible loss of information, it is planned to move to a “closed system” from January 1, 2002, when the reporting will be based on the turnovers of the banks’ *nostro* and *vostro* accounts.

The running of two parallel systems provides a unique possibility to improve the quality of data and to collect additional information (on currencies, countries, average transaction amounts, etc.). The extent to which the two systems are mutually reinforcing depends on the time dimension: monthly data are based mostly on the ITRS, quarterly data are based primarily on the survey system, supplemented by the ITRS. The main obstacle to using monthly surveys is the absence of economic concentration (big amounts of small “players”, big “players” vary from period to period).

The BOE makes serious efforts to ensure that data sources are comprehensive through a continuous review of the coverage of surveys aimed at updating the survey population through collection of information from the CBR, the ITRS register, a list of big exporters and importers provided by the SOE once a year, and newspaper articles. The primary data sources, comprising the surveys and the ITRS, are broadly sufficient to compile balance of payments statistics. Supplementary information is used to compile data not covered by the surveys or the ITRS.

### *3.1.2 Source data reasonably approximate the definitions, scope, classifications, valuation, and time of recording required.*

Special procedures have been developed to adjust data from various data sources to improve the coverage and classification of different balance of payments items. The main estimations and adjustments are the following:

- Estimations for unrecorded customs declarations
- Adjustments for undervalued customs declarations
- Import adjustments (from c.i.f. to f.o.b.)

- Estimations for nonresident governmental expenditures (embassies, etc.)
- Adjustments to trade credits

The information on the main areas of balance of payments (BOP) statistics is in line with the recommendations of *BPM5*.

### *3.1.3 Source data are timely*

The source data are timely. For surveys, the enterprises are expected to report promptly and follow-up procedures ensure the timely receipt of respondent's data. Nonrespondents are called after approximately two weeks, followed by reminder letters. Data from the ITRS are available within seven days after the end of the reference period.

## *3.2 Statistical techniques*

### *3.2.1 Data compilation employ sound statistical techniques*

Data management procedures have been set up to minimize processing errors such as coding, editing, and tabulating. Computerized edit checks have been developed to ensure that details add to totals and consistency checks are built into the ITRS system and Excel worksheets. Other procedures built into the Excel worksheets enable other staff to manipulate data in case of staff absence. Survey forms have been designed to be internally consistent and data to be provided follow accepted accounting standards in order to ease the burden of reporting. Scrutiny of survey forms is done manually and the responses are evaluated against the ITRS. To ease the transfer of data from one database to another, staff are required to prepare summaries, which serve as inputs to other databases.

### *3.2.2 Other statistical procedures (e.g. data adjustments and transformations, and statistical analysis) employ sound statistical techniques.*

For goods transactions, adjustments are made to convert imports recorded on a c.i.f. basis to an f.o.b. basis by using an adjustment factor estimated on the basis of a survey of transportation enterprises. Other adjustments derived from surveys of these enterprises pertain to goods purchased abroad (e.g. fuel, lubricants, etc.) and repairs on capital goods. A coverage adjustment is also made for smuggled imports estimated on the basis of work done by an expert group established within the BOE, with participation of outside experts. For the estimation of travel, sampling techniques are used. Statistical analysis is employed in the area of direct investment and for nonresponse, and data from the ITRS are used to supplement missing information.

### **3.3 Assessment and validation**

*3.3.1 Source data including censuses, samples and administrative records-are routinely assessed, e.g., for coverage, sample error, response error, and non-sampling error; the results of the assessments are monitored and made available to guide planning.*

Source data are routinely assessed as part of the processing of information. Large or unusual transactions in the surveys and the ITRS are checked with each other, the banks, or the respondents.

*3.3.2 Main intermediate results are validated against other information where applicable.*

Errors and omissions are monitored at the end of each quarterly compilation period as an indicator of unrecorded transactions. The behavior of time series is cross-checked with related series/indicators if available. Harmonization between IIP data and BOP flows has not been an objective because it is impossible to update stock data backwards if revisions in flow data are made. Primary data are occasionally compared to those of the Bank of Finland, Bank of Latvia, Bank of Lithuania, National Bank of Russia (trade statistics, direct investment statistics, travel statistics) as well as the IMF (reserves, credits). The statistics of the Bank for International Settlements (BIS) are used as a primary data source.

*3.3.3 Statistical discrepancies and other potential indicators of problems in statistical outputs are investigated and made available to guide users.*

Errors and omissions are monitored at the end of each quarterly compilation period as an indicator of unrecorded transactions. The absolute size, direction, and periodicity is the indirect indicator of the item or sector to be researched if needed.

### **3.4 Revision studies**

*3.4.1 Studies/analyses of revisions are carried out routinely and the results are used to inform statistical processes.*

Studies/analyses of revisions are made and are taken into account in compiling data for subsequent years

*3.4.2 Revision studies and analyses are made public and used to guide data users.*

Studies and analyses of revisions are made public.



## **4. Serviceability**

### **4.1 Relevance**

#### ***4.1.1 Processes to monitor the relevance and practical utility of existing statistics in meeting users' needs are in place.***

The external sector statistics compiled by the BPSD serve the needs of several interest groups. First, the international guidelines issued by the IMF, ECB, and EUROSTAT are the main priority in determining the coverage, structure, and design of the BOP, IIP, and other statistical reports. Second, the interests of the main internal and external users—the Research Department and the Central Bank Policy Department of the BOE as well as third parties (public institutions, universities, private sector, media, and foreign users) are taken into account if reasonable. The staff of the BPSD actively participate in international statistical meetings and seminars, organized by international and regional organizations (IMF, ECB, EUROSTAT, OECD, other national banks, etc.)

### **4.2 Timeliness and periodicity**

#### ***4.2.1 Periodicity follows dissemination standards.***

The BOE compiles and disseminates quarterly balance of payments data, thereby meeting the periodicity requirements of the SDDS.

#### ***4.2.2 Timeliness follows dissemination standards.***

The BOE disseminates balance of payments data no later than the last working day of the quarter after the end of the reference quarter, thereby meeting the quarterly timeliness requirement of the SDDS.

### **4.3 Consistency**

#### ***4.3.1 Statistics are consistent or reconcilable over a reasonable period of time***

Major changes in methodology are always explained in notes disseminated to the public. The methodological notes may contain references to more exhaustive sources including detailed descriptions of adjustments and revisions made in data. Breaks in series are identified and explained.

#### ***4.3.2 Statistics are internally consistent (accounting identities are observed).***

Internal technical procedures support internal consistency of external sector statements as well as consistency between the data for different time periods (quarterly and annual). The BOE compiles and disseminates quarterly balance of payments data, which are used to generate annual statements. Flows in the financial account of the balance of payments can be compared

with developments in the IIP. In addition, the reserves flows in the balance of payments data can be compared with the changes in gross foreign reserves.

*4.3.3 Statistics are consistent or reconcilable with those obtained through other data sources and/or statistical frameworks.*

Because the balance of payments data are an input into the national accounts, and the data from the Banking Statistics and Analysis Department are the basis for the monetary accounts as well as the external accounts, consistency issues generally do not arise. Since, the external debt statement is derived directly from the IIP, consistency is not an issue. The full IIP statement (positions with a table explaining the differences – transactions, price and exchange rate changes, other changes) will be disseminated on a regular basis after new software is adopted in 2002.

*4.4 Revision policy and practice*

*4.4.1 Revisions follow a regular, well-established and transparent schedule.*

There is a revision policy in place. Revisions to the provisional quarterly data of the current year are published together with the provisional data for the following quarter. Revised annual data are published together with the provisional data for the first quarter of the year, and usually can be considered final. In some cases, if the need arises, extraordinary revisions are made although data were considered final. Revisions of a more historical nature may also take place if an important methodological change occurs. A revision policy for the monthly key items is not in place. The data are preliminary when first released and are revised on a quarterly basis as additional information is received. In such cases, the data are marked as revised, although the periods that have been revised are not indicated.

