January 2002
IMF Country Report No. 02/6

Republic of Armenia: Report on Observance of Standards and Codes—Data Module and Detailed Assessments Using the Data Quality Assessment Framework

This Report on the Observance of Standards and Codes on Data Module for the
Republic of Armenia was prepared by a staff team of the International Monetary Fund as
background documentation for the periodic consultation with the member country. It is based on
the information available at the time it was completed on **January 3, 2002**. The views expressed
in this document are those of the staff team and do not necessary reflect the views of the
government of the **Republic of Armenia** or the Executive Board of the IMF.

The Detailed Assessments Using the Data Quality Assessment Framework (DQAF) are also
included.

The policy of publication of staff reports and other documents by the IMF allows for the deletion
of market-sensitive information.

**To assist the IMF in evaluating the publication policy, reader comments are invited and may
be sent by e-mail to Publicationpolicy@imf.org.**

Copies of this report are available to the public from
International Monetary Fund • Publication Services
700 19th Street, N.W. • Washington, D.C. 20431
Telephone: (202) 623 7430 • Telefax: (202) 623 7201
E-mail: publications@imf.org • Internet: http://www.imf.org

Price: $15.00 a copy

**International Monetary Fund
Washington, D.C.**

INTERNATIONAL MONETARY FUND

REPUBLIC OF ARMENIA

**Report on the Observance of Standards and Codes (ROSC)
Data Module**

Prepared by the Statistics Department and
the European II Department

Approved by Carol S. Carson and John Odling-Smee

January 3, 2002

ACRONYMS

SNA 1993	*System of National Accounts, 1993*
BPM5	*Balance of Payments Manual, fifth edition*
CBA	Central Bank of Armenia
CPI	Consumer Price Index
ESA 1995	European System of Accounts, 1995
DSBB	Dissemination Standards Bulletin Board
GDDS	General Data Dissemination System
GDP	Gross Domestic Product
GFSM 1986	*Government Finance Statistics Manual, 1986*
GFSM 2001	*Government Finance Statistics Manual, 2001*
ICD	International Statistical Classification of Diseases and Related Health Problems
IIP	International Investment Position
MFSM	*Monetary and Financial Statistics Manual*
MFE	Ministry of Finance and Economy
NSS	National Statistical Service
SDDS	Special Data Dissemination Standards

I. INTRODUCTION

1.   This Report on Observance of Standards and Codes (ROSC) provides a review of Armenia's data dissemination practices against the IMF's General Data Dissemination System (GDDS), complemented by an assessment of the quality of the national accounts, government finance, monetary, and balance of payments statistics. The agencies that produce these sets of statistics are the National Statistical Service (NSS), the Ministry of Finance and Economy (MFE), and the Central Bank of Armenia (CBA). This assessment is based on information provided during a mission from the Statistics Department that visited Yerevan during August 30-September 11, 2000,[1] further refined during subsequent contacts, as well as publicly available information.

2.   Section II includes an overview of the GDDS and an assessment of Armenia's data dissemination practices against the Standard, and presents a summary assessment of the quality of the principal macroeconomic datasets. The coverage, periodicity, and timeliness for macroeconomic data in Armenia are summarized and contrasted with GDDS recommendations in Table 1. Practices related to the provision of information to assess the quality of the data, and its integrity and access by the public are also reviewed in this section. Section III sets out recommendations to achieve further improvements in Armenia's statistics.

II. DATA DISSEMINATION PRACTICES AND THE GENERAL DATA DISSEMINATION SYSTEM

3.   Armenia participates in the IMF's General Data Dissemination System (GDDS) and is committed to using the GDDS to develop its statistical system. The GDDS emphasizes the development of core statistical frameworks and indicators, supplemented by encouraged extensions to core frameworks and indicators.[2] The GDDS also focuses on data quality, recognizing the fact that for many countries improvements in data quality are a necessary precursor to enhanced dissemination of data to the public.

4.   The GDDS places emphasis on following sound practices in four dimensions:

●   the data dimension (the coverage, periodicity, and timeliness of the data)

---

[1] The mission was led by Candida Andrade, and comprised Natalia Ivanyk (both STA), Timothy Heleniak (WB), and Anna Ansmits (expert). In preparing this report, the staff held discussions with officials in the National Statistical Service, the Central Bank of Armenia, and the Ministry of Finance and Economy.

[2] A detailed description of the SDDS can be found on the IMF's Dissemination Standards Bulletin Board on the Internet at http://dsbb.imf.org.

- quality of the disseminated data

- integrity of the disseminated data

- access by the public

5.   In addition, to the four sectors into which economic data are grouped (real, fiscal, financial, and external), the GDDS includes socio-demographic data. The GDDS provides clear links to the IMF's Special Data Dissemination Standard (SDDS)—a more demanding standard for data dissemination—such that a country could use the GDDS as a step towards subscription to the SDDS.

6.   In general, Armenia's current data dissemination practices meet, and in many instances exceed, the recommendations of the GDDS. All core comprehensive frameworks and most of the recommended indicators are compiled and disseminated. Armenia's metadata, including plans for improvement, are posted on the Dissemination Standards Bulletin Board (DSBB) at http://dsbb.img.org/gddsweb.. The authorities have been encouraged to make the metadata available on national websites or through other means of dissemination.

7.   The assessment of the quality of data was undertaken using an experimental framework identifying six key aspects to assess data quality.[3] The detailed data quality assessment is presented in Volume II, which also includes an Appendix on the experimental framework used.

A. Data Dimension: Coverage, Periodicity, and Timeliness

Real sector

8.   National accounts data generally meet GDDS recommendations on coverage, periodicity, and timeliness, except for the financial account, which has not yet been developed. Annual GDP estimates using the production approach and the expenditure approach are compiled and published at current and constant (1996) prices and at the prices of the previous year. They are also compiled and published by categories of primary income, distribution of income, saving and net borrowing/lending. Data are also published by institutional sector. Estimates of quarterly GDP are presented by industry and by final expenditure category at current prices, at previous year's prices and at constant (1996) prices. Quarterly data are seasonally adjusted. A well-defined short- and medium-term work program has been established to extend the system of accounts to other components and to align it with the *ESA 1995*.