*4.4.2 Preliminary data are clearly identified*

In the BOE's BOP statement, published in the press release and its monthly bulletin, it is indicated that after the receipt of additional information, data for earlier periods have been updated accordingly. However, there are no markings indicating which periods have been revised.

*4.4.3. Studies and analyses of revisions are carried out routinely and made public.*

Studies and analysis of revisions are carried out as and when the need arises and studies done will be made public provided the confidentiality of the data underlying these studies is preserved. Until now, however, the need for studies and analysis of revisions has not arisen.

## 5. Accessibility

### 5.1 Data accessibility

#### *5.1.1 Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons.*

The press release contains a short survey of balance of payments developments during the period under review. In the BOE monthly bulletin, the statistics are presented in a way that facilitates a proper interpretation and meaningful comparison of data over a longer time period, covering nine quarterly periods and two annual periods. This information is accompanied by an in-depth analysis of balance of payments developments during the period under review, supported with numerous charts covering even longer periods. All areas in the current and financial account of the balance of payments, such as the goods account, the services, income, and transfers account, the direct investment, portfolio investment, reserves, and other investment accounts, are discussed separately and supplementary information is provided. The presentation of the balance of payments statistics is in line with the standard components presented in *BPM5*. Direction of trade statistics and special exports and imports, classified by end consumption, provide additional analytical information.

#### *5.1.2 Dissemination media and formats are adequate.*

The dissemination formats are adequate. The balance of payments data are released to all interested parties in a press release, *BOE Newsletter: Estonia's Balance of Payments*, which is also posted on the BOE's website. The data are then published in the BOE monthly bulletin.

#### *5.1.3 Statistics are released on a pre-announced schedule.*

An advance release calendar, giving precise release dates is disseminated on the BOE's website no later than September 30 for the coming year. A notice is published in the BOE monthly bulletin, indicating where users can access, via the Internet, the advance release calendar.

#### *5.1.4 Statistics are made available to all users at the same time.*

The data are released simultaneously to all interested parties by issuing a press release

#### *5.1.5 Non-published (but not confidential) sub-aggregates are made available upon request*

In addition to publicly disseminated information, the BPSD produces time series containing more detailed subaggregates for internal research work. External users are not able to access the whole set of non-published, detailed data. In addition to information on the BOE's website, specific enquiries on detailed information are met, if these are not time consuming and if they follow the principle of confidentiality. In general, there are not many queries, since

all the information that can be published is published at the detailed level. Exact procedures are stipulated by the Public Information Act.

## **5.2 Metadata accessibility**

*5.2.1 Documents on concepts, scope, classifications, basis for recording, data sources and statistical techniques is available, and differences in international standards are annotated.*

Documentation on concepts, scope, classifications, basis of recording, data sources, and statistical techniques is available, and differences from international standards are annotated. Information about the detailed methodology and sources is published by the BPSD in *Balance of Payments Statistics of Estonia: Contents, Structure and Methodological Basis*.

*5.2.2 Different levels of detail are provided depending on intended audience and type of collection.*

Detailed information on all components of the BOP are available in the publications and on the BOE's website.

*5.3.1 Contact person for each subject field is publicized.*

The name and telephone number for the contact person for balance of payments statistics are published in the press releases. The BPSD arranges special lectures and meetings on external sector statistics for all users if needed (including for the press, universities, associations, credit institutions, training centers as well as bank's internal training courses). The BPSD provides instructions on the use of statistics for all internal and external users who need to be assisted via phone or e-mail directly or through the Public and International Relations Department of the BOE.

*5.3.2 Catalogues of publications and other services, including information on any charges, are widely available.*

No catalogue or pamphlet listing the BOE's publications is available, but a list of publications is available on the BOE's website.

## IV. GOVERNMENT FINANCE STATISTICS

### 0. Prerequisites of quality

#### *0.1 Legal and Institutional environment*

*0.1.1 The responsibility for collecting, processing, and disseminating statistics is clearly specified.*

The Ministry of Finance (MOF) is responsible for the compilation of data on the operations of the general government in accordance with Order of the Secretary General No.12 of April 15, 1998.

*0.1.2 Data sharing and coordination among data producing agencies are adequate*

Data sharing and coordination among agencies reporting basic data appear to be adequate. However, coordination with other agencies compiling macroeconomic information needs to be strengthened, especially regarding the institutional coverage of general government. The Information Technology (IT) project that is being implemented will facilitate data sharing, as software modules (SAP/R3 modules) will be used.

The Economic Analysis Department of the MOF coordinates the activities of the data producing agencies. It involves reporting of data regarding budget operations, the Social Insurance Fund, the Medical Insurance Fund, local governments, and extrabudgetary funds.

*0.1.3 Respondents' data are to be kept confidential and used for statistical purposes only*

Not generally relevant to Government Finance Statistics (GFS) as respondents are government units. However, confidentiality of tax information is assured through the Official Statistics Act and internal regulations.

*0.1.4 Statistical reporting is ensured through legal mandate and/or measures implemented to encourage voluntary response*

Government units are required by regulation to report data to the MOF.

#### *0.2 Resources*

*0.2.1 Staff, financial, and computing resources are commensurate with institutional programs*

Compared with past practice in the MOF, and the norm in other countries with a similar level of income, there appears not to be sufficient staff available for compiling GFS data. Only one person is in charge of the compilation and analysis of GFS. Other resources are sufficient and

the procedures for compilation are automated by some extent, as there are Excel form macros to compile reports, which are inputs to a computerized GFS compilation procedure. The process of automating GFS compilation is underway via an IT project financed by the EU's PHARE programme. Completion of this project is expected by October 2001. Nevertheless, the MOF appears to be in a vulnerable position, as all knowledge of GFS compilation and analysis procedures is concentrated in one person.

The MOF does not have a clear policy toward staff GFS training. Individual efforts are carried out by staff to find venues for training and make individual proposals to the MOF for training.

#### *0.2.2 Measures to ensure efficient use of resources are implemented*

Costs associated with compiling GFS data are not currently measured and monitored.

### **0.3 Quality awareness**

#### *0.3.1 Processes are in place to focus on quality, to monitor the quality of the collection, processing and dissemination of statistics, to acknowledge and deal with tradeoffs within quality, and to guide planning for existing and emerging needs*

The Government Sector Division of the Economic Analysis Department reviews the quality of the data before releasing them to the public. Indirectly, there is control of quality by other institutions such as the BOE and SOE, which use the MOF data as inputs into the compilation of their statistics. Trade-offs between quality and other considerations, are not explicitly acknowledged.

## **1. Integrity**

### **1.1 Professionalism**

#### *1.1.1 Statistics are compiled on an impartial basis*

The process of compiling GFS data is defined by an administrative order of the Secretary General and it clearly defines the roles for all units and agencies involved in process. The administrative order also guarantees the independence of the compiler's work.

#### *1.1.2 Choices of GFS sources and statistical techniques are informed solely by statistical considerations*

The choices of sources and methods appear to be generally directed by statistical considerations.

*1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics*

The GFS compiler is responsible for providing expert advice and public response to misinterpretation and misuse of GFS.

**1.2 Transparency**

*1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public*

The laws and regulations governing compilation and dissemination of GFS are freely disseminated to the public.

*1.2.2 Internal government access to statistics prior to their release is publicly identified*

Officials outside the MOF do not have access to data before their release to the public. Monthly data are released simultaneously to all interested parties by issuing the press release “Estonian Fiscal Position” and at the same time posting the data on the MOF’s website. Also, the data are published twice a year in the spring and autumn editions of “Majanduse ülevaade” (Overview of Economic Situation). On a quarterly basis, the SOE officials have access to the underlying data of the MOF for preparation of quarterly estimates of GDP.

*1.2.3 Products of statistical agencies/units are clearly identified as such*

All data provided by the MOF is clearly identified as such.

*1.2.4 Advance notice is given of major changes in methodology, source data, and statistical techniques*

There have been no major changes in methodology in recent years in compiling GFS statistics. However, if the methodology were to change, advance notice would be given.

**1.3 Ethical standards**

*1.3.1 Guidelines for staff behavior are clear and publicized*

There is an Ethics Code for Public Servants (*Law on Public Service*) in force in Estonia, which has to be followed by every public servant. Also, the MOF has its own code of conduct that sets the guidelines for staff of the Ministry.

## **2. Methodological soundness**

### ***2.1 Concepts and definitions***

*2.1.1 The overall structure in terms of concepts and definitions follows international standards, guidelines, or agreed practices: see dataset-specific framework*

The methodology in a *Manual on Government Finance Statistics 1986 (GFSM)* is closely followed regarding sources and methods, though with an incomplete coverage as discussed in 2.2.1. After the adoption of the proposed amendments to the State Budget Law, a new classification of State revenues and expenditures will be based on the revised GFSM (*GFS Manual 2001*). When this has taken place, GFS concepts will also correspond to the 1995 *ESA*. The authorities expect that the GFS flow data will be available in line with the methodology of the new *GFS Manual 2001* in 2002.

At present, the methodology used for compilation of GFS data departs from the *GFSM* in the recording of operations with shares that are shown as financing instead of lending minus repayments. Information on the methodology and classification systems is published in the SDDS metadata that is posted on the DSBB.

Data on central government debt comprise the total outstanding gross debt of central government, showing total debt broken down into domestic debt and foreign debt on a residency basis. The detailed classifications correspond to the guidelines recommended in the *GFSM*. Separately identifiable data on debt guaranteed by the central government are also disseminated.

### ***2.2 Scope***

*2.2.1 The scope is broadly consistent with international standards, guidelines, or agreed practices.*

The coverage of general government does not include the transactions carried out through the Privatization Agency (PA) and the operations of the Stabilization Reserve Fund (SRF) are only partially included, reflecting only the direct payments between the general government and the SRF. Amendments to the Budget Law are under discussion in the Parliament. In the amendments, it is proposed that the coverage of the State budget include the operations of the SRF and of the PA beginning in 2002. Also, the general government data exclude the operations of the state-owned and municipal hospitals and the Ownership Reform Fund. The resources channeled through these institutions are recorded in a transparent manner in their own account. Regarding the State Forest Agency (SFA), the general government sector excludes its operations, which are regarded as those of a nonfinancial public corporation. The mission concurs with this classification of the SFA as the majority of its operations are of a commercial nature.



Debt data of the central government include the loans contracted by the MOF according to the Law on Raising Foreign Loans and Giving State Guarantees For Foreign Loan Contracts, and other loan and bond-creating debt of the central government. Data cover the debt of the State Budget, the Social Security Fund, and the Health Insurance Fund, but exclude those of extrabudgetary funds except the Environment Fund.

GFS data do not include quasi-fiscal operations. They are not reported in budget documents. Quasi-fiscal operations have been very limited in recent years.

## **2.3 Classification/sectorization**

*2.3.1 Classification/sectorization system used are broadly consistent with international standards, guidelines, or agreed practices.*

GFS are provided separately for the central government and local governments and for the consolidated general government. The institutional sectors are defined in accordance with the *GFSM* and are consistent with the *System of National Accounts 1993*. Detailed data are classified in accordance with the *GFSM*.

Running estimates based on preliminary monthly data for general government, excluding the operations of the extrabudgetary funds, are eventually replaced by general government final annual data that cover the operations of central government (budgetary central government, the Social Security Fund, the Medical Insurance Fund, and extrabudgetary funds) and the local governments. Budgetary central government data on a monthly basis exclude the operations of all extrabudgetary funds, except the Environment Fund that was incorporated into the definition of budgetary central government beginning in mid-1999. The extrabudgetary funds report their accounts on an annual basis only. At present, the authorities have no plans to collect monthly or quarterly data on extrabudgetary funds operations but they are considering including the extrabudgetary funds in the coverage of the State budget.

Regarding data for revenue and grants and expenditure of the general government, data exclude in the consolidation the government social contributions paid to the social security funds as employer, following the *GFSM*.

## **2.4 Basis for recording**

*2.4.1 Market prices are used to value flows and stocks*

Market prices are not used to value flows and stocks. Acquisition costs are used instead.

Regarding foreign financing, the exchange rate prevailing at the time of the transaction is used for valuation purposes. Regarding the stock of foreign debt, the exchange rate at the end of the accounting period is used for valuation purposes. In 1999, the MOF made efforts to prepare a State government balance sheet on an experimental basis. However, the authorities

considered that more work is needed in this area to provide full coverage of stocks of assets (financial and nonfinancial) and liabilities, and valuation of stocks at market prices.

#### *2.4.2 Recording is done on accrual basis*

GFS data is compiled on a cash basis. However, accrual-based accounting for the expenditure of general government units is in place on an annual basis. Currently, the MOF does not have plans for the compilation and reporting of GFS on an accrual basis.

#### *2.4.3 Grossing/netting procedures are broadly consistent with international standards, guidelines, or agreed practices*

In GFS, transactions on revenue and grants and expenditure are reported on a gross basis. Lending minus repayments and borrowing/amortization are reported on a net basis.

### **3. Accuracy and reliability**

#### *3.1 Source data*

##### *3.1.1 Source data are collected from comprehensive data collection programs that take into account country-specific conditions*

For the budgetary central government (budget units), the data sources are the Treasury reports. The same reports cover the operations of the social funds (Social Security Fund and Medical Insurance Fund). Extrabudgetary funds report their operations only on an annual basis and data become available at the same time as the Annual State Report at the end of May each year. Local government data are based on the actual accounting records of all local government units.

The data sources are the actual accounting records of the central government units and all local governments. The data are recorded on a cash basis. The fiscal year is the same as the calendar year. The sources of the debt data are loan contracts, and records of loan payments and repayments made in accordance with the loan contracts.

##### *3.1.2 Source data reasonably approximate the definitions, scope, classifications, time of recording, and valuation required*

GFS source data are converted to GFS classifications by the MOF and it provides the information as required. The classification templates, prepared in 1994 with technical assistance from the Fund, for the conversion of the data in the source documents to the GFS classifications have not been formally up-dated. Though changes in the budget document codes have been taken into account by the GFS compiler each year, the changes have not been documented. This may lead to some confusion regarding the proper classification of transactions.

### *3.1.3 Source data are timely*

Monthly data excluding operations of the extrabudgetary funds are reported one month after the end of the reference month. Final annual data are disseminated no later than 9 months after the end of the reference year. State government accounts, including extrabudgetary accounts, are ready by the end of May after the reference year.

## *3.2 Statistical techniques*

### *3.2.1 Data compilation procedures employ sound statistical techniques*

GFS data are prepared from data sources following methodological procedures recommended in the *GFSM*. The proposed amendments to the Budget Law consider the adoption of the classifications in the *GFSM 2001*.

### *3.2.2 Other statistical procedures (e.g., data adjustments and transformations, and statistical analysis) employ sound statistical methods*

There are no other statistical procedures in the compilation of GFS.

## *3.3 Assessment and validation*

### *3.3.1 Source data – including censuses, sample surveys and administrative records—are routinely assessed, e.g., for coverage, sample error, response error, and non-sampling error; the results of the assessments are monitored and made available to guide planning.*

Source data are routinely assessed for errors. However, the results of the assessments are not routinely, monitored or used to guide planning.

Administrative orders are used to resolve gaps or delays in the preparation of source documents. The data sources for GFS present an adequate balance between accuracy and timeliness except for data regarding the extrabudgetary funds. The status of the GFS data, whether preliminary or final, is indicated in the GFS data released to the public.

### *3.3.2 Main intermediate results are validated against other information where applicable*

The MOF does not reconcile major intermediate results against information from other sectors.

### *3.3.3 Statistical discrepancies and other potential indicators of problems in statistical outputs are investigated*

GFS data are extracted from the accounts of general government units. There appears not to be discrepancies between the overall balance and the sum of financing items for central and

general governments. However, estimated flows of domestic financing obtained from the monetary statistics need to be reconciled with MOF data (see 4.3.3).

### ***3.4 Revision studies***

#### ***3.4.1 Studies and analysis of revisions are carried out routinely and used to inform statistical processes***

No revisions studies are carried out routinely.