---

[3] The work on the data module for the ROSC for Armenia began before the fully developed Data Quality Assessment Framework (DQAF) was ready for use. Therefore, the quality assessment was undertaken using an earlier version of the DQAF, which identified six key areas to assess data quality: statistical infrastructure, conceptual framework, source data, statistical techniques, serviceability, and accessibility.

9.   The national consumer price index (CPI) and price indices for 10 urban centers are compiled and published. The CPI meets the GDDS recommendation on periodicity and timeliness. Short-term plans call for the development of yearly price indices by region based on household surveys with increased sample size. Medium-term plans call for developing a system of producer price indices, starting with major improvements to the producer price index for manufacturing. This is urgently required to improve the accuracy and reliability of the constant price estimates of GDP.

10.   Labor market indicators of employment and unemployment meet the GDDS recommendations for periodicity and timeliness. However, current practices for generating statistics have shortcomings. Annual data derived from the household survey and enterprise and administrative sources provide more comprehensive labor market indicators. Medium-term plans call for the development of labor market statistics through the establishment of expanded and improved subannual sample surveys.

Fiscal sector

11.   Data on government operations and debt meet GDDS recommendations on coverage and exceed those on periodicity and timeliness. Comprehensive data on central government and on general government operations are compiled and disseminated on a monthly and quarterly basis respectively. The full range of detailed classifications recommended for the core framework (central government) and encouraged extension (general government) is compiled and disseminated. Data on outstanding domestic and external government and government-guaranteed debt are compiled with the relevant GDDS breakdown and are disseminated quarterly.

Financial sector

12.   Financial sector data meet GDDS recommendations on coverage, including encouraged extensions. The full range of detailed classifications recommended for the central bank aggregates, the money and credit aggregates and interest rates, and encouraged extensions, are compiled and disseminated. There are plans to improve areas of relative weakness, namely the coverage of other financial intermediaries, insurance corporations and pension funds, and the classification of all financial instruments based on the residency criteria and by institutional sectors. The timeliness and periodicity of financial sector data in general exceed the GDDS recommendations.

External sector

13.   External sector data meet the GDDS recommendations on coverage, including encouraged extensions, except for the public and publicly guaranteed debt service schedules, which are not disseminated. Most external sector data exceed GDDS recommendations for periodicity and timeliness. External sector data are disseminated with the recommended or higher periodicity. Data categories with a higher periodicity are balance of payments aggregates and the international investment position, both disseminated on a quarterly basis. External sector data are generally disseminated with

the required timeliness, except for international reserves (five weeks, compared to the recommended 1-to-4 weeks).

14. The coverage of several components of the balance of payments is of special concern, namely goods in the informal trade, travel, workers' remittances, and migrants' transfers. The coverage of these components is deficient largely because of weaknesses in source data. The methodology for compiling travel data is expected to improve following the introduction of new survey forms in May 2001. Data on direct investment abroad and private external debt not publicly guaranteed are not compiled. Work on a number of fronts is under way to improve source data and to start disseminating data on scheduled public and publicly guaranteed debt service. However, some improvements, especially those tied to improvements in the data collection program, including the enhancement of the Statistical Business Register, will only be realized in the medium term. Medium-term plans also call for developing statistics on private sector nonguaranteed external debt.

Social and demographic indicators

15. In general, the indicators on population, health, education, and poverty meet GDDS minimum objectives for coverage, periodicity, and timeliness. However, only a few of the encouraged extensions on social and demographic indicators are presently compiled. Plans for improving existing data, particularly on poverty, face severe budget constraints. With the technical support of the World Bank, household surveys have resumed in 2001 with a sample size of 4,128 households per year.

B. Information to Assess the Quality of the Data

16. Different levels of metadata are available for real sector and socio-demographic data, with brief methodological notes published in the monthly publications and more detail presented in dedicated publications or available upon request. The Budget Law specifies the budget classification in use. However, a comprehensive methodological description of the fiscal data compiled is not publicly available. Brief methodological notes on the compilation methodology of the financial statistics are included in the monthly bulletins published by the CBA, and a comprehensive description of concepts and compilation methodology is available in a dedicated publication issued by the CBA. Any deviations from internationally accepted practices are signaled and explained in footnotes to the tables published by the CBA. Brief methodological notes on external sector data are included in the dedicated annual publications, although a comprehensive methodological description is not yet publicly available.

17. In general data are provided with reasonable detail to support cross-checks within datasets and to allow reconciliation over time and with major datasets, as relevant. Unusual changes in economic trends are generally explained in the analytical text included in the statistical publications as needed.

C. Data Integrity and Access by the Public

18. Data are produced and disseminated under the terms and conditions specified in the Law on State Statistics (real and external sectors and socio-demographic indicators),

the Budget Law (fiscal sector), and the Law on Banks and Banking Activity (monetary statistics), all accessible to the public.

19.   There is no internal government access to monetary data prior to their release to the public. Final data on government operations are approved by Parliament prior to release. Data on the real sector are provided to the line ministries and their departments for comments. This procedure is a temporary measure implemented under the NSS initiative aiming at ensuring better coverage of the statistics compiled in a situation where the business register is not yet fully developed and therefore does not ensure an optimal coverage of the changing business environment. The right to accept comments or not rests in any case with the NSS.

20.   Ministerial commentaries are not included in the statistical publications released by the NSS and the CBA. The MFE may issue comments when significant changes in the fiscal situation occur. The NSS has the right to provide clarifications on the misuse and mis-commenting of statistical data it produces. In general, preliminary and revised data are clearly identified by all data-producing agencies. Advance notice of major changes in methodology is usually provided. The dissemination of advance release calendars is not yet generally followed. However, the NSS release range dates for the following year are included in the Statistical Work Program, published in the "Official Bulletin." This program also includes information regarding the release of fiscal sector information. The Board of the CBA has adopted a special resolution on the timetable of the CBA's publications, and data are disseminated on a regular schedule.