## **4. Serviceability**

### ***4.1 Relevance***

#### ***4.1.1 Processes to monitor the relevance and practical utility of existing statistics in meeting user's needs are in place***

Processes seem adequate for users to give feedback on the data for the central government. GFS data are compiled within the same timeframe as budget preparations and monitoring, and are used in the process of determining or evaluating fiscal policy. GFS data appear to be available with sufficient timeliness, and detail, to allow all users to assess the degree to which the Government of Estonia is achieving its indicated social and fiscal policies.

### ***4.2 Timeliness and periodicity***

#### ***4.2.1 Periodicity follows dissemination standards***

Monthly and annual data on central and general government operations are disseminated regularly and central government debt data are disseminated quarterly. This meets the reporting requirements of the SDDS. However the monthly general government data that are disseminated are not “true” monthly data, but the result of cumulative calculations (see 4.4.1).

#### ***4.2.2 Timeliness follows dissemination standards***

Timeliness of monthly central and general government operations data is within one month of the reference month. Timeliness of quarterly central government debt data is within one quarter following the reference quarter. The timeliness of final annual data for the general government is 9 months following the reference year. These practices meet SDDS requirements.

### **4.3 Consistency**

#### *4.3.1 Statistics are consistent or reconcilable over a reasonable period of time*

The methodology used to compile the data closely follows that set out in the *GFSM*, with the exception that operations with shares are recorded as a financing item. The continuity of the procedures followed ensures the consistency of data.

The monthly data are preliminary when first released and are successively revised during the year. The annual final data are released no later than 9 months after the end of the fiscal year. There are no final monthly data series available – as the annual report includes extrabudgetary funds data that are not available on a monthly basis. Thus these data are not reconcilable over time.

Data breaks in the time series are clearly identified and properly explained when necessary. Unusual breaks in the time series are explained in the Ministerial comments at the time the data are released.

#### *4.3.2 Statistics are internally consistent (e.g., accounting identities observed)*

GFS data are internally consistent. The sum of detailed items in each aggregate equals the total for the aggregate. The sum of GFS aggregates for each component level of government, or other subsectors of GFS, equals aggregates for the consolidated combination of those subsectors, less consolidation adjustments. The outstanding stock of domestic debt at the end of the reference period is estimated as the sum of the stock balance at the beginning of the reference period and the domestic financing during the reference period. Foreign debt data in national currency for central and local governments are not fully consistent with the flow of foreign financing due to the use of different exchange rates. The stock of foreign debt is converted to national currency using the end of period exchange rate at the beginning and at the end of the reference period, and the foreign financing flow is valued at the exchange rate at the time each financing transaction takes place. Monthly data for the central and local governments are consistent with preliminary annual data.

#### *4.3.3 Statistics are consistent or reconcilable with those obtained through other sources and/or statistical frameworks*

GFS data are not consistent with other data sources such as monetary statistics and balance of payments statistics. The estimated flows of domestic financing using monetary statistics prepared by the BOE (changes in stocks during the reference period) are different from the flows of domestic financing data compiled by the MOF. The differences in 2000 appear to be explained by the use of a different coverage of general government units, the use of a different basis of recording (accrual basis in the monetary statistics and cash basis in GFS). Also in 2000, the change in government deposits held abroad as reported by the MOF is not consistent with BOP data. General government data prepared by the SOE for national

accounts are consistent with MOF data because the SOE uses MOF data as the source for its statistics.

#### ***4.4 Revision policy and practice***

##### ***4.4.1 Revisions follow a regular, well-established and transparent schedule***

Monthly data are revised during the year. The cumulative operations at the end of the previous reference month are deducted from the cumulative operations at the end of the reference month. Therefore, there is an implicit revision of monthly data. Final annual data are disseminated to the public no more than 9 months after the reference year.

##### ***4.4.2 Preliminary data are clearly identified***

Preliminary data are clearly identified in MOF publications.

##### ***4.4.3 Studies and analyses of revisions are carried out routinely and made public***

Studies and analyses of revisions are not routinely made.

### **5. Accessibility**

#### ***5.1 Data accessibility***

##### ***5.1.1 Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons (layout and clarity of text, tables, and charts)***

GFS data are presented in sufficient detail to satisfy most users' needs. However, the functional classification of expenditure for the general government is prepared in accordance with the old COFOG (Classification of the Functions of Government) presented in the *GFSM* and its detail is not adequate for the SOE's needs. Therefore, the SOE collects basic data on government operations from the MOF and prepares a cross classification of expenditure by function and economic type using the new COFOG in the *GFSM 2001* on a quarterly basis.

##### ***5.1.2 Dissemination media and formats are adequate***

The MOF and the SOE disseminate GFS data in print and electronic media. Regarding data for the general and central governments, detailed data are disseminated for total revenues and grants, total expenditure, lending minus repayments, the deficit/surplus, and financing broken down into foreign and domestic, with domestic financing further broken down into bank and nonbank financing. The data are presented on a consolidated cash basis, with intergovernmental payments among the various units of government eliminated from the data.

### *5.1.3 Statistics are released on a pre-announced schedule*

GFS data are disseminated according to a pre-announced schedule that is available on the website of the MOF.

### *5.1.4 GFS data are made available to all users at the same time*

As indicated in point 1.2.2, GFS data are released simultaneously to all interested parties.

### *5.1.5 Non-published (but non-confidential) sub-aggregates are made available upon request*

Upon request, non-published (but non-confidential) GFS data are made available to users.

## **5.2 Metadata accessibility**

*5.2.1 Documentation on concepts, scope, classifications, basis of recording, data sources, and statistical techniques is available, and differences from international standards are annotated.*

As a subscriber to the SDDS, all fiscal metadata and a summary of methodologies used are published on the DSBB, which is available to all users. This information is up-to-date, and comprehensive.

*5.2.2 Different levels of detail are provided depending on intended audience and type of collection.*

Detailed technical descriptions that are sufficient to allow expert users to assess the strengths and weaknesses of GFS are published. Less detailed information is also provided to general users in publications.

## **5.3 Assistance to users**

### *5.3.1 Contact person for each subject field is publicized*

The name of a contact person for prompt and responsive statistical support is made public on the DSBB.

*5.3.2 Catalogues of publications, documents, and other services, including information on any charges, are widely available*

No catalogue listing the MOF's publications is available.

## V. MONETARY STATISTICS

### 0. Prerequisites of Quality

#### *0.1 Legal and institutional framework*

##### *0.1.1 The responsibility for collecting, processing, and disseminating statistics is clearly specified.*

The Bank of Estonia (BOE) is responsible for compiling and disseminating the central bank survey (CBS), the survey of the other depository corporations (ODCs), and the consolidated survey of the depository corporations (banking or broad money survey). The legal authority is specified in the *Law on the Central Bank of the Republic of Estonia* (May 1993). Article 2 states that the “Bank of Estonia supervises all credit institutions [commercial banks] within the Republic of Estonia.” Article 17 indicates that, in order to perform its tasks, the “BOE has the right to request from any credit institution, data, documents, reports, and agreements, as well as request appropriate explanations in relation to these data.” Furthermore, Article 1 prescribes that the Board shall issue decisions, and the President of the BOE shall issue decrees, and regulations in order to fulfill the BOE’s mandate. Moreover, Article 21 states that the BOE is obliged to publish the banking sector data on a regular basis. The BOE’s Banking Statistics and Analysis Department (BSAD) is in charge of the collection of data and the compilation and dissemination of the CBS and the depository corporations survey.

Currently, the BOE has no legal authority to collect monetary data from ODCs that are not credit institutions. At present, the BOE gathers information on a voluntary basis from two out of the eight savings and loan associations, and is coordinating to obtain complete monthly data, by voluntary agreements, from the investment pools (money market and mutual funds) and financial leasing companies. However, the legal framework will improve when the *Law of Financial Inspection*, approved on 5/9/01, and an amendment to the *Law on the Central Bank of the Republic of Estonia*, expected to be approved later this year, are fully operational starting in January 2002, which will make possible the compilation of data for the rest of ODCs in Estonia.