21.   Armenia provides access to data through a number of publications and the following Internet websites:

National Statistical Service: www.armstat.am

Central Bank of Armenia: www.cba.am

III.   IMF STAFF COMMENTARY

22.   Armenia's transition to a market economy necessitated dramatic changes in its statistical system. With extensive external technical assistance, including from the Fund, as well as under the impetus of economic adjustment programs, the authorities have embarked on a program of implementing new, internationally recognized statistical methodologies and establishing a framework for monitoring macroeconomic developments. The responsibility for compiling macroeconomic statistics is clearly specified, and data sharing and coordination between the main data producing agencies is adequate. The NSS, MEF, and the CBA have enhanced their capability to compile and disseminate statistics to meet the needs of both official and private users of statistics. Notwithstanding severe resource constraints, substantial improvements have already been achieved in all statistical areas.

23.   The statistics currently produced in Armenia generally meet, and in many instances exceed, the recommendations of the GDDS with respect to coverage, periodicity, and timeliness of dissemination. However, further improvements are needed to enhance the analytical usefulness of the data for policy formulation and monitoring, particularly as regards national accounts, balance of payments, and socio-demographic indicators. Poverty indicators are a particular area of concern.

24.   In real sector statistics, although to improve the quality of estimates the NSS does attempt to adjust for undercoverage and other main shortcomings, the adjusted estimates are still subject to large uncertainty. There is a need to continue efforts already initiated to introduce further efficiencies in data collection (including more reliance on sampling, and the elimination of details and procedures that are no longer relevant), improve data compilation techniques, and accelerate the implementation of international standards. Sufficient resources will have to be assured if the NSS program for revamping the national statistical system is to succeed. Priority areas are the development of the statistical business register, streamlining and integrating the data collection and compilation system, the development of quality control procedures and validation capability, and upgrading the data transmission and dissemination process.

25.   In the fiscal sector, there is a need to significantly improve data dissemination processes, including clarity of presentation and adequate documentation, to facilitate proper interpretation. The dissemination of data on government operations as planned through the MFE website seems to be an efficient means to achieve this objective. In the medium term, as is the case for most of the Fund's membership, the greatest challenge will be the preparation and adoption of a migration path to implement the recommendations of the *Government Finance Statistics Manual (GFSM), 2001*.

26.   In financial sector statistics, the greatest challenge appears to be the implementation of a new chart of accounts for other depository corporations with the appropriate residency criterion and sectorization. Also, there is room for expanding data collection to cover other financial corporations (nondepository corporations), using an accrual basis for recording all monetary accounts and for improving the calculation of interest rates in accordance with the *Monetary and Financial Statistics Manual (MFSM)*.

27.   In the external sector, the areas of greatest need for improvement concern the accurate measurement of private nonguaranteed external debt and current transfers from abroad. In view of the importance of goods transactions to the current account, developing a unified computerized database for external trade data is crucial for balance of payments compilation.

28.   In the socio-demographic sectors, an important step will be to significantly improve population data based on the population census conducted in October 2001. Also, better quality and more disaggregated poverty data are needed to monitor the implementation of the authorities' poverty reduction strategy.

29.   Armenia's decision to participate in the GDDS should provide a new stimulus to enhancing its statistical system and products. As part of the efforts to meet the

recommendations of the GDDS, the authorities have put together comprehensive plans for improvements in their data compilation and dissemination practices, including prioritizing, sequencing, and timing of implementation. The work program to improve the quality of official statistics is detailed and impressive. Many of the initiatives run through to the medium term and beyond, and the authorities have taken care to indicate that substantial financial and technical assistance is a necessary precondition for undertaking and following through on many aspects of statistical reform.

Table 1. Armenia: Data Categories and Indicators - Comparison of the GDDS Recommendations and National Practices

Coverage		Periodicity		Timeliness [1]	
GDDS	**Current Practice**	**GDDS**	**Current Practice**	**GDDS**	**Current Practice**
1. Real Sector					
Comprehensive framework: **National accounts** — Producing and disseminating the full range of national accounts aggregates and balancing items in nominal and real terms, yielding Gross Domestic Product, Gross National Income, Gross Disposable Income, Consumption, Savings, Capital Formation and Net lending/borrowing. Producing and disseminating sectoral accounts and national and sectoral balance sheets as relevant.	Annual national accounts estimates are compiled generally following the recommendations of the *SNA* 1993 and are presented by type of economic activity, by final expenditure categories, and by categories of primary income. The financial account is not yet developed.	Annual	Annual	10–14 months	12 months
Data categories and indicators — **National accounts aggregates:** GDP (nominal and real)	GDP estimates are compiled and disseminated by branches of economy (industry method) and by expenditure method (final consumption). Quarterly GDP estimates are presented by type of economic activity and by final expenditure categories.	Annual *(Quarterly encouraged)*	Quarterly	6–9 months	2 months for quarterly estimate 12 months for revised annual estimate
Encouraged extension: Gross national income, capital formation, saving	*Same as encouraged*	*Annual*	***Annual***	*6–9 months*	12 months
Production index/indices: Manufacturing or industrial	Value and the volume of production in the mining, manufacturing, and energy sectors (value of production at comparable prices)	Monthly	Monthly	6 weeks–3 months for all indices	1–2 months
Primary commodity, agricultural, or other as relevant		As relevant		Same as above	Same as above

- 10 -

Table 1. Armenia: Data Categories and Indicators - Comparison of the GDDS Recommendations and National Practices

	Coverage		Periodicity		Timeliness [1]	
	GDDS	**Current Practice**	**GDDS**	**Current Practice**	**GDDS**	**Current Practice**
	Price indices: Consumer price index	Same coverage as recommended.	Monthly	Monthly	1 or 2 months	10 days
	Encouraged extension: Producer price index	*Same coverage as encouraged.*	*Monthly*	*Monthly*	*1 or 2 months*	*15 days*
	Labor market indicators: Employment	Quarterly estimates of employees supplemented by semi-annual estimates of total employment from the Labor Force Survey."	Annual	Quarterly	6 – 9 months	3–4 months
	Unemployment	The data are collected at the regional level and pertain only to registered job seekers. The results represent the official unemployment estimates for Armenia.	Annual	Monthly	6 – 9 months	40 days
	Wages/earnings	Average monthly wages are calculated dividing total labor remuneration fund by the average payroll employment.	Annual	Monthly	6 – 9 months	40 days
2. Fiscal sector						
Comprehensive framework: **Government transactions**	Producing and disseminating comprehensive data on central government transactions emphasizing: (1) coverage of all central government units; (2) use of appropriate analytical framework; and (3) development of a full range of detailed classifications (tax and nontax revenue, current and capital expenditure, domestic and foreign financing) as relevant.	Comprehensive data on central government transactions are compiled and disseminated. Concepts, definitions, and classification systems used in compiling these data follow in general the corresponding provisions of the "GFSM". The full range of detailed classifications (tax and nontax revenue, current and capital expenditure, domestic and foreign financing) is compiled and disseminated.	Annual	Monthly	6–9 months	40 days

Table 1. Armenia: Data Categories and Indicators - Comparison of the GDDS Recommendations and National Practices

	Coverage		Periodicity		Timeliness [1]	
	GDDS	**Current Practice**	**GDDS**	**Current Practice**	**GDDS**	**Current Practice**
Government debt	*Encouraged extension: General government or public sector operations data, strongly encouraged where subnational levels of government or public enterprise operations are of analytical or policy importance.*	Data on the general government operations following same concepts, definitions and classifications are compiled.	*Annual*	Quarterly	*6–9 months*	40 days
	Producing and disseminating comprehensive data on central government domestic and foreign debt, with breakdowns (debt holder, instrument, currency, etc. as relevant).	Data on the outstanding domestic and external government debt are disseminated broken down by domestic and foreign debt. Domestic debt is provided by type of debt instrument (types of government securities and other liabilities). Foreign debt is classified by creditor.	Annual	Quarterly	6–9 months	2 months
Data categories and indicators	**Central government budgetary aggregates:** Revenue, expenditure, balance, and financing with breakdowns (debt holder, instrument, currency), as relevant.	Same coverage as recommended	Quarterly	Monthly	1 quarter	40 days
	Encouraged extension: Interest payments	Same coverage as encouraged.	*Quarterly*	Monthly	*1 quarter*	40 days

Table 1. Armenia: Data Categories and Indicators - Comparison of the GDDS Recommendations and National Practices

| | Coverage | | Periodicity | | Timeliness [1] | |
	GDDS	Current Practice	GDDS	Current Practice	GDDS	Current Practice
	Central government debt: Domestic debt and foreign debt, as relevant, with appropriate breakdowns (currency, maturity, debt holder, instrument), as relevant.	Same coverage as recommended	Annual *(Quarterly encouraged)*	Quarterly	1–2 quarters	6 weeks
	Encouraged extension: Government guaranteed debt.	*Same coverage as encouraged*	*Annual*	Quarterly	*1–2 quarters*	6 weeks
3. Financial Sector						
Comprehensive Framework: **Broad money survey**	Producing and disseminating comprehensive data emphasizing: (1) coverage of all depository corporations (banking institutions), (2) use of an appropriate analytical framework; and (3) development of classifications of external assets and liabilities, domestic credit by sector, and components of money (liquidity) and nonmonetary liabilities.	A comprehensive and detailed monetary survey covering all depositary corporations is compiled in accordance with the analytical framework of the IMF's *MFSM*. The Central Bank also compiles and disseminates weekly data on the monetary survey in a slightly abbreviated classification.	Monthly	Monthly	2–3 months	**5 weeks**
Data categories and indicators	**Broad money and credit aggregates:** Net external position, domestic credit, broad or narrow money	Same coverage as recommended	Monthly	Weekly and Monthly	1–3 months	10 days and 5 weeks respectively

- 13 -

Table 1. Armenia: Data Categories and Indicators - Comparison of the GDDS Recommendations and National Practices

	Coverage		Periodicity		Timeliness [1]	
	GDDS	**Current Practice**	**GDDS**	**Current Practice**	**GDDS**	**Current Practice**
	Central bank aggregates: Reserve money	Same coverage as recommended.	Monthly	Daily and Monthly	1–2 months	Next day and 5 weeks respectively
	Interest rates: Short- and long-term government security rates, policy variable rate.	Same coverage as recommended	Monthly	Weekly and Monthly	2	5 banking days and 5 weeks respectively
	Encouraged extension: Money or interbank market rates and a range of deposit and lending rates.	Same coverage as encouraged	*Monthly*	Monthly		
	Stock market: *Share price index, as relevant*	*Not available*	*Monthly*	*Not available*	2	*Not available*
4. External Sector						
Comprehensive framework: **Balance of payments**	Producing and disseminating comprehensive data on the main aggregates and balancing items of the balance of payments, including, e.g., imports and exports of goods and services, trade balance, income and transfers, current account balance, reserves and other financial transactions, and overall balance, with detailed components as relevant.	Comprehensive balance of payments data are compiled and disseminated. Concepts and definitions are in accordance with the BPM5. Data on main aggregates and balancing items, including e.g. imports and exports of goods and services, trade balance, income and transfers, current account balance, reserves and other financial transactions, and overall balance are compiled and disseminated.	Annual	Quarterly	6–9 months	3 months
	Encouraged extension: International Investment Position (IIP)	Data on International Investment Position (IIP) are compiled and disseminated since 1997.	*Annual*	Annual	*6–9 months*	6 months