##### *0.1.2 Data sharing and coordination among data producing agencies are adequate.*

Data sharing within the BOE is done through the use of information systems, which enable access by authorized users to common databases. Access and allocation of user rights are regulated by rules for the administration of databases. The BSAD, in coordination with the Banking Supervision Department (BSD), produces and circulates to the ODCs guidelines for preparing monetary and financial information to standardize the reporting process. In addition, the BOE cooperates with the Statistical Office of Estonia to compile financial accounts within the framework of the national accounts. The BOE and the Ministry of Finance have prepared an updated listing of the general government sector comprising the subsectors central government and local governments, with the aim at improving the sectorization and coverage of the monetary and fiscal statistics.



*0.1.3 Respondents' data are to be kept confidential and used for statistical purposes only.*

Article 21 of the Law on the Central Bank of the Republic of Estonia prohibits the publication of data in a form in which information for individual institutions or their individual clients can be identified. The BOE collects data on individual banks and other depository corporations but their individual data are not disseminated. The BSAD has internal rules on sensitive data categories, and principles according to which the authorizations for database access are granted. Data confidentiality is safeguarded by a BOE internal edict on prevention of confidential or sensitive data disclosure by staff.

*0.1.4 Statistical reporting is ensured through legal mandate and/or measures implemented to encourage voluntary response.*

The Law on the Central Bank of the Republic of Estonia (Article 17) grants the legal authority and responsibility to the BOE for the compilation and dissemination of data for credit institutions. In addition, under the *Law on Credit Institutions* (Articles 90 and 91), the BOE can set data reporting requirements for credit institutions and for credit institutions groups' consolidated data.

Currently, only two of the eight Estonian savings and loan associations report monthly data to the BOE on a voluntary basis. Likewise, the BOE obtains only partial monthly data from the money market and mutual funds through the Securities Inspectorate of Estonia, together with quarterly data from the financial leasing companies on the basis of voluntary agreements. Statistical reporting should improve with the collection of complete monthly data from these institutions when the *Law of Financial Inspection* and an amendment to the *Law on the Central Bank of the Republic of Estonia* are fully operational starting in January 2002.

**0.2 Resources**

*0.2.1 Staff, financial, and computing resources are commensurate with institutional programs.*

The BSAD has five professionals involved with issues of methodology, data collection, compilation, and reporting of monetary and financial statistics, and two staff occupied with information technology support. The qualifications and technical skills required for employment are high. Most staff have participated in training courses. The systems of data collection and compilation are highly computerized and special software has been developed for these purposes, including checking procedures aimed at ascertaining the consistency of reports with given criteria and verifying the logical and accounting consistency between reports. Technical support systems are continuously developed and enhanced. Most of the ODCs submit report forms by electronic means.

*0.2.2 Measures to ensure efficient use of resources are implemented.*

There are no measures in place to monitor the cost-effectiveness of the program for compiling monetary statistics.

**0.3 Quality awareness**

*0.3.1 Processes are in place to focus on quality, to monitor the quality of the collection, processing, and dissemination of statistics, to acknowledge and deal with tradeoffs within quality, and to guide planning for existing and emerging needs.*

Data compiled by the BSAD are cross-checked against inputted data for the current and previous month and explanations are sought for any discrepancies and/or excessive variations. This process might involve verifying data with reporting institutions. The BSD verifies that data reporting practices followed by the depository corporations are consistent with the guidelines established by the BOE and that the reported data can be reconstructed from the accounting records during its scheduled inspections.

Internal users of the monetary statistics, such as the BSD and the Central Banking Policy Department (CBPD), comment on the accuracy, timeliness, and comprehensiveness of the data, as well as on possible discrepancies before the official release of the data. Regarding the adherence to international statistical standards and the harmony with other statistical areas, special consultation sessions are organized in cooperation with other bodies responsible for statistics, such as the Statistical Office of Estonia, and the Ministry of Finance. Users' surveys covering statistical issues are conducted occasionally.

BSAD is constantly monitoring new regulations and requirements on monetary and financial statistics released by international bodies such as the ECB and the IMF. The projects relating to emerging data requirements are discussed with other BOE departments such as the BSD, CBPD, and Statistics Department.

**1. Integrity**

**1.1 Professionalism**

*1.1.1 Statistics are compiled on an impartial basis.*

The provisions under which the BOE compiles monetary statistics are adequate to ensure independence in conducting this function. Credit institutions are required by law to supply data to the BOE, which determines the content and coverage of the reported information. This prevents improper influence on the content or release of statistical information.

All staff who compile monetary and financial statistics are encouraged to participate in professional conferences. In addition, some staff deliver technical lectures within the

organization. Professionalism is promoted by participation in courses dealing with banking, statistics, accounting, information technology, and law.

*1.1.2 Choices of sources and statistical techniques are informed solely by statistical considerations.*

The methodological framework is designed to cover the accounts of the depository corporations, where their assets are claims on residents and nonresidents and their liabilities are classified as components of broad money. This framework highlights the distinction between the sectors of the economy that are money holders and those that are money issuers. Thus, report forms have been developed to collect disaggregated information from accounting records of financial institutions with liabilities that are included in the definition of broad money.

*1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics.*

BSAD staff do not meet with the press directly given that the Public Relations Department (PRD) is responsible for communications with outside parties. On occasion, the PRD, in consultation with BSAD, releases comments and explanations to the public, in order to avoid misinterpretations of statistics.

**1.2 Transparency**

*1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public.*

The laws and decrees that set the terms and conditions for the compilation and dissemination of monetary statistics are available to the public. Access to these regulations is available on the BOE's website or by inquiry to the BOE's PRD. Moreover, an advanced release calendar (ARC) that gives the precise dates for the next twelve months is disseminated on the BOE website and published in the BOE monthly bulletin.

*1.2.2 Internal governmental access to statistics prior to their release is publicly identified.*

After BSAD's approval of the monetary data, senior BOE staff have access to the data prior to the day of publication. Following approval, the period between download into the databases and the release of final data is of six days. No public official outside the BOE has access to these data prior to publication.

*1.2.3 Products of statistical agencies/units are clearly identified as such.*

All monetary statistical publications identify the BOE as the source of the CBS and the depository corporations survey.

*1.2.4 Advance notice is given of major changes in methodology, source data, and statistical techniques.*

Advance notice is not given when major changes in statistical techniques and methodology are to be implemented. When changes occur, historical data are revised in order to maintain the comparability of the time series, and when the data are released, the new methodology is explained in notes and comments.

**1.3 Ethical standards**

*1.3.1 Guidelines for staff behavior are clear and publicized.*

BOE staff are obliged by contract to keep confidential all bank and business records subject to the rules of secrecy. In addition, data confidentiality is safeguarded by an internal edict on prevention of confidential or sensitive data disclosure by BOE staff. Employees who violate the data confidentiality rules may be discharged from their positions and they have to compensate the BOE for losses incurred. General internal rules and regulations on data confidentiality safeguarding requirements are available to all staff on the internal website.

The BOE is currently implementing rules to define internal responsibilities in accordance with the *Public Information Act*, which went into effect in January 2001. The purpose of the *Public Information Act* is to ensure that people have the opportunity to access information intended for public use to create opportunities to monitor the performance of public duties.

**2. Methodological soundness**

**2.1 Concepts and definitions**

*2.1.1 The overall structure in terms of concepts and definitions follows international standards, guidelines, or agreed practices.*

The methodological framework used by the BSAD to compile the central bank survey and the depository corporations survey reflects concepts and standards that are broadly consistent with the Fund's *Monetary and Financial Statistics Manual (MFSM)*. The framework focuses on a measure of broad money that comprises the liabilities of the depository corporations (the financial assets of other sectors of the economy) and on the claims of the depository corporations on other sectors of the economy and nonresidents. Consequently, a depository corporations survey is prepared by consolidating the central bank survey with the ODCs survey, which are derived from the BOE sectoral balance sheet and the aggregated sectoral balance sheets of the ODCs. The main monetary and credit aggregates identified in this framework are broad money (comprising banknotes and coins in circulation, private enterprises' and household's deposits, deposits of local governments and nonfinancial public enterprises, and short-term liquid liabilities), net foreign assets, net credit to central government, and credits to local governments, nonfinancial public enterprises, private enterprises and households, and other financial institutions.