Table 1. Armenia: Data Categories and Indicators – Comparison of the GDDS Recommendations and National Practices

| | Coverage | | Periodicity | | Timeliness [1] | |
	GDDS	Current Practice	GDDS	Current Practice	GDDS	Current Practice
Data categories and indicators	**Balance of payments aggregates** Imports and exports of goods and services, current account balance, reserves, overall balance	Same coverage as recommended	Annual *(Quarterly encouraged)*	Quarterly	6 months	3 months
	External debt and debt service Public and publicly guaranteed debt outstanding (with maturity breakdown)	Public and publicly guaranteed outstanding debt are disseminated with a breakdown by type of creditor (bilateral and multilateral), and by creditor.	Quarterly	Quarterly	1–2 quarters	40 days
	Public and publicly guaranteed debt service schedule	Not disseminated	Twice yearly (with data for 4 quarters and 2 semesters ahead)	Not available	3–6 months	Not available
	Encouraged extension: Private external debt not publicly guaranteed		Annual		6–9 months	
	International reserves: Gross official reserves denominated in U.S. dollars	Same coverage as recommended .	Monthly	Monthly	1–4 weeks	5 weeks
	Encouraged extension: Reserve related liabilities.	Data on reserves disseminated and are expressed in gross and net values.	*Monthly*	Monthly	*1–4 weeks*	5 weeks
	Merchandise trade: Total exports and total imports	Same coverage as recommended.	Monthly	Monthly	8 weeks–3 months	40 days
	Encouraged extension: Major commodity breakdowns with longer time lapse	The breakdown by main trade partners and main commodity groups is also disseminated	*Monthly*	Monthly	8 weeks–3 months	40 days

Table 1. Armenia: Data Categories and Indicators - Comparison of the GDDS Recommendations and National Practices

	Coverage		Periodicity		Timeliness [1]	
	GDDS	**Current Practice**	**GDDS**	**Current Practice**	**GDDS**	**Current Practice**
	Exchange rates: Spot rates	Same coverage as recommended	Daily	Daily	Dissemination as part of a high-frequency (e.g. monthly) publication	6 p.m. every business day for the next day
5. Socio-demographic data [3]						
Data categories and indicators	**Population:** Population size; births; deaths; migration flows	Same coverage as recommended	Annual	Quarterly and Annual Annual	6 months	35 days for quarterly data
	Encouraged extensions: Population growth rate; fertility rate; urbanization	Population growth and fertility rate are compiled and disseminated.	Annual		6 months	4–6 months for annual data.
	Health: Mortality rates (infant, child, adult); morbidity rates (communicable and noncommunicable diseases); health inputs (number of facilities and personnel, financial); health services (both preventive and curative, by reporting health facility).	Data cover health facilities, health personnel and morbidity. Data include the number of physicians, paramedical personnel and dentists; number of hospitals and hospital beds; and the number of other types of health care facilities.	Annual	Annual	3–6 months; immediate reporting of infectious disease outbreaks	6 months 40 days for monthly data on infectious diseases
	Encouraged extensions: Contraceptive prevalence rate; births attended by skilled personnel; malnutrition (underweight, stunting, and wasting); life expectancy at birth; maternal mortality ratio.	Some of the encouraged data are available	*Annual; Maternal mortality ratios from surveys recommended once every five years.*	Annual	*3–6 months*	6 months

Table 1. Armenia: Data Categories and Indicators - Comparison of the GDDS Recommendations and National Practices

Coverage		Periodicity		Timeliness [1]	
GDDS	Current Practice	GDDS	Current Practice	GDDS	Current Practice
Education: Enrollment rates (by level, type of program, field of study); repetition and drop-out rates; inputs (personnel, teaching aids and material, financial); achievement scores.	Enrollment data are available by level, stages, and for both general education and vocational training schools and higher education establishments. Data do not include dropouts or transfers during the year.	Annual	Annual	Before beginning of next academic year	Data recorded for October are published in January of the following academic year.
Encouraged extensions: Progression of cohorts to grade 5; expected/average years of schooling; literacy rates.	Literacy rates are compiled.	Annual; Literacy rates from surveys recommended once every five years.	Adult literacy rates every 10 years (based on population census)	Before beginning of next academic year	Literacy rates are available within one year following the population census.
Poverty: Characteristics of the poor: household composition and size; income and access to credit; sources of income; consumption; assets (physical and social).	Surveys started to be conducted to compile data on distribution of consumption expenditures and incomes of population; poverty line or minimal consumption budget; proportion of the population living below the poverty line; budget deficit, depth of poverty.	Every three to five years	Not determined	6–9 months	Not available
Encouraged extensions: Poverty lines; headcount index; poverty gap; income/consumption distribution.		*Every three-to-five years*	Not determined	*6–9 months*	Not available

[1]With respect to reference data or end-of-reference period.

[2] Dissemination as part of a high-frequency (e.g., monthly) publication.

[3] All indicators should be classified as applicable by age, gender, urban/rural residence, and/or relevant attributes.

INTERNATIONAL MONETARY FUND

REPUBLIC OF ARMENIA

Detailed Assessments Using the Data Quality Assessment Framework

Prepared by the Statistics Department

January 3, 2002

This document contains a detailed assessment by dataset of the elements and indicators that underlie the data quality dimensions discussed in the Report on the Observance of Standards and Codes (ROSC), Section II of the data module, and the approach used for the assessment of the quality of Armenia's data (Appendix).

Contents   Page

ACRONYMS

SNA 1993	*System of National Accounts, 1993*
BPM5	*Balance of Payments Manual, fifth edition*
CBA	Central Bank of Armenia
COFOG	Classification of the Function of Government
COICOP	Classification of Individual Consumption by Purpose
GDDS	General Data Dissemination System
GDP	Gross Domestic Product
GFSM 1986	*Government Finance Statistics Manual, 1986*
ICD	International Statistical Classification of Diseases and Related Health Problems
ILO	International Labor Organization
ISCO-88	International Standard Classification of Occupations
ISCED-97	International Standard Classification of Education 1997
MFSM	*Monetary and Financial Statistics Manual*
MFE	Ministry of Finance and Economy
MH	Ministry of Health
MMFS	Manual on Monetary and Financial Statistics
NACE	Standard Classification of Economic Activities of the European Communities
NSS	National Statistical Service
OKONX	All-Union Classification of Branches of Industry
PIU	Public Investment Units
SITC	Standard International Trade Classification
UNESCO	United Nations Educational, Scientific and Cultural Organization

I. Assessment Within a Data Quality Assessment Framework[1]

A. Statistical infrastructure

1. Three agencies are primarily responsible for the production and dissemination of data covered by the GDDS—the National Statistical Service (NSS), Ministry of Finance and Economy (MFE), and the Central Bank of Armenia (CBA). The dissemination of most data is carried out as a public service. All three agencies currently disseminate data through various publications, available (with or without charge) on request, and through their respective websites.

2. The **National Statistical Service** of Armenia was established as an independent statistical agency under the *Law on State Statistics* approved in April 2000 . The head of the NSS is appointed by the President of the Republic for a fixed six-year term, and reports directly to Parliament. A Statistical Council has been established under the *Law* as the overarching body governing the formulation and overseeing the implementation of the statistical policy in Armenia. The President of the NSS is the chairman of the Council. Under the provisions of the *Law*, the NSS is responsible for producing and disseminating objective and reliable statistical information, safeguarding the integrity of the statistical system, coordinating official statistical programs to ensure the adoption of international standards and methodologies with respect to data collection, processing and dissemination, ensuring the confidentiality of reported data, and providing all users equal access to statistical information. The *Law* sets out the rights and obligations of the statistical units at the central and local level, as well as those of respondents to statistical inquiries, guarantees the confidentiality of reported data, and provides for administrative sanctions in cases of a breach of the *Law*. Decree N430 (1993) assigns primary responsibility for the compilation of the balance of payments statistics to the NSS.

3. The **Ministry of Finance and Economy** is responsible for compiling and disseminating data on government operations and debt (general and central government). The Budget Law specifies the accounting procedures and reporting requirements for all government units. The Law requires that the Minister of Finance and Economy prepare final statements of the annual accounts to be presented to the Parliament before May 1 of the following year. Final data on government operations (both annual and semiannual data) need to be approved by Parliament prior to their public release.

4. The **Central Bank of Armenia** is responsible for producing and disseminating monetary and financial statistics. The Central Bank Law empowers the CBA to collect such information as it deems necessary to carry out its responsibilities. Data provision to the CBA

---

[1] The work on the data module for the ROSC for Armenia began before the fully developed Data Quality Assessment Framework (DQAF) was ready for use. Therefore, the quality assessment was undertaken using an earlier version of the DQAF, which identified six key areas to assess data quality: statistical infrastructure, conceptual framework, source data, statistical techniques, serviceability, and accessibility.

is also regulated under the Law on Banks and Banking Activity (Article 55) and Resolution No. 3 of the CBA, on *Bank Reports, Submission and Publication*, which clearly defines all reporting requirements and penalties in case of noncompliance or misreporting. The Department of Internal Audit ensures that the flow of data within the CBA is smooth and ensures cross-checks between monetary statistics and administrative data.

5. Health indicators are collected and compiled by the **Ministry of Health** (MH) and are disseminated by the NSS, while education indicators are collected and disseminated by the NSS. Data on private education are also reported directly to the NSS. Adult literacy rates are estimated from census data based on self-reported assessments.

B. Conceptual framework

6. The **national accounts** estimates are based on and in general correspond with the main concepts, categories, and delineation of accounts, as well as the other methodological criteria of the *System of National Accounts 1993 (1993 SNA)*. Industry classifications are based on OKONX (old system) and NACE. The NSS has not yet fully implemented the conversion of source data to the international standard classification of goods and services and classifications of expenditures categories following the Classification of Individual Consumption by purpose (COICOP) , Classification of the Functions of Government (COFOG) and Standard International Trade Classification (SITC). Pending full conversion of source data to international standards, national accounts are based on the old or partial classifications. Armenia in general follows ILO recommendations for compiling labor market data and uses the ISCO-88 and ICSE classifications.

7. The methodology for compiling **government finance** statistics is broadly consistent with the analytical framework set out in the IMF's *Government Finance Statistics Manual 1986*. Concepts, definitions, and classification systems used in compiling these data follow, in general, the corresponding provisions of the *GFSM 1986*, except for receipts from privatization, which are classified as deficit financing. The central government includes all units of government that exercise authority over the territory of Armenia. General government includes the central and local governments plus the Social Security and Pension Fund. The harmonization of the government finance statistics at the central and local levels is ensured by a unified legal framework, use of a common budget classification system, harmonized statistical reporting forms, and unified budget procedure principles. All government operations are recorded on a cash basis and valued at prices current on the date at which they were recorded. Transactions expressed in foreign currency are converted into local currency at the rate prevailing at the time of their recording.

8. The **monetary** statistics are compiled following the analytical framework, principles and concepts of the IMF's *Manual on Monetary and Financial Statistics (MMFS)*. To account for the fact that the legal definition of residency differs from that of the *BPM5*, the CBA adjusts the monetary accounts to include subsidiaries and branches of foreign banks in Armenia and exclude the accounts of foreign branches of domestic banks. Although, in general, accounting is done on an accrual basis, government accounts in the Central Bank

and net foreign assets are recorded on a cash basis. Accrued interest receivable and payable are classified by instruments to the extent permitted by the basic data. Loans and deposits are valued at the nominal value of contracts. Investment securities held until redemption are valued at face value and are not revalued. Securities for resale are recorded at their acquisition price and are revalued weekly at market price. The IMF accounts and SDR-denominated positions are revalued monthly at market exchange rates and adjusted every month after receiving Armenia's Monthly Statement of Position from the IMF.