The BOE's principles of accounting are based on the *Law on the Central Bank of the Republic of Estonia* and the Statutes of the BOE. The Estonian Accounting Act, from which BOE is exempted, and International Accounting Standards (IASs) have been adopted where management considers them to be appropriate and applicable to the activities of a central bank. Credit institutions report their accounting records following IASs.

## **2.2 Scope**

### **2.2.1 The scope is broadly consistent with international standards, guidelines, or agreed practices.**

The Estonian financial corporations sector comprises the BOE, 35 ODCs (commercial banks, savings and loan associations, investment pools—money market and mutual funds—, and financial leasing companies) that are mainly engaged in financial intermediation and issue liabilities included in broad money, and 222 Other Financial Corporations. The survey of depository corporations (the banking or broad money survey) prepared by the BSAD contains BOE balance sheet data and data reported by 9 of the 35 ODCs. Therefore, the scope of the monetary statistics is constrained by the incomplete coverage of the ODCs. It is estimated that the balance sheet data of the depository corporations excluded from the coverage make up approximately 16% of the whole depository corporations sector's assets and liabilities, and 5% of the deposits and short-term liquid liabilities of a complete depository corporations survey. At present, work is in progress to implement recommendations related to the expansion of the institutional and instrument coverage of the Estonian monetary statistics made by a 1999 IMF's Statistics Department mission with European Central Bank participation. It is expected that all saving and loan associations, money market and mutual funds, and financial leasing companies, which issue instruments that are highly liquid and close substitutes for money, will be included in the coverage of ODCs during 2002.

## **2.3 Classification/sectorization**

### **2.3.1 Classification/sectorization systems used are broadly consistent with international standards, guidelines, or agreed practices: see dataset-specific framework.**

The principles underlying the classification of financial instruments and the sectorization of institutional units are, in general, broadly consistent with the *MFSM*. However, at present, two sets of money supply statistics are compiled and published by the BOE, which may confuse data users. One set of monetary aggregates includes deposits of the central government and of nonresidents, which departs from international guidelines; whereas the other set of monetary aggregates compiled in the depository corporations survey (which is disseminated in *International Financial Statistics* and on the BOE's website) is based on international guidelines.

Regarding financial instruments, the classification is based on the liquidity of the assets and liabilities and the legal characteristics that describe the underlying creditor/debtor relationship.

In general, the assets and liabilities are classified according to the categories delineated in the *MFSM*. The classification of financial instruments covers currency and deposits, securities other than shares, loans, and shares. But, insufficient details such as counterpart/sector information exist with respect to financial derivatives.

Securities repurchase agreements (repos) and securities resale agreements (reverse repos) are recorded as collateralized loans, as called for in the *MFSM*. Currently, there are no repurchase agreements included in broad money. At present, all swaps and other derivatives are reported in on-balance-sheet accounts under “other assets” and “other liabilities” to record claims and obligations, respectively; but the financial derivatives should be presented as a separate category in the sectoral balance sheets of the depository corporations.

During the period March 2000 – March 2001, the unclassified assets constituted 3.89 percent on average of the total assets in the CBS, and the unclassified liabilities made up 1.66 percent of total liabilities during the same period; both stand within acceptable levels of unclassified items.

## ***2.4 Basis of recording***

### ***2.4.1 Market prices are used to value flows and stocks.***

The general guideline of the *MFSM* is that financial assets and financial liabilities should be valued on the basis of market-prices or market-price equivalents. Valuation according to market-price equivalent (or fair value) is needed for valuing financial instruments that are not traded in financial markets.

As recommended by the *MFSM*, valuation of most financial assets and liabilities is based on market prices or fair values; however, some short-term securities and long-term financial investments are recorded at the lower of acquisition cost or market value. Shares and other equity on the liability side are reported at book value as recommended by the *MFSM*.

The valuation of loans is based on creditors’ gross outstanding claims, while provisions for loan losses are recorded as separate accounts under “other liabilities,” both practices are in accordance with the *MFSM*. Loans valuation in the BOE monetary data comprises the outstanding principal plus accrued interest, whereas loans valuation in the ODCs monetary data comprises only the outstanding principal since the accrued interest is reflected under “other assets” or “unclassified accounts.”

Finally, assets and liabilities denominated in foreign currency are translated into domestic currency at the market exchange rate existing at the end of the reference month. The BOE is the fiscal and depository agent for all Estonia’s transactions with the Fund. IMF related positions denominated in SDR are translated into domestic currency at market rates quoted by the BOE. Most account balances reflecting Estonia’s financial position with the IMF are reported by the BOE. The exception is the balance of the account Use of Fund Credit (loans

provided by the Fund to the Estonian government under the Systemic Transformation Facility), which is recorded in the records of the central government.

#### *2.4.2 Recording is done on an accrual basis.*

The *MFSM* recommends that interest accruing on deposits, loans, and securities other than shares be incorporated into the outstanding amount of the financial asset or liability, rather than being treated as part of other accounts receivable/payable.

For the compilation of Estonian monetary statistics, the BOE incorporates the interest accruing on deposits, loans, and securities other than shares into the outstanding amount of the financial asset or liability; whereas, the commercial banks do not incorporate into the outstanding amount of the financial asset or liability the accrued interests, but rather treat them as part of other accounts receivable/payable. In addition, for nonperforming loans, the commercial banks do not record the accrued interest in arrears on-balance-sheet but in off-balance-sheet accounts.

#### *2.4.3 Grossing/netting procedures are broadly consistent with international standards, guidelines, or agreed practices.*

The Estonian monetary statistics are aggregated by nonresident and resident positions, where the resident positions are aggregated by financial assets and liabilities classified by debtor sector and creditor sector, respectively. All assets and liabilities categories in the sectoral balance sheets are presented on a gross basis, and the sectoral balance sheet data are properly consolidated to produce the depository corporations survey, which presents data regarding claims on and liabilities to financial corporations other than depository corporations, other domestic sectors, and nonresidents.

### **3. Accuracy and Reliability**

#### *3.1 Source data adequacy*

##### *3.1.1 Source data are collected from comprehensive data collection programs that take into account country-specific conditions.*

The source data for compiling the CBS are comprehensive accounting records of the BOE, which are prepared by the Central Accounting Department. The basic data sources for the ODCs survey are the individual report forms of the ODCs. The required financial statements (balance sheet, income statement, report on off-balance-sheet items) and numerous supplementary reports are sufficiently disaggregated in terms of instruments and sectors to permit in-depth analyses and cross-checks. Also, in the banks annual financial statements, external auditors' reports are included.

*3.1.2 Source data reasonably approximate the definitions, scope, classifications, valuation, and time of recording required.*

The source data reasonably approximate the definitions, classifications, time of recording, and valuation required. At present, however, only the credit institutions (commercial banks) are required by law to report sectoral balance sheets and other supplementary reports to the BOE, whereas the savings and loan associations and the financial leasing companies are not required to report financial data to any supervisory agency. Investment pools (money market and mutual funds) are required to report financial data to the Securities Inspectorate of Estonia. Therefore, it is necessary that the BOE coordinate with all savings and loan associations, financial leasing companies, and investment pools to obtain complete monthly reports to improve the monetary statistics scope until the *Law of Financial Inspection* and an amendment to the *Law on the Central Bank of the Republic of Estonia* are fully operational starting in January 2002. These laws will require monthly reporting by the institutions above-mentioned.

*3.1.3 Source data are timely.*

The central bank balance sheet (CBBS), the ODCs balance sheets (ODCBS), and their respective supplementary reports, are sufficiently timely to allow for compilation of up-to-date monetary statistics. The source CBBS is available on the fourth banking day following the end of the month, whereas the ODCBS are available on the fifth banking day following the end of the month.