9. **Balance of payments** data broadly conform to the analytical framework, coverage, definitions, and classifications of the IMF's *Balance of Payments Manual (BPM5)*. While the legal definition of residency in Armenia differs from the concept of residency adopted in the *BPM5* and the *SNA 1993*, the NSS makes adjustments to ensure full coverage of institutional units that undertake resident–nonresident transactions. Recording is, in principle, on an accrual basis, and most transactions are valued at market prices and converted to the U.S. dollar at the midpoint exchange rate applicable to the date of the transaction. Main exceptions are foreign direct investment, which is valued at book value, and financial account transactions, which are derived from outstanding stock positions, converted into U.S. dollars at the period average exchange rate, and adjusted to exclude valuation and other changes. International reserves and related transactions derived from balance sheet data are converted into U.S. dollars by applying the exchange rate agreed under the IMF-supported programs.

10. **Socio-demographic** indicators are, in general, compiled following internationally agreed concepts and classifications, and the authorities have plans to further align national concepts to these criteria. A living standards measurement survey was recently undertaken following World Bank methodology on household surveys. Statistics on education follow the *International Standard Classification of Education 1997 (ISCED-97)*, while morbidity and mortality indicators are based on the *International Statistical Classification of Diseases and Related Health Problems, ninth Revision (ICD 9)*. The diagnostic categories are already based on the *ICD, tenth Revision*. Data on adult literacy are based on the UNESCO definition of literacy.

C. Source data

11. According to the Law on Statistics, all government units, enterprises (public and private), self-employed persons, and households must report statistical information to the NSS, if they are part of the statistical monitoring system and have been informed of this in advance. The Law sets out the range and type of official statistics to be compiled and is implemented through the three-year program approved by the Parliament, and a more detailed annual statistical program approved by the Statistical Council. The NSS is responsible for developing statistical standards, classifications, and methodologies for collecting, compiling, and disseminating the data, and monitoring their implementation. In doing so, the NSS is guided by existing international statistical standards and classification systems.

12. For the compilation of **real sector** data, the NSS relies primarily on direct reporting by official agencies, private enterprises, and international organizations. However, the absence of a fully established (comprehensive and updated) business register makes it difficult to ensure that all activities and institutional units are covered. National accounts by the industry method are based on a variety of sources, primarily NSS surveys, and data from the MFE, which are used to compile the government sector and the estimates on taxes and subsidies, and the CBA and other depository corporations, which are used to derive estimates for the financial sector. The estimates for final consumption components are based on data from the household budget surveys; sales data from surveys of retail trade and services conducted by NSS; resource balances; own use of agricultural products; reports from enterprises on capital formation and inventory change; reports from the MFE on government current operating expenditures and gross fixed capital formation; and, foreign trade statistics from the balance of payments. Data for the income method estimates are derived from the NSS survey of employment and wages; reports from MFE on taxes and subsidies; and quarterly and annual financial reports from enterprises, collected by NSS.

13. The primary source of **government operations** data is the budget management system accounting records maintained by the Treasury. Ongoing reforms of the Treasury system are expected to result in improvements in the classification of the source data, including the classification of arrears. Data on domestic bank financing in the government statistics are provided by the central bank, and are cross-checked with the data obtained from the Treasury accounts. Data on Pension Fund revenues and expenditures are provided by the Pension Fund.

14. The **monetary aggregates** compiled by the CBA are based on complete set of balance sheets prepared for statistical reporting using actual accounting records of the CBA and the other depository corporations (presently totaling 30). Accounting records contain sufficient detail to enable the classification of all financial instruments and economic sectors defined in the *MFSM*. Since July 1, 2000, the Central Bank is using a new chart of accounts, which allows the classification of all accounts based on residency criterion and by institutional sector. The chart of accounts of the other depository corporations was adopted in January 1998. Since then, this chart of accounts has been improved, especially to enable the classification of financial instruments by residency and by institutional sector.

15. The **balance of payments** is mainly compiled through a survey system, complemented by customs data and administrative records. The main sources of balance of payments data are: foreign trade statistics from the Customs Department; monetary data provided by the CBA; surveys of public and private institutions for the transportation, insurance, and travel data components; data from embassies and international organizations for current and capital transfers; surveys of foreign direct investment enterprises; data from government institutions (e.g., the Ministry of Finance and Economy, Ministry of Public Property Management, Ministry of Foreign Affairs, etc.) for various capital and financial transactions.

16. Current **population** estimates are derived from the latest population census (1989), with updated data on births and deaths and on migration flows. The fact that the earthquake

coincided with the timing of the census and the difficulties measuring the substantial migration flows (internal and external) since the 1989 census, make current population estimates highly uncertain. Population data are expected to be significantly revamped as a result of the new population census conducted in October 2001.

D. Statistical techniques

17. Data collection and compilation techniques are in general sound, although weak or incomplete source data in some sectors require a substantial use of adjustment and estimation techniques. This is particularly prevalent in the compilation of **national accounts** aggregates, especially for earlier periods, and population indicators. GDP estimates computed by the industry method are more reliable, and the main adjustments done include data on output and total employment to account for undercoverage, missing values, and misreporting. Adjustments for undercoverage are being applied for unrecorded activities as well as for the "shadow economy," excluding illegal activities. The estimates for the unrecorded economy and the "shadow economy" account for about 30 percent of GDP.

18. The consolidation of **government operations** data is facilitated by the use of a uniform classification system and a uniform level of detail, both at the central and local levels. However, the existing budget management system does not allow for automatic derivation of government operation statistics that is fully aligned with the classification recommended in the *GFSM 1986,* particularly as regards expenditure data. Monthly and quarterly preliminary data do not include data on spending undertaken by the public investment units (PIU) and their financing, owing to delays in obtaining this information from these units. However, final quarterly data are adjusted to include all investment spending and its financing.

19. As regards **monetary** and financial statistics, the CBA corrects any accounting and other possible errors that affect the depository corporations survey following the audit of the CBA's financial statement. However, data on other depository corporations are not adjusted following the auditing results of these banks. The average percentage of unclassified assets and liabilities in relation to total assets is approximately 5 percent. Large or unexplained fluctuations in gross unclassified assets are carefully examined.