**3.2 Statistical techniques**

*3.2.1 Data compilation employs sound statistical techniques.*

The statistical techniques used to compile monetary statistics include computerized checks by standardized macros to identify coding and other discrepancies (such as excessive balances variations, and logical and tabulating errors) in the source data. Computerized checks are built between balance sheet items and supplementary reports' data, which contain detailed information on certain positions (deposits, outstanding loans, securities, etc.). The final monthly surveys do not include estimates or adjusted data.

*3.2.2 Other statistical procedures (e.g., data adjustments and transformations, and statistical analysis) employ sound statistical techniques.*

Sound statistical techniques are employed to compile data on seasonally adjusted money supply.



### **3.3 Assessment and validation**

*3.3.1 Source data—including censuses, sample surveys and administrative records—are routinely assessed, e.g., for coverage, sample error, response error, and nonsampling error; the results of the assessments are monitored and made available to guide planning.*

The CBBS and ODCBS contain sufficient information for generating the monetary statistics. The exception is for financial derivatives, which currently are included under other assets/liabilities instead of as a separate financial instrument category with its respective breakdowns by economic sectors. All reports constituting the data source for monetary statistics are designed in consultation with the BSD. Report forms used by the ODCs are revised every 1-2 years to reflect changes in the presentation of accounting records and to respond to the needs of compilers.

The source data for compiling surveys for the BOE and the ODCs are subject to internal consistency checks. The BSAD verifies the accuracy of the data by checking the corresponding interbank positions reported by the BOE and the ODCs. Also, the banks' reported data are randomly checked against accounting records by the BSD during routine inspections.

*3.3.2 Main intermediate results are validated against other information where applicable.*

The BSAD uses computerized checks between balance sheet items and supplementary reports' data, which contain detailed information on certain positions (deposits, outstanding loans, securities, etc.). No comprehensive secondary data sources exist for regular verification of ODCBS data, but some items, such securities issued by banks, may be compared with data from the Estonian Central Depository for Securities.

*3.3.3 Statistical discrepancies and other potential indicators of problems in statistical outputs are investigated.*

Data received from reporting banks are analyzed in order to avoid possible discrepancies caused by errors in classification and/or omissions. In the event of large fluctuations in data categories, immediate action is taken to clarify the reasons for those fluctuations. Normally, BSAD staff will contact the reporting institution and ask for clarification, and if necessary, the BSD will discuss any outstanding data issue with the respective bank in the process of its scheduled inspections.

### **3.4 Revision studies**

*3.4.1 Studies and analyses of revisions are carried out routinely and used to inform statistical processes.*

No revision studies or analyses are conducted on a routine basis. Data are mostly final when first released.

## **4. Serviceability**

### ***4.1 Relevance of information***

*4.1.1 Processes to monitor the relevance and practical utility of existing statistics in meeting users' needs are in place.*

The BSAD conducts reviews to assess the data requirements of the BOE's CBPD, the Statistics Department, and the BSD, which use and analyze the monetary statistics. These departments are also requested to provide comments on the guidelines developed by the BSAD for the preparation of report forms by the ODCs. In addition, making the monetary statistics compatible with the ECB, EUROSTAT, and IMF requirements and improving the coverage with the introduction of new instruments and new institutions are important aspects of the BSAD's review work.

### ***4.2 Periodicity and timeliness***

*4.2.1 Periodicity follows dissemination standards.*

The CBS and the depository corporations survey (DCS) are disseminated on a monthly basis, which meets the prescribed monthly periodicity of the SDDS.

*4.2.2 Timeliness follows dissemination standards.*

The BOE survey is disseminated within one week of the end of the reference month, thus exceeding the prescribed SDDS timeliness of dissemination of data within two weeks of the end of the reference month. The DCS is disseminated on the seventeenth banking day after the end of reference month, which is in line with the SDDS specifications of dissemination within one month of the end of the reference month.

### ***4.3 Consistency***

*4.3.1 Statistics are consistent or reconcilable over a reasonable period of time.*

The BSAD provides comprehensive methodological notes for time series data, describing the main breaks in time series. The methodological notes may contain references to more exhaustive sources including detailed descriptions of adjustments and revisions of historical times series.

*4.3.2 Statistics are internally consistent (e.g., accounting identities observed).*

Interbank positions between the BOE and the ODCs are checked for consistency in the data reported in the respective accounts of the ODCs and the BOE.

*4.3.3 Statistics are consistent or reconcilable with those obtained through other data sources and/or statistical frameworks.*

The BSAD regularly cross-checks data on the net foreign assets positions of the BOE and the ODCs with the corresponding measures derived from the international investment position.

Due to differences in the central government institutional coverage, the use of an accrual basis in monetary statistics versus a cash basis in fiscal statistics, and the different treatment of EEK 303 million of government deposits, it is not possible to reconcile the net domestic financing to the central government derived from the depository corporations survey with the net domestic borrowing of the central government reported in the fiscal accounts.

**4.4 Revision policy and practice**

*4.4.1 Revisions follow a regular, well-established and transparent schedule.*

Because, in general, the monetary data are final when first released, revisions are infrequent. In the few instances where some of the data are preliminary, users are informed of the schedule of revisions of the data. Data revisions are needed when there are changes in the chart of accounts of depository corporations or when major methodological improvements are implemented, which requires the revision of historical time series to reflect these improvements. Users are informed about these revisions in the data.

*4.4.2 Preliminary data are clearly identified.*

Preliminary and revised data are clearly identified in disseminated formats. Comments on preliminary data or retroactive changes are always included in notes. All revised data are indicated with underlines.

*4.4.3 Studies and analyses of revisions are carried out routinely and made public.*

No studies and analyses of revisions are carried out routinely. However, errors and data shortcomings in the reports supplied by credit institutions are the focus of internal analyses.

**5. Accessibility**

**5.1 Data accessibility**

*5.1.1 Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons (layout and clarity of text, tables, and charts).*

Published monetary statistics time series are supplemented by the dissemination of additional information to facilitate proper analyses and comparisons. The new BOE website enables users to choose the language (Estonian or English), period, and periodicity (monthly, quarterly, semi-annually, or annually) of the time series. Moreover, time series users can

access information on the definitions and explanations of terms such as residency, customer groups, types of deposits, etc. Furthermore, every time series includes definitions, additional comments, and notes.

*5.1.2 Dissemination media and formats are adequate.*

Monetary data are disseminated in many formats including the BOE website, the BOE monthly bulletin, and press releases.

*5.1.3 Statistics are released on a pre-announced schedule.*

The BOE disseminates an advance release calendar (ARC) on its website, which shows the publication schedule of the BOE and the depository corporations surveys for the coming twelve-month period. This ARC is also disseminated in the BOE monthly bulletin.

*5.1.4 Statistics are made available to all users at the same time.*

The data are released simultaneously by the BOE to all interested users on the date and time specified in the release schedule.

*5.1.5 Non-published (but non-confidential) sub-aggregates are made available upon request.*

In addition to published information, the BSAD produces time series containing detailed sub-aggregates for internal use. These data are mainly used for analytical and verification purposes. External users do not get access to the whole set of non-published, detailed data. However, specific requests for detailed information that do not violate data confidentiality safeguarding rules are normally satisfied.

**5.2 Metadata accessibility**

*5.2.1 Documentation on concepts, scope, classifications, basis of recording, data sources, and statistical techniques is available, and differences from international standards are annotated.*

Documentation on monetary statistics concepts, scope, classifications, basis for recording, data source, and statistical techniques are available in the information posted for Estonia on the Fund's DSBB. In addition, methodological aspects of the Estonian monetary statistics are available in the BOE website, including differences from international standards.

*5.2.2 Different levels of detail are provided depending on intended audience and type of collection.*

At present metadata are only available at summary level.

### ***5.3 Assistance to users***

#### ***5.3.1 Contact person for each subject field is publicized.***

The names of contact persons in the BOE are available in the Estonia's information posted on the DSBB. The BSAD provides BOE staff with instructions on the use of statistics and tools of data management. In addition, guidance for users within the organization on databases content and structure is available from BSAD internal website. The communication with external users lies on the PRD (info@epbe.ee), which contacts BSAD to solve technical questions on monetary statistics.