20. For **balance of payments** statistics, the following specific procedures have been developed to adjust data from various data sources to improve coverage and conform to *BPM5* guidelines: (1) the c.i.f.-based imports data are converted to an f.o.b. basis, using an average rate of 12 percent, deducted from c.i.f. import value. This rate was derived from the statistical survey on services conducted in 1999; (2) estimates are made for imports of some energy goods that are not included in the customs data; (3) data on the number of foreign arrivals and resident departures, the countries of origin and destination, lengths of stay, and cost of transportation, hotels, meals, and incidental costs are collected to estimate the total amount of receipts and payments related to travel; (4) data on compensation of employees are estimated based on migration patterns of Armenians; (5) data on technical assistance in the form of services and current transfers from the Armenian Diaspora are estimated based on occasional inquiries; (6) data on migrants' transfers are estimated based on information from

the State Committee of Real Assets Cadastre. No seasonal adjustments to data are made. Data management procedures are computerized, based on Excel spreadsheets, and ensure edit checks that have been developed to identify coding (country and commodity group codes) and other errors (unusually large fluctuation in average price/volume trends) in the trade data. However, data management procedures are not fully documented. Bilateral data reconciliations have been conducted for selected commodity groups since 1996 with the following countries: Georgia, Ukraine, and the Netherlands. Data discrepancies are analyzed thoroughly and the results are used to inform the compilation process.

E. Serviceability

21. Data for the **national accounts** aggregates are published in sufficient detail to allow users to make rough cross-checks in order to validate the estimates. The NSS is coordinating an effort to ensure consistency in classification and methodology (where applicable) between data compiled by different agencies and for different purposes. The NSS publishes brief descriptions of concepts and methods in each monthly issue of *Socio-Economic Situation in the Republic of Armenia*, the *Statistical Yearbook, Balance of Payments of the Republic of Armenia* (twice a year), and *Foreign Trade of the Republic of Armenia* (annual). More detailed descriptions of methodology for selected statistical series are available upon request.

22. **Government finance** data are disseminated in a framework that is broadly consistent with the *GFSM (1986)*, although no documentation on concepts and methodology is disseminated. Data on the general and central government operations are disseminated with some detail to allow cross-checking to validate their internal and intersectoral consistency.

23. **Monetary** data are published according to a balance sheet framework of the depository corporations survey, which ensures the basic accounting equivalency of net foreign assets plus net domestic assets to total liabilities plus capital accounts. When relatively large fluctuations occur in the accounts and monetary aggregates due to random effects, they are thoroughly explained in statistical publications. Data revisions and any deviations from the internationally accepted compilation practices and methodology are signaled and explained in footnotes to the tables. Consistent time series are available for a reasonable period of time. Detailed monthly balance sheet data for the CBA and the other depository corporations are also disseminated allowing for cross-checks that provide assurances of reasonableness.

24. **Balance of payments** data are published in sufficient detail to allow users to make rough cross-checks in order to validate the estimates. The financial account transactions in the balance of payments statistics are broadly consistent with the monetary and financial statistics. To the extent possible, financial flow data are reconciled with changes in the international investment position. The balance of payments items comprising external debt data are consistent with the corresponding debt stocks. Data on external government debt service are reconciled against the relevant expenditure items of the fiscal data.

25. **Social and demographic** data are disseminated in some component detail and time series format and permit users to roughly assess the reasonableness of data. Definitions of population, birth and fertility rates, and mortality indicators are disseminated.

F. Accessibility

26. With a few exceptions, such as the national accounts, the NSS does not publish advance release calendars. However the release schedule of its statistical publications follows a well-established pattern. Preliminary estimates of main aggregates are circulated to government ministries prior to publication. Once finalized, the official statistics are released simultaneously to all users through press releases, regular publications, such as the monthly *Socio-Economic Situation in the Republic of Armenia*, and the Internet.

27. The MFE does not disseminate government operations statistics on its own, but is planning to do so through its own website, which is under development. Detailed government operations quarterly data are disseminated through the NSS quarterly publication, which however includes only very limited explanatory notes on the data disseminated. Limited data on the government operations are also disseminated electronically by the NSS. The MFE has disseminated detailed data on Armenia public debt as of end-2000, including a breakdown of interest and amortization schedules.

28. Although the CBA does not disseminate an advance release calendar, financial sector data are disseminated on a regular schedule. The Board of the CBA has adopted a special resolution on the timetable of the CBA data releases. The resolution defines in detail the timeliness and periodicity of all CBA statistical publications. All data are released simultaneously to the public through press releases, in statistical publications or on the CBA website. As regards metadata availability, the compilation methodology for the financial sector data is explained in the *Framework of Compilation*, published in a special press release of the CBA Board decisions. The CBA plans to issue a *Manual on Compilation of Money and Banking Statistics in Armenia*, describing in detailed the methodology and procedures for compiling monetary and banking statistics.

29. The NSS publishes brief descriptions of concepts and methods in each issue of the monthly *Socio-Economic Situation in the Republic of Armenia* and the *Statistical Yearbook*. More detailed descriptions of methodology for selected statistical series are available upon request. The NSS publishes an analytical note twice a year on balance of payments for the relevant period with commentaries on important developments. Classification of educational levels follows *ISCED-97* definitions, but there are no completely published descriptions of data collection methods or processing practices

An Approach for the Assessment of Data Quality

Statistical infrastructure	The institutional and legal foundation for the collection, compilation, and dissemination of macroeconomic statistics.
Conceptual framework	The body of features relating to concepts, definitions, coverage, classification, sectorization, and other aspects of macroeconomic statistics that is intended to provide the analytical basis for the compiled statistics.
Source data	The nature of the source data and the manner in which they are processed.
Statistical techniques	The body of statistical estimation, adjustment, and other methods, together with methods of ensuring arithmetic precision, as applied to data collection and processing.
Serviceability	The features relating to requirements of users in terms of general usefulness, consistency, and revisions policy and practices.
Accessibility	The availability of data and metadata to users.