#### ***5.3.2 Catalogues of publications, documents, and other services, including information on any charges, are widely available.***

Catalogues listing publications and other services are not widely available.

**Data Quality Assessment Framework—Generic Framework  
(March 2001)**

Quality Dimensions	Elements	Indicators
<b>0. Prerequisites of quality<sup>11</sup></b>	<p><b>0.1 Legal and institutional environment</b> – <i>The environment is supportive of statistics.</i></p> <p><b>0.2 Resources</b> – <i>Resources are commensurate with needs of statistical programs.</i></p> <p><b>0.3 Quality awareness</b> – <i>Quality is recognized as a cornerstone of statistical work.</i></p>	<p>0.1.1 The responsibility for collecting, processing, and disseminating statistics is clearly specified.</p> <p>0.1.2 Data sharing and coordination among data producing agencies are adequate.</p> <p>0.1.3 Respondents' data are to be kept confidential and used for statistical purposes only.</p> <p>0.1.4 Statistical reporting is ensured through legal mandate and/or measures implemented to encourage voluntary response.</p> <p>0.2.1 Staff, financial, and computing resources are commensurate with institutional programs.</p> <p>0.2.2 Measures to ensure efficient use of resources are implemented.</p> <p>0.3.1 Processes are in place to focus on quality, to monitor the quality of the collection, processing, and dissemination of statistics, to acknowledge and deal with tradeoffs within quality, and to guide planning for existing and emerging needs.</p>
<p><b>1. Integrity</b></p> <p><i>The principle of objectivity in the collection, processing, and dissemination of statistics is firmly adhered to.</i></p>	<p><b>1.1 Professionalism</b> – <i>Professionalism in statistical policies and practices is a guiding principle.</i></p> <p><b>1.2 Transparency</b> – <i>Statistical policies and practices are transparent.</i></p> <p><b>1.3 Ethical standards</b> – <i>Policies and practices are guided by ethical standards.</i></p>	<p>1.1.1 Statistics are compiled on an impartial basis.</p> <p>1.1.2 Choices of sources and statistical techniques are informed solely by statistical considerations.</p> <p>1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics.</p> <p>1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public.</p> <p>1.2.2 Internal governmental access to statistics prior to their release is publicly identified.</p> <p>1.2.3 Products of statistical agencies/units are clearly identified as such.</p> <p>1.2.4 Advance notice is given of major changes in methodology, source data, and statistical techniques.</p> <p>1.3.1 Guidelines for staff behavior are clear and publicized.</p>

**Data Quality Assessment Framework—Generic Framework  
(March 2001)**

Quality Dimensions	Elements	Indicators
<b>2. Methodological soundness</b>  <i>The methodological basis for the statistics follows international standards, guidelines, or agreed practices.</i>	<b>2.1 Concepts and definitions –</b> <i>Concepts and definitions used are in accord with standard statistical frameworks.</i>  <b>2.2 Scope –</b> <i>The scope is in accord with internationally accepted standards.</i>  <b>2.3 Classification/sectorization –</b> <i>Classification and sectorization systems are in accord with internationally accepted standards.</i>  <b>2.4 Basis for recording –</b> <i>Flows and stocks are valued and recorded according to internationally accepted standards.</i>	2.1.1 The overall structure in terms of concepts and definitions follows international standards, guidelines, or agreed practices: see dataset-specific framework.  2.2.1 The scope is broadly consistent with international standards, guidelines, or agreed practices: see dataset-specific framework.  2.3.1 Classification/ sectorization systems used are broadly consistent with international standards, guidelines, or an agreed practices: see dataset-specific framework.  2.4.1 Market prices are used to value flows and stocks. 2.4.2 Recording is done on an accrual basis. 2.4.3 Grossing/netting procedures are broadly consistent with international standards, guidelines, or agreed practices.

**Data Quality Assessment Framework—Generic Framework  
(March 2001)**

Quality Dimensions	Elements	Indicators
<b>3. Accuracy and reliability</b>  Source data and statistical techniques are sound, and output data sufficiently portray reality.	<b>3.1 Source data</b> – <i>Source data available provide an adequate basis to compile statistics.</i>  <b>3.2 Statistical techniques</b> – <i>Statistical techniques employed conform to sound statistical procedures.</i>  <b>3.3 Assessment and validation</b> – <i>Source data are regularly assessed and results validated.</i>  <b>3.4 Revision studies</b> – Revisions, as a gauge of reliability, are tracked and mined for the information they may provide.	3.1.1 Source data are collected from comprehensive data collection programs that take into account country-specific conditions. 3.1.2 Source data reasonably approximate the definitions, scope, classifications, valuation, and time of recording required. 3.1.3 Source data are timely.  3.2.1 Data compilation employs sound statistical techniques. 3.2.2 Other statistical procedures (e.g., data adjustments and transformations, and statistical analysis) employ sound statistical techniques.  3.3.1 Source data—including censuses, sample surveys and administrative records—are routinely assessed, e.g., for coverage, sample error, response error, and non-sampling error; the results of the assessments are monitored and made available to guide planning. 3.3.2 Main intermediate results are validated against other information where applicable. 3.3.3 Statistical discrepancies and other potential indicators of problems in statistical outputs are investigated.  3.4.1 Studies and analyses of revisions are carried out routinely and used to inform statistical processes.



**Data Quality Assessment Framework—Generic Framework  
(March 2001)**

Quality Dimensions	Elements	Indicators
<p><b>4. Serviceability</b></p> <p>Statistics are relevant, timely, consistent, and follow a predictable revisions policy.</p>	<p><b>4.1 Relevance</b> – <i>Statistics cover relevant information on the subject field.</i></p> <p><b>4.2 Timeliness and periodicity</b> – <i>Timeliness and periodicity follow internationally accepted dissemination standards.</i></p> <p><b>4.3 Consistency</b> – <i>Statistics are consistent over time, internally, and with major data systems.</i></p> <p><b>4.4 Revision policy and practice</b> – <i>Data revisions follow a regular and publicized procedure.</i></p>	<p>4.1.1 Processes to monitor the relevance and practical utility of existing statistics in meeting users' needs are in place.</p> <p>4.2.1 Periodicity follows dissemination standards. 4.2.2 Timeliness follows dissemination standards.</p> <p>4.3.1 Statistics are consistent or reconcilable over a reasonable period of time. 4.3.2 Statistics are internally consistent (e.g., accounting identities observed). 4.3.3 Statistics are consistent or reconcilable with those obtained through other data sources and/or statistical frameworks.</p> <p>4.4.1 Revisions follow a regular, well-established and transparent schedule. 4.4.2 Preliminary data are clearly identified. 4.4.3 Revisions are made public to users.</p>

**Data Quality Assessment Framework—Generic Framework  
(March 2001)**

Quality Dimensions	Elements	Indicators
<p><b>5. Accessibility</b></p> <p><i>Data and metadata are easily available and assistance to users is adequate.</i></p>	<p><b>5.1 Data accessibility</b> – <i>Statistics are presented in a clear and understandable manner, forms of dissemination are adequate, and statistics are made available on an impartial basis.</i></p> <p><b>5.2 Metadata accessibility</b> – <i>Up-to-date and pertinent metadata are made available.</i></p> <p><b>5.3 Assistance to users</b> – <i>Prompt and knowledgeable support service is available.</i></p>	<p>5.1.1 Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons (layout and clarity of text, tables, and charts).</p> <p>5.1.2 Dissemination media and formats are adequate.</p> <p>5.1.3 Statistics are released on a pre-announced schedule.</p> <p>5.1.4 Statistics are made available to all users at the same time.</p> <p>5.1.5 Non-published (but non-confidential) sub-aggregates are made available upon request.</p> <p>5.2.1 Documentation on concepts, scope, classifications, basis of recording, data sources, and statistical techniques is available, and differences from international standards are annotated.</p> <p>5.2.2 Different levels of detail are provided depending on intended audience and type of collection.</p> <p>5.3.1 Contact person for each subject field is publicized.</p> <p>5.3.2 Catalogues of publications, documents, and other services, including information on any charges, are widely available.</p>